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Editorial

The Editorial Board of International Journal of Research in E-learning (IJREL) is privileged to present a new volume 8(1) 2022. The content of the current issue was divided into three chapters. The first is devoted to Research on Distance, Online and Blended Learning in Particular in the COVID-19 Time. The second contains articles concerned with Innovative Methods and Technology in Education. The third concerns Theoretical, Methodological and Practical Aspects and Psychological Determinants of ICT and E-Learning in Education.

The first part of the volume Chapter I: "Research on Distance, Online and Blended Learning in Particular in the Pandemic Time of COVID-19", contains three articles.

The first article in the volume is titled "Remote Teaching of Philological Specialisations in the Light of Experiences During the Pandemic - in the Eyes of Students and Teachers". The Author of the text – Halina Widła from Poland compares the results of the research conducted at the end of the winter semester 2019/2020 with the results from March 2021 as an extended teaching for the validity of extending the teaching offer for modern language studies by including innovative solutions using distance learning methods and techniques, with additional comments at the end of 2021. The study presented the general trend, described in this research. There are considerable differences in the opinions of students and lecturers depending on the nature of the classes.

The international team of Eugenia Smyrnova-Trybulska from University of Silesia in Katowice, Poland, Iryna Sekret from STARTINFORUM International Project Management and Business Consultancy, Turkey, Nataliia Morze from Borys Grinchenko Kyiv University, Kyiv, Ukraine, and Elspeth McKay from Cogniware, Cogniware.com.au, Melbourne, Australia, present a Case Study on Evaluation of the MOOCs Quality and Its Effectiveness for Teachers' Training in the Field of Digital Competences and Their Use in Education. This study presents the research results obtained after the assessment of the digital competences of

the pre-service and in-service teachers after their completion of the MOOC "Contemporary ICT Tools and Innovative Methods of Creative Education". The paper provides a short description of the experimental MOOC "Contemporary ICT Tools and Innovative Methods of Creative Education", requirements to pass the course and analysis of the learning outcomes through the students' self-evaluation and feedback. The MOOC was developed in Polish and English within the project "MOOCs for Sciences of Education" and hosted on the Polish MOOCs platform Navoica (www.navoica.pl) within the framework of the competition, initiated by of Ministry of Education and Science of Poland and National Center for Research and Development (NCBR – Narodowe Centrum Badań i Rozwoju) on "Direction to the MOOC". Keeping in mind that Massive Open Online Courses (MOOCs) have developed into the mainstream for universities, education reformers, and start-up companies, especially in the time of COVID-19, the study is believed to contribute to the development of the MOOC pedagogy, and address the question of the MOOCs effectiveness for students' learning outcomes and satisfaction, which was aimed at enhancing teachers' digital competencies and their use in education.

The impact of support for language development in online classes at Gdansk University of Technology during the COVID-19 pandemic are presented in the article by Iwona Mokwa-Tarnowska from Gdansk University of Technology and Viviana Tarnowska from University of Sussex, Great Britain. They emphasize that the COVID-19 pandemic has caused a significant disruption to education. To adapt to new conditions, academics immediately had to restructure their teaching programmes. Not all of them, however, had sufficient skills to be able to deliver effective online classes. Yet, to achieve the best effect, to develop an e-learning environment in which they could deliver high-quality teaching that would meet various language needs of their students, they needed general and specific support mechanisms. The former relates to the technological aspect, that is the functionalities of available tools and the affordances they allow. The latter comes from the course structure, educational material, teachers and students. With strong support provided by certified peers, the English teachers at Gdansk University of Technology managed to engage their students in interactive, collaborative and active learning. The ideas shared in the paper are supported by qualitative and quantitative research conducted in 2020 and 2021.

The second part of the volume Chapter II, devoted to Innovative Methods and Technology in Education consists of two texts.

The study "Teachers in Distance Education During the COVID-19 Pandemic. Context of Mainstream, Inclusive and Special Education", is presented by Edyta M. Nieduziak from University of Silesia in Katowice, Poland. The aim of the article is to present the results of research on distance education conducted during the

COVID-19 pandemic in the Silesian Voivodeship (Poland). The research focuses on the work of teachers in mainstream schools and those who work with students with special educational needs. The author presents the difficulties indicated by teachers, the support they experience and the solutions they apply, especially to students with special educational needs. The study was based on a quantitative paradigm, using a diagnostic survey method and online survey questionnaires. 958 teachers representing primary and secondary schools participated in the study. The teachers indicated the difficulties of distance learning such as the inability to monitor the progress of students, problems with the organization of group activities and the use of activating methods in teaching. Students with disabilities accounted for about 36% of those students identified by teachers. The teachers working with students with special educational needs experienced technical problems on the part of the student and psychophysical problems resulting from the specific condition of the student with special educational needs. The results of the research and the recommendations were presented to the school authorities in order to improve the quality of distance education and raise the standards of teachers.

The article "Distance Education Along with Pedagogical and Psychological Assistance for Special Educational Needs (SEN) Students on the Example of the City of Gliwice", was prepared by Anida Szafrańska from University of Silesia in Katowice, Faculty of Social Sciences. She stressed that during the COVID-19 pandemic, students with special education needs, including students with disabilities, found themselves in a particularly vulnerable position. What raised concern was the organization of remote education for this group of students, the implementation of tasks in the field of psychological and pedagogical assistance, and the effective use of recommendations contained in documents (opinions, decisions on the need for special education, or individual educational and therapeutic programmes). The period of the pandemic and closing schools posed new challenges for teachers in organizing education for this group of students and meeting their special and specific educational needs in the online mode. The analyses presented in the article refer to the organization of remote education for students with special educational needs (SEN) and the organization of psychological and pedagogical assistance.

Chapter III titled "Theoretical, Methodological and Practical Aspects and Psychological Determinants of ICT and E-Learning in Education" includes three articles.

The first article devoted to distance learning at pedagogical faculties of universities in the Czech Republic, is prepared by Lucie Zormanová. Her study focuses on the topic of distance education at pedagogical faculties of universities in the Czech Republic during the time of COVID-19 and tries to map how theoretical and practical teaching was implemented during the Coronavirus pandemic. Based on the research goal, the following research questions were formulated.

RQ1: Which tools were used to enable distance education at pedagogical faculties in the Czech Republic? RQ2: How were the defences of qualification theses and the state final examinations carried out? RQ3: How was the practical pedagogical training implemented? To answer the individual research questions, a content analysis of information provided on the websites of individual faculties and in the reports published on the Internet in the course of theoretical and practical teaching at pedagogical faculties in the Czech Republic during the Coronavirus pandemic was used. The research found that distance teaching took place using various tools, frequently mentioned were Moodle LMS, MS Teams, Zoom, Google Classroom or Meet. Practical subjects, which cannot be fully realized online, were taught in a full-time form in blocks at the end of the semester. The exams also took place online, the MS Teams or Zoom platform was used for oral examinations, and the Moodle LMS was used for tests. The differentiated and comparative results received in the several various pedagogical faculties were presented and analysed.

"The Role of Emotions in the Context of Shaping the Attitudes of Academic Teachers Towards E-Learning" is presented by Krystian Tuczyński from University of Rzeszow, Institute of Pedagogy. The article attempts to identify emotions displayed by university teachers towards the adoption of e-learning solutions in the academic environment. The article is divided into four main parts. Part one is a description of one of the key components of human attitude, which is emotions. The second part describes the research methodology and defines the original research tool, which was used to measure the emotions manifested by academic staff in the use of e-learning. The third part is the analysis of the research results, which presents detailed summaries of each aspect of e-learning. The final section summarizes the research findings and makes recommendations for higher education institutions in the field of distance learning in the academic community.

The last article, prepared by Daria Becker-Pestka from WSB University in Gdańsk, is devoted to E-learning for prisoners, including experience from Sweden, Norway, Poland, Finland and Germany. In the article a discussion on the use of e-learning in education of convicts is presented. The topic discussed by the Author is connected with the fact that the use of new media in education at present has become a common solution applied also to educate inmates. E-learning is a current form of education and vocational training. The aim of the article is also to describe the use of e-learning in European countries such as Sweden, Norway, Poland, Finland and Germany. These countries were selected for the analysis because they appreciate modern technologies in penitentiary work. They change and develop the solutions. The experience in the use of e-learning in penitentiary work with inmates in Sweden, Norway, Poland, Finland and Germany is different. The aim of the article is also to show how modern technology can be applied in working with convicts. E-learning becomes a tool used for preventing exclusion.

Development of various technologies makes it possible to support convicts and prison staff members in the process involving correctional activities. Coherent and efficient activities come as a challenge to those who perform them and to the society; however, these activities support the process of social rehabilitation.

We hope that studies and solutions in the present IJREL volume will be inspiring and encourage reflection on how to manage the increasing demand for online education in the current situation.

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I. Research on Distance, Online and Blended Learning in the Pandemic Time of COVID-19

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Remote Teaching of Philological Specialisations in the Light of Experiences During the Pandemic – In the Eyes of Students and Teachers

Abstract

The article compares the results of the research conducted at the end of the winter semester 2019/2020 with the results from March 2021 as an extended teaching for the validity of extending the teaching offer for modern language studies by including innovative solutions using distance learning methods and techniques, with additional comments at the end of 2021. The opinions of 50 second-year students on the usefulness and effectiveness of IT innovations in lectures, seminars and practical language learning exercises were surveyed. The research showed that the pandemic situation verified students' perceptions of the advantages and disadvantages of remote working. The data are also commented on by lecturers. It turns out that in all three types of classes, the opinions of students and staff range from moderately neutral at the beginning of 2020 towards teaching innovations, through more sceptical in March 2021 after the large-scale introduction of e-learning, to more favourable towards online innovations after a year of experience gained in 2021. Despite this general trend, there are considerable differences in the opinions of students and lecturers depending on the nature of the classes.

K e y w o r d s: language studies, remote teaching, pandemic

The first reports on various aspects of teaching in the pandemic period – a challenge for teachers and learners – have been published. At the end of 2020, it was mainly the situations faced by primary and secondary schools as a result of the pandemic that were diagnosed. In Poland, on the one hand, there were papers describing experiences, feelings and problems of teachers and students, and on the other hand, analyses of the effectiveness of working methods and available tools. The first nationwide study conducted by Digital Centre (Centrum Cyfrowe 2020, LIBRUS 2020) already revealed gaps and needs in the field of remote education, and outlined the prospects for the development of distance learning in Poland. An online training programme bringing together the community of teachers and carers – *EduAkcja* – published a work edited by Jacek Pyżalski (2020), consisting not only of texts diagnosing education in the era of the pandemic, but also of chapters containing proposals of pedagogical interventions in the existing situation. The University of Silesia has also produced reports on remote education in the Silesian Voivodeship. The latest report on remote education during the SARS-CoV-2 pandemic as perceived by students, teachers and parents has been prepared on the basis of the research conducted by a team led by Ewa Jarosz and Dagmara Dobosz, Marcin Gierczyk and Edyta Nieduziak (cf. Grzywna, Hofman-Kozłowska, Stępień-Lampa 2021).

The same trend can be seen in many countries. Armand Doucet, Deborah Netolicky, Koen Timmers and Francis Jim Tuscano have produced the report concerning distance teaching methods and techniques recommended by the federation of teachers' trade unions *Education International* and by UNESCO (Doucet et al., 2020). Reports are also being prepared on teaching at university level. A collection of articles from 2021 in three issues of the 18th volume of the periodical *Revue internationale des technologies en pédagogie universitaire* (International Journal of Technologies in Higher Education) undoubtedly constitutes an extremely thorough coverage (see also Poellhuber at al. 2021).

All the important issues in these reports relate to general teaching principles and the new challenges revealed by the pandemic situation. It is now time to focus the analyses on specific types of schools and on (the nature of) individual subjects.

Among the most recent reports on language education, analyses by an international English-Italian-Russian-German team (cf. Radić, Atabekova, Freddi, Schmied 2021) as well as articles prepared in an English-speaking circle (Plutino, Polisca 2021), *Languages at work, competent multilinguals and the pedagogical challenges of COVID-19* are noteworthy. Webinars are a valuable complement to the reports. Suffice it to mention *The future of language education in the light of Covid. Lessons learned and ways forward'* at the initiative of the European Centre for Modern Languages of the Council of Europe in April 2021 in Graz (ECML 2021). The meetings were aimed at exploring the extent to which experiences

gained in new realities can bring about beneficial, permanent changes in language teaching and learning.

The research presented in the present text also focuses on foreign language teaching in philological studies, using the specialisation of *Romance Philology* as an example. However, apart from analysing the general trend, the research focuses on the question of whether and to what an extent the opinions of students and lecturers differ depending on the type of a foreign language classes taught.

1. Conditions and nature of the research

Modern language studies differ in specific ways from other studies. They belong to the humanities and are based on communication in exolingual conditions simulating the real world. In addition to the practical study of a foreign language (cf. Council of Europe, CEFR 2001), the student acquires knowledge of linguistics, literature and culture, and general knowledge about the given language area. From this point of view, traditional forms of studying on campus in a face-to-face mode, enabling a constant exchange of ideas, seem attractive and effective. On the other hand, in the Internet era, it is impossible to cut oneself off from the opportunities offered by the modern world. The question is not whether, but when and how to use them. In the field of foreign philology, we deal with Content and Language Integrated Learning (CLIL), where substantive content is presented in a foreign language that is constantly being perfected by students.

This additional challenge opens up various teaching possibilities. The opportunity to fill individual gaps in content and language thanks to the possibilities offered by the Internet should not therefore be limited to the student's own efforts. Online tools provide scope for the teaching staff to ensure that the level of teaching can be evened out, especially in the first years of study. So, I posed a research question (**RQ1**) whether the type of subject taught online would affect the effectiveness of the teaching. Therefore, in January 2020, I conducted the research at the University of Silesia aimed at collecting the opinions of "Romance Philology" students of various specializations on the degree of approval for working with the use of distance learning techniques and methods, depending on the type of classes conducted (see also Półtorak, Gałan 2019). I started off with the assumption that the diversity of these techniques and methods does not allow for hasty generalization. So, I put forward the first research hypothesis (**H1**) that, in the eyes of students, the usefulness of the solutions will depend on the specific teaching aims and ways of conducting classes (cf. Widła 2021a).

In 2021, I had a chance to verify this hypothesis in the pandemic situation, when we had all been working remotely for a year. Paradoxically, the traumatic experience of the pandemic, forcing us to immediately put theory into practice on an unprecedented scale, provided an opportunity to look in detail at various aspects of online teaching and to develop solutions that we would otherwise have waited a long time for (cf. Widła 2021b, see also Lebrun 2011).

After completing the results of these comparative studies of students' views I extended the research question to the point of view of the persons conducting the classes (**RQ2**). After all, it is the teachers – the lecturers and persons conducting the exercises – who will have to look at the opinions and postulated changes, juxtaposing them with their own experience of the possibility of achieving all the teaching goals set for themselves.

The second research hypothesis (**H2**) assumes that, in the eyes of persons conducting the classes, the usefulness of Internet solutions will depend on the specific teaching aims and ways of conducting classes.

2. Course of the Research

A group of 50 second-year bachelor's degree and master's degree students of Romance philology at the University of Silesia were surveyed in January 2020. Based on the assumption that we are dealing with the generation of so-called digital natives (Prensky 2001, 2010), we should suppose that they will have expectations linked with the use of methods and techniques of distance learning on a larger scale than before.

A parallel research was conducted into opinions on three types of classes: lectures, practical language learning exercises, and diploma seminars (in Poland, these are small classes aimed at helping students to choose and write their bachelor's/master's thesis, during which students make presentations and are involved in discussions). Students were asked their opinions on the implementation of the following innovations in the three mentioned types of classes: computer-aided classes, *LdL* classes – learning through teaching (Martin 2004, Grzega, Schöner 2008), and virtual classrooms.

Thus, in total, the respondents considered nine potential teaching solutions in terms of their usefulness and effectiveness in philological studies. It should be added that the elements of these types of solutions had already been used in the classes, but only sporadically. This is important, as the research sought opinions on forms of work that were not unfamiliar to students, but on a larger scale (Widla

2021a). At the time, no one could have predicted how much reality would change in a few months and that all these solutions would find immediate mass application in practice.

The students were asked the following questions, and asked to justify their decision, taking into account the strengths and weaknesses of the mentioned didactic solutions:

1) Are you in favour of attending lectures/seminars/practical exercises in the so-called flipped classroom?
2) Are you in favour of teaching/ using distance learning methods and techniques during lectures/seminars/practical exercises?
3) Are you in favour of lectures/seminars/practical exercises in a virtual classroom?

The March 2021 study was also conducted on 50 students in their second year of a bachelor's and master's degree in *Romance Philology* at the University of Silesia. The first-year students had never worked in the on-site (face-to-face) system and so a comparison of systems would not have been possible. We were not able to copy the 2020 questionnaire completely, as the survey had to be adapted to the current conditions. However, this did not stand in the way of verifying views where this was feasible (cf. Widła 2021b: 187).

Students were asked a more general question and asked to justify their decision, taking into account the strengths and weaknesses of each choice:

1) Are you in favour of lectures in a traditional or a virtual classroom?
2) Are you in favour of seminars in a traditional or a virtual classroom?
3) Are you in favour of practical foreign language learning exercises (as part of so-called integrated skills) in a traditional or a virtual classroom?

Compared to the first survey, the students had only 3 options to choose from, without division into specific choices within the approach taken. Students marked the given options in tables and then answered an open-ended question, indicating the strengths and weaknesses of particular approaches.

In the fourth quarter of 2021, the results of the survey were presented to persons conducting the three types of classes (various subjects), who were asked open-ended questions in face-to-face interviews about their attitudes to student opinions. Amongst persons asked to indicate the weakest and strongest aspects of remote teaching within the subject they were teaching, 14 persons were conducting practical exercises, 13 persons were giving lectures and 8 persons were conducting diploma seminars. It should be added that some of the respondents were conducting various types of classes. Amongst the 14 persons responsible for exercises, 7 were also giving lectures or conducting exercises for lectures, and 2 were conducting seminars. In turn, 6 supervisors of diploma seminars were also giving lectures.

3. Discussion of results of the questionnaires

In the first step, data collected from students in the two studied periods were compared. (They have been included in summary charts). Each of the three parts of the chart concerns one type of class that was subject to innovation – in other words, a comparison of classes in the traditional system and the innovative (i.e. remote) system – the virtual classroom. Then the answers to open questions (justification of the decision) were analysed. The conclusions were supplemented by the opinions of teachers conducting the given type of classes.

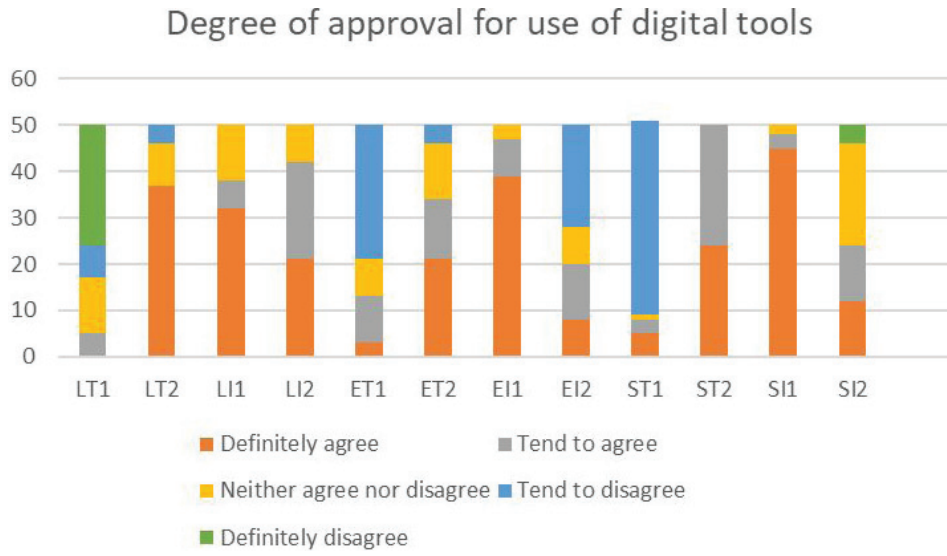


Figure 1. Visualisation of survey data (responses) collected according to a Likert scale, on the degree of approval for use of digital tools depending on the type of activity: lectures (L), exercises (E), seminars (S) in the traditional (T) vs. innovative system (I). (1 – January 2020, 2 – March 2021)

3.1 Lectures in the eyes of students

Students perceive the lecture as the easiest and most convenient type from the participant's point of view, irrespective of face-to-face or virtual participation. The traditional form of working with a large group of students based on presenting views ex cathedra – the cornerstone of university teaching since the Middle Ages – is not drastically different from online lectures. Lecture attendees prefer passive, individual learning, limiting interaction as much as possible. Surprisingly, replaying pre-recorded lectures at any given time does not gain general approval;

the possibility of following lessons in real time was advocated by 82% in 2020 and 76% in 2021. The synchronous mode of work (learning) is thus considered important – leaving the participant rather passive.

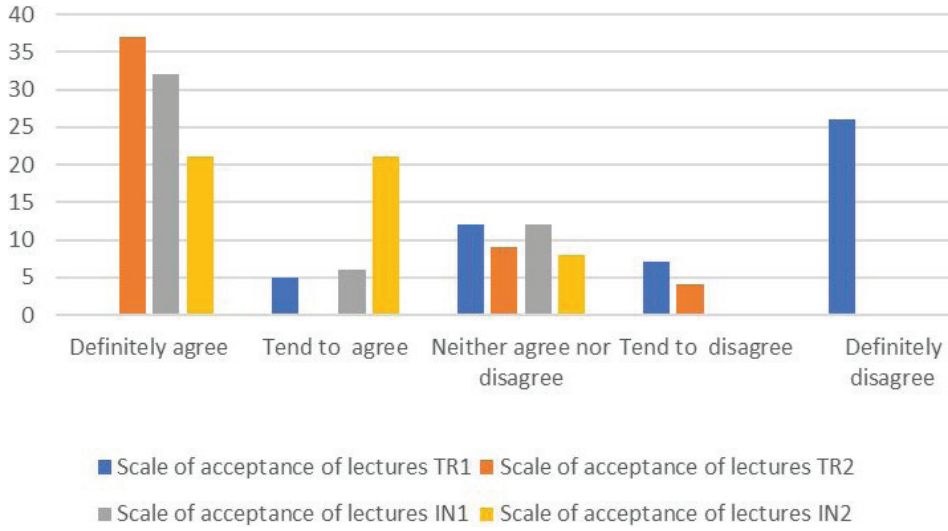


Figure 2. Visualisation of survey data (responses) collected according to a Likert scale on the acceptance of the use of digital tools in the classroom during a lecture: traditional (TR) vs online (IN). (1 January 2020 – 2 March 2021)

According to the respondents, reading lecture notes made available online allows you to learn individually and at your own pace, which saves a lot of time. Such online teaching materials are not limited to the traditional form, but may also be available as presentations, videos or files on distance learning platforms. According to the respondents, it is important that they are made available after the meeting (lecture), but the meeting (lecture) itself must be held in a synchronous mode. The possibility to watch pre-prepared recordings and take notes in an asynchronous mode – which is theoretically more convenient – does not attract much interest. Participants in virtual classes in 2021 enjoy lectures in real time similarly to the period before the pandemic. Those who cannot participate in a synchronous virtual classroom but only in an offline lesson would prefer to attend class sessions in accordance with a fixed schedule, asking questions directly to the teacher or via chat. The 2020 survey found that, according to the respondents, the fact that lectures can take the form of massive open online courses (MOOCs) reinforces attitudes that are limited to passively receiving content (cf. Anders 2015). Despite attractive forms and techniques of work such as multimedia lectures illustrated

and enhanced by animations, packages of materials for self-study, sets of interactive exercises, tasks, tests and quizzes for self-evaluation, the popularity of these solutions is decreasing. At this point, it is worth quoting Alain Roberge, whose research shows that French "MOOCs" have turned out to be more interesting for qualified workers who want to improve their skills than for students. MOOCs (massive open online courses) based on the acquisition of academic knowledge are gradually disappearing. Thus, the era of popularity of online lectures that can be replayed at any time is coming to an end (Roberge 2017, see also Corvet-Biron 2015). However, this does not mean that they have lost all their supporters (cf. Widła 2021b: 191).

3.2 Lectures as perceived by staff

The lecturers unanimously confirm that they do not feel that there is a big difference in the way of presenting content or in the amount of time needed to convey a particular piece of knowledge. They also consider that they do not see a significant difference in educational results. They admit that traditional lectures are more pleasant, but online lectures are more convenient. However, there are questions about keeping the attention of attendees throughout the whole class (cf. Jean, 2021). They are aware that students' opinions are divided on this issue. They do not see any obstacles to broadcasting lectures held at the university for those who cannot attend.

Comparing the results of the surveys, I conclude that it would be ideal to organise bimodal lectures at philological studies, namely delivered in class and streamed in real time over the Internet.

3.3 Seminars in the eyes of students

In the virtual system, the (diploma) seminar often resembles a SPOC (Small Private Open Course). Of course, there can be no question of abandoning the old university tradition; students tend to expect hybrid studies. During seminars, many activities can be carried out in the form of individual consultations, which can easily be done online. The form of work with the whole group varies depending on the topics covered in the seminar, such as purely theoretical activities, discussions, reports from various stages of work, participant presentations, etc. In contrast to the strong emphasis on all possible forms of interaction during practical activities, seminar participants rarely feel such a need. An undoubtedly sad discovery concerns the egoistic attitude that is limited to the goal of solving one's own problem. This leads to the paradoxical situation of "private lessons given by a lecturer/tutor". When discussing the issues surrounding a bachelor's thesis and especially a master's thesis, one notices absences during the presentations of other class participants. Thus, some people perceive seminars as classes dedicated only

to their specific objective and only enriching general knowledge in this area. The discovery of such a possibility has therefore probably reinforced the enthusiasm of some towards innovative practices; some of them are enthusiastic about innovative practices because it helps them to achieve their egoistic goals, but it also enables some of them to avoid the egoistic practices of others.

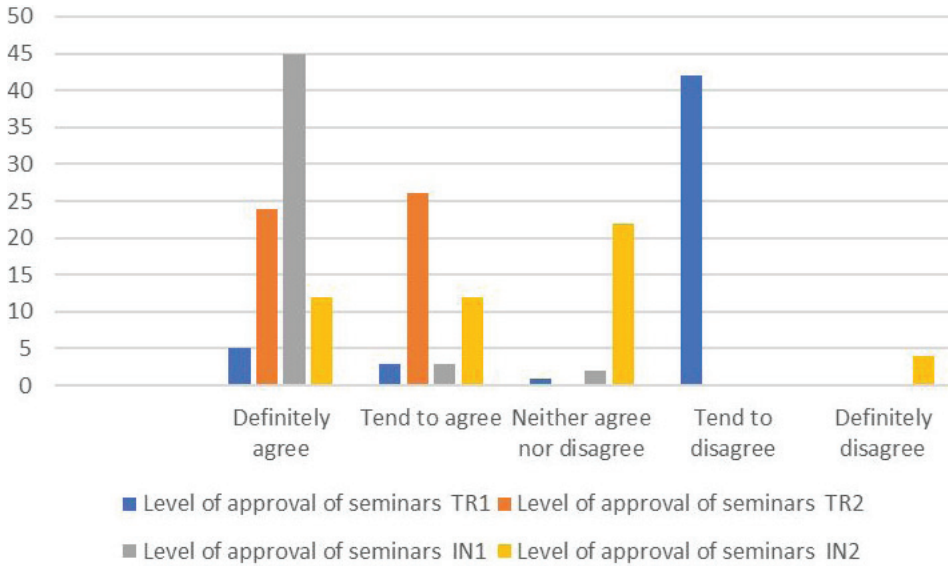


Figure 3. Visualisation of survey data (responses) collected according to a Likert Scale on the use of digital tools during seminars: traditional (TR) vs. online (IN). (1 January 2020 – 2 March 2021)

In the eyes of the respondents, attendance does not seem mandatory for 90% of seminar participants and should be reserved for forms that are conducive to traditional collaboration (cf. Widła 2021a, 2021b: 192). Experiences gained during two semesters of learning using the flipped classroom approach (Martin 2004, Grzega, Schöner 2008, Fiorella, Mayer 2013, Widła 2020) have shown that taking into account individual student expectations in the consultative mode is extremely important. In 2020, the majority of participants in diploma seminars favoured an innovative approach to online work. Currently, students are taking a more 'cautious' approach.

3.4 Seminars as perceived by staff

The biggest problem, as unanimously pointed out by the lecturers, is to motivate the seminar attendees to devote due attention to the presentations of progress and achievements by other attendees.

This is a big challenge for the supervisor – not so much logistically as didactically. The lack of interest in other people's achievements and solutions indicates an immature and fanatically pragmatic approach to studying. It does not matter much whether the classes are held in the traditional system or online. Lecturers use a variety of strategies. Some state that physical attendance at traditional classes, which forces attendees to listen to others, increases interest in the case of interesting presentations. Others draw attention to the possibility of raising the level of scientific discourse – which motivates students not only for cognitive reasons, but also for purely pragmatic ones, connected with better preparation for the defence of a master's thesis. Both mentioned elements work better in the traditional formula.

3.5 Practical language learning exercises as perceived by students

I started our study by comparing the strengths and weaknesses of practical exercises in the compared periods.

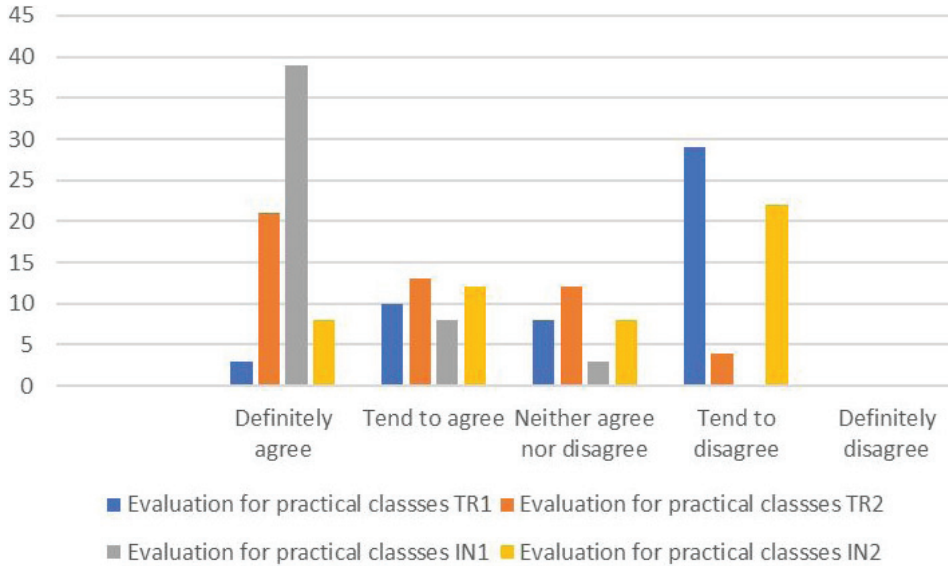


Figure 4. Visualization of survey data (responses) collected according to a Likert scale, on the level of approval for using innovative digital online tools during practical classes: TR – traditional vs IN – innovative). (1 –January 2020, 2 – March – 2021)

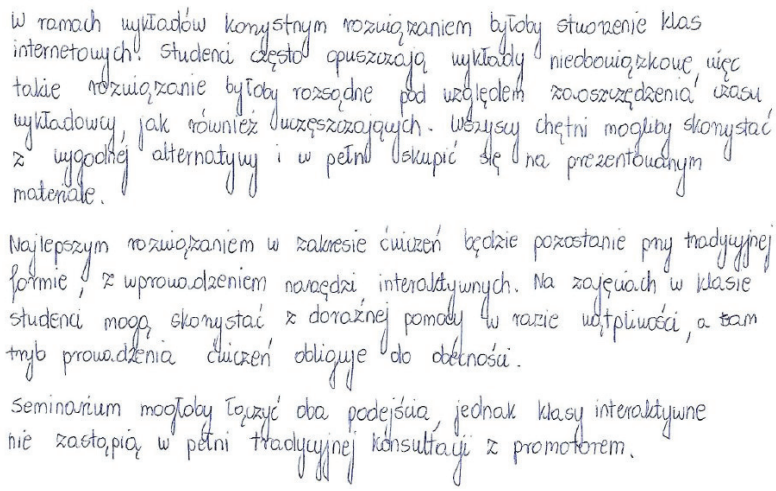
Practical language learning exercises seem on the surface to be less complicated (in general) for the students than monographic lectures or diploma seminars.

Undoubtedly, the degree of difficulty of the exercises seems to be the lowest compared to the other types of classes. However, in this paper, we evaluate the practical exercise classes not from the point of view of their substantive content, but from the point of view of the didactic effectiveness of the practical language exercises conducted online. These exercises consist of several modules devoted to the reception and production of the spoken and written language. All of them should be correlated by a group of lecturers, for which the class coordinator has an overall responsibility.

In 2021, the respondents noted the advantage of on-site (face-to-face) exercises over remote ones. As many as 75% appreciated the value of direct contact with the person conducting the class and the group as a whole, suggesting that the Internet should only be treated as a reservoir of educational resources supporting the classes. Confrontation with the reality of 2021 resulted in a more favourable outcome – with only 28% of negative evaluations. At the same time, a lot of criticism was made by the persons conducting the classes in direct interviews. Before the pandemic, according to 76% of respondents, it was more appropriate to "reserve for the virtual space the role of information storage, while at the same time setting aside valuable working time in language classes for activities simulating interactions in the natural environment" (cf. Widła 2021b: 189).

In 2021, although the proportion of negative opinions of potential beneficiaries of these courses slightly decreased in relation to traditional courses (from 32% to 28%), the percentage of persons considering moving the exercises online changed thanks to the undecided, and those who, despite the weak points of this solution, saw certain advantages in it. According to the respondents, online course participants often face organisational difficulties during mutually correlated classes. On the one hand, distance learning platforms and collaborative software (groupware) allow various functionalities, such as working in any given team or in an individual mode, but, on the other hand, organising and planning a live event takes more time than in a conventional mode.

The second problem reported by students relates to the management of ongoing classes. Conversation becomes a real challenge; online conversation kills the spontaneity of expression. Sometimes several people respond at the same time, so the lecturer is forced to filter the flow of words, determining the order of speaking. Taking into account the different levels and expectations of students is even more difficult. On the one hand, teachers try to create conditions for more advanced learners to further deepen their knowledge; on the other hand, they feel obliged to spend more time with those who have difficulties. It is much easier to meet these somewhat conflicting needs in traditional settings.


W ramach wykładów korzystnym rozwiązaniem byłoby stworzenie klas internetowych. Studenci często opuszczają wykłady niedbowiązkowe, więc takie rozwiązanie byłoby rozsądne pod względem zaoszczędzenia czasu wykładowcy, jak również uczęszczających. Wszyscy chętni mogliby skorzystać z wygodnej alternatywy i w pełni skupić się na prezentowanym materiale.

Najlepszym rozwiązaniem w zakresie ćwiczeń będzie pozostanie przy tradycyjnej formie, z wprowadzeniem narzędzi interaktywnych. Na zajęciach w klasie studenci mogą skorzystać z doraźnej pomocy w razie wątpliwości, a tam tryb prowadzenia ćwiczeń obligyje do obecności.

Seminarium mogłoby łączyć oba podejścia, jednak klasy interaktywne nie zastąpią w pełni tradycyjnej konsultacji z promotorem.

Figure 5. A fragment of the answer by a second-year student of French (January 2020):

As part of the lecture programme, a beneficial solution would be to create online classes. Students often miss optional lectures, so such a solution would be reasonable in terms of saving time for the lecturer as well as the students. All those willing would be able to use the convenient alternative and fully concentrate on the presented material.

The best solution for exercises would be to stay with the traditional form, with the introduction of interactive tools. In the classroom, if students have doubts, they can benefit from ad hoc assistance, and there the mode of conducting exercises obliges [students] to be present.

The seminar could combine the two approaches, but interactive classes will not fully replace the traditional consultation with the supervisor.

The opinions expressed in the responses to the open questions directed at students in 2021 have evolved significantly in relation to the expectations expressed in 2020 regarding innovative digital practices. Students were expected to collaborate and interact in the (online) language classroom while at the same time maintaining the pace of learning and the pace of feedback, which proved more difficult than it seemed in theory. In particular, coordination of (online) work was identified as the most difficult challenge. There is the problem of adapting to the new style. This includes coordinating the work of persons responsible for teaching the pronunciation of foreign language learners at the phonetic and prosodic level, oral exercises (reception and production) and written expression (reception and production).

Implementing conceptual and organisational changes of this magnitude exceeded realistic possibilities. According to 52% of the respondents, the functionalities available online, such as the possibility to organise work in any given group, meetings on general and individual channels, chats, the possibility to send and share files, screen sharing or exchange of recordings and notes, the possibility to

access a virtual whiteboard during a chat or meeting, do not really alleviate the impression of chaos. It should be noted, however, that in 2021 the concerns of virtual class members working synchronously diminished significantly. It seems that the conclusion of 2020 that „students, repeating their desire to learn in an organised, planned, and coordinated way, based on rather traditional assessment criteria, fear investing too much time and effort at the expense of regular language progress" remains only partially valid (cf. Widła 2021a).

3.6 Practical language learning exercises as perceived by the lecturers

Teachers conducting classes unanimously stressed the positive difference in work comfort after a year of training in distance learning methods and techniques. Such training was organised in almost every unit. An emphasis was placed on coping with remote learning platforms, MS Teams, and instant messaging. Tutorial videos were produced that were user-friendly for novice users of the platforms. There were forums for the exchange of interesting experiences. However, no one trained teachers in subject-related didactics. Therefore, they adapted their classes to the new conditions without methodological support.

Numerous remarks were made by teachers about difficulties resulting from the lack of possibility of observing students' reactions to the way a problem was explained (online). Those teaching alternately in the traditional and online systems said that they cope with it in the following way. They make use of the experience of working with a stationary (face-to-face) group, and transfer (apply) it to online classes. Others, who have taught a subject for several years, refer to previous experience and observation of student reactions. Debuting lecturers who have started their teaching practice with online exercises feel lost, and state that trying to guess the audience's reactions tires them out.

The conclusions stemming from this research are moderately optimistic; the online solution should be applied, but when there is no other option. Traditional practical exercises in exolingual settings work better. It is worth mentioning a fact without notice of the students that the size of the groups, although small (about 12 persons), is still too large in conditions of practical online learning. Teachers talk about optimal results when working with four people. Online language learning will therefore work best in a personalised course environment. Undoubtedly, from the lecturers' point of view, coordinated online classes are a very great challenge, greater than traditional methods, which were not easy to apply anyway. Students, despite a change in attitude and consent to virtual classes, are afraid of chaos, and teachers point to the difficulty of evaluation. In 2021, teachers were more willing to conduct synchronous classes using the task-based method, which is much more beneficial in the case of practical language learning. It works especially well for conversations in small groups, e.g. in the so-called rooms on MS Teams or on the

Moodle platform. They notice quite a big difference between reception and production exercises. It is effective in developing reception skills, both written and oral, but production skills cause greater difficulty. Meanwhile, as Zofia Chłopek emphasises, 'production enables the personalisation of linguistic material much better than reception (i.e. using it to describe one's own reality, to express one's own thoughts), which induces a positive emotional attitude of students towards this material' (Chłopek 2016).

Conclusions

The conducted research, due to its narrow nature, does not allow for overgeneralisation. By intention, however, it was limited to a specific group of respondents. By looking at the problem as a case study (Wilczyńska, Michońska-Stadnik 2010), it is possible to identify elements that are essential for teaching success, which escape the attention of researchers in questionnaires addressed to a classical representative group of students (cf. RQ1).

I also decided not to draw conclusions on my own. In addition, the persons conducting classes that were the subject of the cited analyses were also asked to comment on the data in face-to-face interviews (cf. RQ2).

The picture that emerges from the research confirms the validity of analysing the effectiveness of teaching activities in relation to different types of classes (cf. H1, H2). The conclusions, depending on the type of classes, concern various forms of distance learning, but not necessarily full e-learning. The practical exercises are presented in a way that is undoubtedly closest to the definition of e-learning. Teachers work not only on the MS Teams platform, but also use the Moodle platform (both are recommended by the University of Silesia). Apart from these, they use many additional digital tools in a synchronous and an asynchronous mode; exercises are fully interactive. In the case of lectures and seminars, despite the possibilities created, not all the criteria were always met (asynchrony only in some seminars, interactiveness only in some lectures).

It turns out that, following the outbreak of the pandemic, the digital revolution in university teaching still remains difficult to accept, even though many networking practices already existed. The idea that in the long run all teaching should be done remotely turns out to be an unimaginable solution both for future philologists and for lecturers. The experience gained, however, shows that digital natives would be happy to retain many innovative solutions in addition to the traditional offer. Irrespective of whether the type of student participation is active or pas-

sive, or whether it requires a significant or minimal investment of time, the use of a digital platform seems inevitable from now on (see also Eude 2021, Sujecka-Zając 2021). So, we should not expect a complete return to old habits. After the end of the pandemic and a period of euphoria caused by a return to normality, the value of certain elements of distance learning will be appreciated and they will become a permanent part of modern academic teaching. Students of philological specialisations also expect this, but in reasonable, balanced proportions, which is illustrated by characteristic answers:

1) Students of the 2nd year in 2020 (on the basis of written questionnaires)

"For lectures – the traditional form with elements of IT tools or virtual classroom"
"As for traditional lectures, I think that they could be completely replaced by innovative methods, e.g., a course on a platform with attached materials, without the participation of a lecturer".
"The traditional method definitely makes it easier for students to organise"
"As for the completely virtual classroom method, I am against it"
"When it comes to the seminar, I also support the traditional method with the possibility of using study aids or the flipped classroom method from time to time"

2) Students of the 2nd year in 2021 (on the basis of virtual face-to-face interviews on MS Teams)

"Working in practical classes is the most difficult, we are not spontaneous in what we say, it often gets chaotic, it's worst in conversation"
"I definitely prefer traditional seminars, although previously I was in favour of remote ones"
"You also remember a lecture better when you hear the professor online but live, and not from a recording"
„When it comes to the form of the diploma seminar, I'm not bothered"
„The important thing is that after listening to the lecture, there is still access to the accompanying multimedia presentation".

The awareness of the advantages and disadvantages of distance learning has increased not only among students, but also – above all – among (university) employees. There is no shortage of training courses and tutorials. The attitude of the administration has changed. The little problem of outlay of energy and resources remains. Lecturers emphasise that they did not realise how time-consuming it is to prepare and monitor classes in a remote system, to make materials available, and to evaluate student's work.

3) Lecturers – based on direct interviews

„It is important that we have adapted to remote working; the training and experience gained mean that it is easier for us now and we think less about technical matters and focus on the substance"
„ The IT training has made it easier to adapt the teaching offer to the nature of the classes"
„It is difficult to assess to what extent the students have understood the message, because many do not want to admit their lack of understanding, and the teacher does not see their reaction"
„An experienced teacher working for a long time in the stationary [face-to-face] mode will predict the reactions of students online to a given difficulty"
„The comfort of working online is higher, but with the exception of classes requiring translation. It is difficult to develop this skill whether in oral or written form as effectively as in the traditional form."
„I will describe working on the online platform in the briefest way: reception YES production NO. The division into competencies is key."
„Grammar test results are comparable, which is a big but pleasant surprise for me."
„A task-based approach is most effective. Students prefer working divided into groups in rooms on Teams".

A skilful goal-setting and consistent implementation of goals keeps students' attention (Jean 2021). It is worth mentioning at this point the role of the task-based approach emphasised by lecturers (Prabhu 1987, Ellis 2003, Puren 2002, 2011, Ellis, Skehan et al. 2019). It works very well in remote teaching. As Iwona Janowska reminds us, sometimes in pedagogical practice the goal is identified with the result. Meanwhile, in task-based didactics, the goal and the result are two different concepts:

> „The goal should take into account the pedagogical intentions of language education, e.g. the development of speaking skills. The outcome/result should relate to the specific *product* of the given task, e.g. describing the way to the city centre. Language, taking the form of a defined linguistic activity (reception, production, interaction or mediation), serves as a means of achieving a result that is different from the use of language itself" (Janowska, Ducourtioux 2021: 75).

The role of the task-based approach is also emphasised by thesis supervisors, who advocate replacing e-learning with hybrid teaching (cf. Widła 2020). Lecturers,

on the other hand, place less emphasis on this form of work, seeing no special differences in the effects of checking the level of knowledge.

Theoretically, it might seem that recording lectures could be a good investment for a busy lecturer. However, as seen from the research, students of foreign philology definitely value real-time remote lectures more highly, treating recordings as an optional script. This is also confirmed by my own observations: out of 86 people regularly attending my applied linguistics lecture in the summer semester 2021, only 65 made use of the additional teaching aids available on the *Moodle* platform.

What was attractive and innovative was mostly appreciated by the respondents. Unfortunately, the frantic pace of implementation of innovations discourages their use. In the case of innovations using remote teaching methods, we are still looking for the most reasonable ways to supplement the teaching offer. Many gaps could be bridged with online solutions. We should therefore warn authorities of teaching institutions against throwing out the baby with the bathwater. Introduction of new methods and techniques – yes, but on the condition of on site (face-to-face) learning at the university headquarters. Such a message emerges from the analysis of the presented data. There is no doubt that the objectives for the academic year 2019/2020 – still rather timid – of assigning a more important place to distance learning methods and techniques, will be re-considered positively after the pandemic.

Foreign philology students call for a flexible approach, taking into account the types of classes and the nature of the subject. However, such solutions are being introduced in a systemic way at universities, even though it is difficult to compare lectures in physics, history or linguistics. It is also difficult to ignore the fact that lectures are often given in foreign languages. Therefore, an interesting move would be to create opportunities to introduce detailed proportions of face-to-face and online classes at the stage of drawing up syllabuses. However, this is an ideal postulate which does not correspond to the reality from the point of view of constructing timetables. When classes are held at the university, they cannot be synchronised in the hybrid model in any other way than in class blocks, and it is necessary to get used to this. For the time being, the safest solution remains not the virtual but the traditional class group, making a skilful use of network resources during classes and individual support, depending on needs. Now that we have all passed the stage of IT support for classes, we should place an emphasis in training on the methodology of e-learning and b-learning, taking into account the specificity of classes and fields of study.

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Halina Widła

Nauczanie zdalne na specjalnościach filologicznych w świetle doświadczeń w czasie pandemii – w oczach studentów i prowadzących zajęcia

Streszczenie

Artykuł porównuje wyniki badań przeprowadzonych w końcu zimowego semestru 2019/2020 z wynikami z marca 2021 roku na temat zasadności poszerzenia oferty dydaktycznej na studiach filologicznych o innowacyjne rozwiązania z wykorzystaniem metod i technik kształcenia na odległość. Zbadano opinie 50 studentów II roku dotyczące przydatności i skuteczności informa-

tycznych innowacji na wykładach, seminariach i ćwiczeniach z praktycznej nauki języków obcych. Wynika z nich, iż pandemia zweryfikowała wyobrażenia studentów nt. zalet i wad zdalnej pracy. Dane te zostały skomentowane z punktu widzenia prowadzących zajęcia. Okazuje się, że we wszystkich trzech typach zajęć opinie studentów i pracowników wahają się od umiarkowanie neutralnych z początku 2020 roku wobec innowacji w nauczaniu, poprzez bardziej sceptyczne w marcu 2021 po wprowadzeniu e-learningu na szeroką skalę, do bardziej przychylnych innowacjom po roku doświadczenia zdobytego w 2021. Mimo tej ogólnej tendencji widać spore różnice opinii studentów i prowadzących zależne od charakteru zajęć.

Słowa kluczowe: studia językowe, nauczanie zdalne, pandemia

Халина Видла

Дистанционное обучение по филологическим специальностям в свете опыта во время пандемии – глазами студентов и преподавателей

Аннотация

В статье сравниваются результаты исследования, проведенного в конце зимнего семестра 2019/2020 гг., с результатами за март 2021 г. о правомерности расширения дидактического предложения в филологических исследованиях инновационными решениями с использованием методов и приемов дистанционного обучения. Были изучены мнения 50 студентов второго курса о полезности и эффективности ИТ-инноваций во время лекций, семинаров и практикумов в области практического изучения иностранного языка. Они показывают, что пандемия подтвердила представления студентов о преимуществах и недостатках удаленной работы. Эти данные были прокомментированы с точки зрения преподавателей. Оказывается, что во всех трех типах занятий мнения студентов и сотрудников варьируются от умеренно нейтральных в начале 2020 г. к педагогическим инновациям, до более скептических в марте 2021 г. после введения электронного обучения в более широких масштабах, до более дружественным к инновациям сети мнений после года опыта, полученного в 2021 г. Несмотря на эту общую тенденцию, существуют значительные различия во мнениях студентов и преподавателей в зависимости от характера курса.

Ключевые слова: языковые исследования, дистанционное обучение, пандемия

Halina Widła

La enseñanza a distancia en las especializaciones filológicas a la luz de las experiencias durante la pandemia. La perspectiva de estudiantes y docentes

Resumen

El artículo presenta la investigación sobre la pertinencia de ampliar la oferta didáctica de los estudios de filología con soluciones innovadoras utilizando métodos y técnicas de aprendizaje a distancia. Se comparan los resultados recibidos al final del primer semestre del curso 2019/2020 con los resultados de marzo de año 2021 a los que se añaden los comentarios adicionales de finales de 2021.

Se encuestaron las opiniones de 50 estudiantes de segundo curso sobre la utilidad y eficacia de las innovaciones de Tecnologías de la Información en clases teóricas, seminarios y clases prácticas de aprendizaje de idiomas. La investigación mostró que la situación de pandemia verificó las percepciones de los estudiantes sobre las ventajas y desventajas del trabajo remoto. Los datos también son comentados por los profesores. Resulta que en los tres tipos de clases, las opiniones de los estudiantes y el profesorado van desde moderadamente neutrales a principios de 2020, pasando por más escépticas en marzo de 2021, después de la introducción a gran escala del aprendizaje electrónico, hasta más favorecidas después de un año de experiencia adquirida en 2021. A pesar de esta tendencia general, existen diferencias considerables en las opiniones de estudiantes y profesores según la naturaleza de las clases.

Palabras clave: estudios de idiomas, enseñanza a distancia, pandemia

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Evaluation of the MOOCs Quality and Its Effectiveness for Teachers' Training in the Field of Digital Competences and Their Use in Education: A Case Study

Abstract

This study presents the research results obtained after the assessment of the digital competences of the pre-service and in-service teachers after their completion of the MOOC "Contemporary ICT Tools and Innovative Methods of Creative Education". The paper provides a short description of the MOOC, requirements to pass the course and analysis of the learning outcomes through the students' self-evaluation and feedback. The MOOC was developed in Polish and English within the project "MOOCs for Sciences of Education" and hosted on the Polish MOOCs platform Navoica (www.navoica.pl) within the framework of the competition, initiated by of Ministry of Education and Science of Poland and National Center for Research

and Development (NCBR – Narodowe Centrum Badań i Rozwoju) on "Direction to the MOOC". Keeping in mind that Massive Open Online Courses (MOOCs) have developed into a mainstream for universities, education reformers and start-up companies, especially in the time of the COVID-19, the study is believed to contribute to the development of the MOOC pedagogy, and address the question of the MOOCs effectiveness for students' learning outcomes and satisfaction. The experimental MOOC "Contemporary ICT Tools and Innovative Methods of Creative Education", which was aimed at enhancing teachers' digital competences, contained 8 modules, and was attended by more than 90 students through its 1st edition in 2020–2021. The conclusions of the MOOC in focus and overall recommendations on enhancing the MOOCs effectiveness for formal education and learning outcomes have been evaluated based on the research data and provided accordingly. The selected statistical analyses and the data comparisons were made using Wilcoxon's test at the significance level alpha = 0.05. The normality of the distributions of the studied variables was checked using the Shapiro Wilk test.

K e y w o r d s: MOOCs; education, digital competences; teachers; ICT-tools in education

In the changing world of the dynamic development of the educational system in all countries, contemporary ICT tools and innovative methods of creative education play an exceptionally important role. In this context, teachers' training and raising their competences in ICT technologies as well as their implementation in the formal education gain a special value due to the fact that digital competences have already become an indispensable part of the professional profile of an effective teacher.

For this purpose, it is worth using various methods of training, including remote techniques, which are of exceptional importance especially in the time of the restricted accessibility of traditional education.

MOOCs with their openness and availability for all those who would like to continue their education despite their location and busy schedules, is a good option for pre-service and in-service teachers to gain knowledge and skills in education and related topics from international experts.

Considering a big number of MOOCs offered, it is important to evaluate the suggested programs from the point of view of their effectiveness, quality and educational value.

With this purpose in mind, the study presents the research results obtained after the assessment of the digital competences of the pre-service and in-service

teachers who completed the MOOC ``Contemporary ICT Tools and Innovative Methods of Creative Education".

The paper provides a short description of the MOOC, requirements to pass the course and analysis of the learning outcomes through the students' self-evaluation and feedback.

The MOOC in focus was developed within the project "MOOCs for Sciences of Education'' and hosted on the Polish MOOCs platform Navoica (www.navoica.pl) in the framework of the competition, initiated by of Ministry of Education and Science of Poland and National Center for Research and Development (NCBR - Narodowe Centrum Badań i Rozwoju) on "Direction to the MOOC". The MOOC was available in Polish and English.

Keeping in mind that Massive Open Online Courses (MOOCs) have developed into a mainstream for universities, education reformers and start-up companies, especially in the time of the COVID-19, the study is believed to contribute to the development of the MOOC pedagogy, and specifically address the question of the MOOCs effectiveness for students' learning outcomes and satisfaction.

The research questions RQ1-RQ5 of this study are:

RQ1. How did respondents rate their competence in adapting and using digital technologies in their teaching before and after participation in the MOOC?

RQ2. How do respondents rate their skills and effectiveness in using ICT and innovative teaching methods in designing the educational process and / or at work before and after participation in the MOOC?

RQ3. What is the level of knowledge of the different types of ICT tools and innovative educational methods in learning and learning practice (online) (based on self-assessment) before and after participation in the MOOC?

RQ4. What main challenges do respondents think are involved when adopting or developing ICT aided learning practice before and after participation in the MOOC?

RQ5. What were the participants' expectations before starting the course and their opinions after completing it?

The hypotheses H1-H3 of the research are:

H1. Taking the MOOCs on Digital Competences in Education helped the students to enhance their competences in adapting and using digital technologies in their teaching, and the difference in the level of their competences before and after the course is significant.

H2. The students' level of skills and effectiveness of using ICT and innovative teaching methods in designing the educational process and / or at work increased after participation in the MOOC.

H3. Based on the students' self-assessment, the level of the students' knowledge of different ICT tools and innovative educational methods in learning and online learning practice has risen after taking the course.

1. Research Background

Due to the present evidence, the provision of MOOCs in Europe and other continents tends to grow. Together with that, the implementation of MOOCs may be hindered because of diverse languages, cultures, settings, pedagogies and technologies (Jansen, & Goes-Daniels, 2016).

Among benefits of MOOCs which may serve for different learning purposes are the following (Patru, & Balaji, 2016):

1. Courses are offered free-of-charge to any number of people, anywhere and anytime, therefore, MOOCs enable access to higher education and beyond for people who cannot afford a formal education and are disadvantaged.
2. MOOCs can reduce the disconnect between the skills and aptitudes of the majority of university graduates and the needs of the industry sector in many countries. This disconnect is triggering huge unemployment amongst youths and adults, particularly women.
3. MOOCs can be useful in providing job-oriented training and skills development.
4. MOOCs emerged from the open education movement. As such, they enable free access to high-quality content and resources, which might be too costly for higher education institutions in developing countries to produce. (Patru, & Balaji, 2016; p.5–6).

With the development of e-learning, researchers and practitioners have been more and more intrigued by the potential it provides in terms of a big variety of teaching models, learning opportunities and perspectives, opening new horizons for more and more students to reach their aims in education and career (Aldahmani, Ali Al-shami, Adil, & Sidek, 2020).

Introduced in 2008 by David Cormier, nowadays MOOCs are classified as online courses designed for large numbers of participants, available to anyone everywhere as long as there is an Internet connection, being open to anyone and offering a complete / total online course for free (Aldahmani, et al., 2020).

Though, since 2008, there have been many studies discussing MOOCs pedagogy, MOOCs applications and their effects, the literature still lacks sufficient body of knowledge about MOOCs types, how they work, their importance and,

moreover, the practical value of MOOCs for formal education and sustainable learning outcomes (Deng, et al, 2019; Aldahmani, et al., 2020).

The methodological background of this research is comprised by the studies on MOOCs, its pedagogy (Smyrnova-Trybulska et al., 2016, 2019), types and specifics of their application (Deng, et al, 2019), practices of MOOCs in different educational contexts (Koukis & Jimoyiannis, 2018; Sekret et al., 2019), implementation of MOOCs for teachers' training (Koukis & Jimoyiannis, 2018; Gordillo, et al., 2019; Svoboda, Mynaříková, 2021; Smyrnova-Trybulska, Sekret & Morze, 2021), the evaluation of the learning outcomes and students' satisfaction in learning (Razzali, et al., 2016; Sekret, 2021; Smyrnova-Trybulska, Sekret & Morze, 2021; Stracke, & Trisolini, 2021; Segovia García, 2021).

In the area of teachers' training, there have been a number of studies done, concerning different kinds of MOOCs as implemented in the context of the formal and informal education, quality criteria (Molanes-Lopez, Rodriguez-Ascaso, Leton & Perez-Martin, 2021), developing the content of MOOCs and the effects of the education with MOOCs on the students' learning outcomes. Among those to mention is also the study by Cabero-Almenara, Romero-Tena, & Palacios-Rodriguez, (2020) which analyses different proposals made by national and international organizations and institutions on Teacher Digital Literacy, taking into account research as well as the realization of a t-MOOC on Teacher Digital Literacy development (Cabero-Almenara, et al., 2020).

To answer the questions which dimensions should be taken into account for evaluating MOOCs, Stracke, & Trisolini (2021) developed a quality framework as a categorisation scheme to evaluate the quality of MOOCs based on the systematic literature review. As a result of the study, they highlighted four main dimensions to consider for evaluating the quality of MOOCs. They include organizational, technical, social, and pedagogical aspects.

To analyze the quality of MOOCs and the quality of education as a whole, it is important to take into account students' opinions and feedback to consider further shaping the MOOCs content and teaching methods (Segovia García, 2021). Thus, the study by Segovia García (2021) was aimed to find out what students think after finishing their MOOCs in order to detect possible areas for improving the MOOCs quality. Based on the analysis of different tools for measuring the quality of information systems, such as the DeLone and McLean model, a survey was designed and administered to the students who participated in the MOOCs. The qualitative analyses of the students' responses revealed the importance of practical content in the MOOCs.

The researchers also emphasize that „assessing the quality of MOOCs is an important issue for learners since they pay fees for accessing the content (e.g. graded assignments), certificates for the course completion and course credits. One

of the unique advantages of online courses is that all the content can be assessed and analyzed even before the courses are released using various learning analytical and natural language processing tools." (Cross, Keerativoranan, Carlon, Tan, Rakhimberdina, & Mori, 2019). The experts also stress that "nowadays, education can be done through online medium," e.g. MOOC, "facilitating access to resources once reserved for the elite of the world, but now accessible in different countries with a purpose to prepare as many employees as possible for the labor market demands of the future" (Condruz-Bacescu, 2018).

2. Methodology of Research

The "Contemporary ICT Tools and Innovative Methods of Creative Education" MOOC contains 8 main Modules:

Module 1: Presentation of graphic materials in the form of infographics and mind / knowledge / concept maps;

Module 2. Theoretical, methodological, and practical aspects of making presentations;

Module 3. Theoretical, methodological and practical aspects of developing a didactic video;

Module 4. Theoretical, methodological and practical aspects of developing a digital story;

Module 5. Theoretical, methodological and practical aspects of gamification;

Module 6. Innovative teaching-learning methods;

Module 7. ICT Tools for E-Collaboration and E-Communication;

Module 8. Online Tutoring. (www.navoica.pl)

Organizational conditions of the MOOC can be presented as follows:

- Duration of the entire course – 10 weeks;
- The number of learning hours throughout the course – 32 hours;
- The number of student's learning hours during the week – 2–6 hours (4 hours on average) weekly.

Among the main methods of the MOOCs elaboration were: Analyse, Design, Develop, Implement, Evaluate (ADDIE); the Successive Approximation Model (SAM); the Lot Like Agile Management Approach (LLAMA) as well as the Structured Systems Analysis and Design Method (SSADM). The MOOC materials include a lot of various types of visual and multimedia sources – schemes, photos, graphs, screenshots, timelines, videos, audios, first of all primarily prepared

by MOOCs authors and also suitable for disabled people. (Smyrnova-Trybulska, Sekret, & Morze, 2021).

The main criteria for developing and evaluating the MOOC by the experts included: a) subject of the course and its content, b) methodological and technical aspects (described in more detail by Grodecka et al. (2019: 34–59)

The experts of the Foundation of young science and Novoica.pl. evaluated the MOOC, its content and implementation into the context of formal education (Smyrnova-Trybulska, Sekret, & Morze, 2021). In the evaluation, the following aspects were also taken into account:

– Ensuring reliable network infrastructure;
– Using friendly learning tools or platforms;
– Providing interactive suitable digital learning resources;
– Guiding learners to apply effective learning strategies;
– Promoting effective methods to organize the instruction by adopting a range of different teaching strategies;
– Providing instant support services for teachers and learners;
– Possibilities to integrate the course into face-to-face education and create a flexible blended learning environment. (Morze, & Smyrnova-Trybulska, 2021, p. 30).

In the 1st, 2nd, 3rd edition of the MOOC, the students had to comply with several conditions to pass the course. In order to complete the course, the attendees were required to successfully accomplish at least 51% of the content and assignments. The grading system of the course included a completion of at least one final project assignment as selected among the offered projects (the assignment value is 50%) and a final test (its value is 50%). (https://navoica.pl)

Project Assignment 1

"On the basis of the suggested scenario, prepare a presentation about one of the tools, for example Google presentations, PowerPoint, Prezi, Impress or other, which meets the following criteria:

1. The subject of the presentation is consistent with the field of study, for example, pedagogy, or of an educational or tutorial nature. If you are not related to Pedagogy, the subject of the presentation can be any, which is related to your field of study, profession or hobby.
2. Structure: hierarchical, modular, branched.
3. It must contain interactive elements: action buttons (globally on all pages), hyperlink, interactive menu (with the possibility of returning to the menu), quiz, etc.

4. Form of presentation – multimedia (includes various media: text, static and dynamic graphic objects, films (video sequences), sound files (music, voice narratives), tables, charts, animations, etc.) with polysensory influence.
5. The minimum number of slides – 15.

The criteria for assessing the projects are given below:

1. Theme, idea;
2. Interesting, substantively rich content;
3. Clear, logical, branched structure with interactive elements;
4. All multimedia objects are well organized, expressive, readable, and attractive. The multimedia resources of the author's own work will be rated the highest.
5. Interesting, balanced colors, ensured contrast between the background and the text.
6. The practical usefulness of the project and the possibility of its use.

Project Assignment 2

Project execution plan:

- Choose the topic of the digital story,
- Develop a plot, content,
- Select the tool (s) to compile a digital story,
- Prepare a project in the form of a video,
- Save the file in MP4 or MPG format (size up to 100 Mb)
- The created file is to be uploaded on Google Drive or on YouTube.

In case of difficulties, please use the instructions below:

- Share files on Google Drive
- Uploading a video on YouTube
- Change the privacy settings of the video

In the answer field to the Task, please provide: the title (topic) of the project and a link to the file / movie posted on one of the above-mentioned websites.

Pay attention to such criteria for the performance and evaluation of the task as:

– Attractiveness of the topic,
– Content, interesting plot,
– Correctness of the subtitles,
– Dynamics, clarity of narration, cheerful music.

Do not forget to include the author's details (preferably at the beginning) and the sources used (at the end).

3. Results of Research

3.1 Data Collection

This research is based on the implementation of the quantitative and qualitative methods. That is, the analysis of the data received from the self-evaluation competences surveys (Pre-test and Post-test) using the non-parametric Wilcoxon test. The normality of the distributions of the studied variables was checked using the Shapiro Wilk test.

The full experimental procedure can be presented as follows (Figure 1):

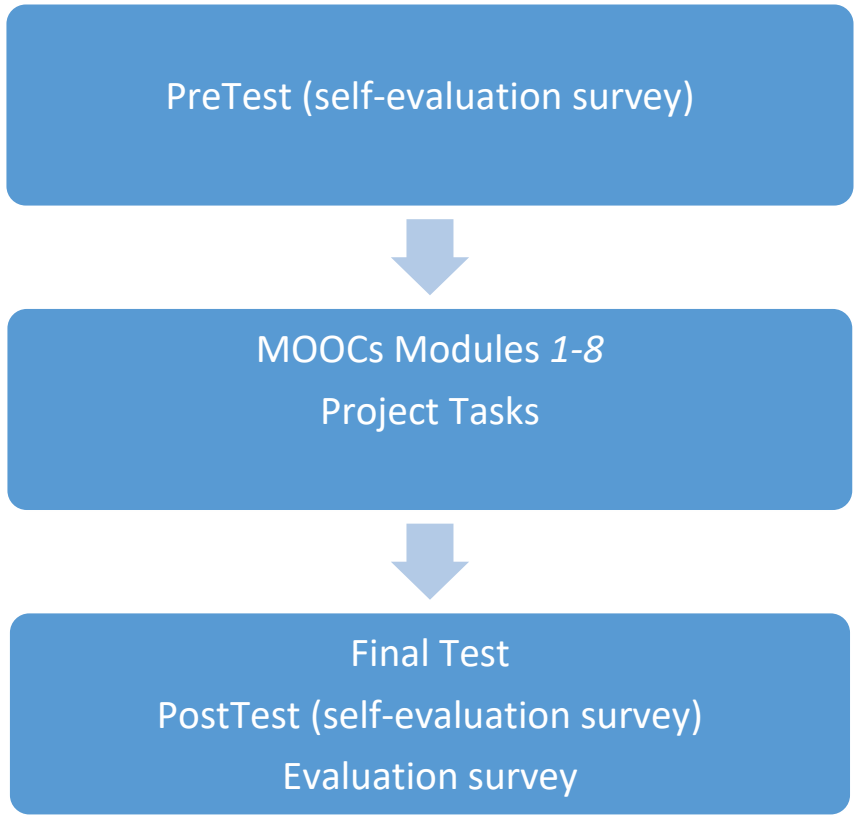

Figure 1. The full experimental procedure stages

The participants were asked for the information to cover seven profile questions (Social metrics): age group; gender; living location; teaching environment; years of experience; study discipline; qualification level.

The research instrument – pretest (self-evaluation survey) consisted of 27-online questions, divided into four separate groups: ICT usage in the participants' teaching (3-items); Digital Literacy (1-item); Use of various online tools (12-items); Concerns regarding online teaching (11-items)

Groups-1 and 3 used a Likert Scale in measuring participants' confidence levels concerning the specific items (0: no answer, 1: I am not sure, 2: I am a bit confident, 3: I am confident, 4: I am very confident, and 5: I rate my competence as excellent). Item-4 (group-2) gave three different descriptions of different literacies (1: the ability to search for information in various digital formats on the Internet, 2: having technical knowledge and skills related to the use of a wide range of digital tools, 3: having the technical and critical analysis skills required to search, evaluate, create and disseminate information using various digital technologies like laptops, smartphones and tablets in everyday life, and 4: None of the above. This item was not included in the post-test analysis. Group-4 was a dichotomous answer with a Yes or No reply (and an occasional Don't Know) (Smyrnova-Trybulska et al., 2022).

3.2 Results

96-participants were involved in the online questionnaire as pre-test groups. In addition, the results of the post-test of 70-participants from Group-1 have been analyzed.

At the end of the course, the learners demonstrated good results in fulfilling the project assignments and the final test of the 1st edition of the MOOC.

The selected statistical analyses and comparisons which were made using Wilcoxon's test at the significance level alpha = 0.05, are presented below.

The normality of the distributions of the studied variables was checked using the Shapiro Wilk test. The variables on the ordinal scale are presented as median (min – max) or median (Q25 – Q75). The categorical parameters are described as n (%). The statistical significance of the studied dependencies and differences was checked at the significance level of $\alpha = 0.05$. The non-parametric Wilcoxon test was used in the study for related variables and for the comparison of the two groups. Dell Inc. software was used for calculations. (2016), Namely Dell Statistica (data analysis software system), version 13. software.dell.com.

Table 1 consists of a descriptive statistics, concerning social metrics:

Table 1
A descriptive statistics, concerning social metrics (Pre1 + Post1)

		How old are you? (Pre1 + Post1)	
Age		Number	Percent
	from 18 to 25 years old	46	69.7
	from 36 to 50 years	7	10.6
	from 26 to 35 years	10	15.2
	from 51 to 65 years old	3	4.5
		Select your gender (Pre1 + Post1)	
Gender		Number	Percent
	Man	11	16.92
	Woman	54	83.08
		In which sector do you study? Or which sector are you most interested in? (Pre1 + Post1)	
Grade		Number	Percent
	pedagogical studies	42	65.63
	other higher education	13	20.31
	high school (K12)	9	14.06
		What is your experience (in years) of using ICT in teaching and / or learning? (Pre1 + Post1)	
Experience		Number	Percent
	from 5 to 15 years	20	31.25
	none / minimal	23	35.94
	up to 5 years	19	29.69
	over 25 years old	2	3.13
		What field do you study or work in? (Pre1 + Post1)	
Field of study		Number	Number
	social sciences (e.g. pedagogy)	43	66.15
	humanities (e.g. philology)	11	16.92
	natural and mathematical sciences	5	7.69
	another	6	9.23

Table 2
Descriptive Statistics (Pre1 + Post1)

	n	Me (min–max)		Me (min–max)	p-value
Pre 1 Which statement most accurately reflects your approach to using ICT in your own teaching?	66	103 (101–105)	Post 1	103 (101–105)	0.006
Pre 1 How would you rate your competence in the adaptation and use of digital technologies in your teaching?	66	103 (101–105)	Post 1	103 (101–104)	0.004
Pre 1 In general, how would you rate your level of skills and effectiveness in using ICT and innovative teaching methods in designing the educational process and/or at work?	66	102 (101–105)	Post 1	102 (101–105)	0.0008
Pre 1 development of multimedia presentations	65	102 (101–105)	Post 1	104 (101–105)	0.002
Pre 1 video recording	65	102 (101–105)	Post 1	103 (101–105)	0.0009
Pre 1 video publishing	65	102 (101–105)	Post 1	103 (101–105)	0.0005
Pre 1 online video / video streaming	65	102 (101–105)	Post 1	103 (101–105)	0.0005
Pre 1 digital storytelling	65	101 (101–105)	Post 1	103 (101–105)	0.0000
Pre 1 discussion forums with general questions and answers	65	102 (101–105)	Post 1	103 (101–105)	0.0015
Pre 1 gamification	65	101 (101–105)	Post 1	103 (101–105)	0.0000
Pre 1 tools to support innovative teaching and learning methods	65	102 (101–105)	Post 1	103 (101–105)	0.0000
Pre 1 online tutoring tools	65	102 (101–105)	Post 1	103 (101–105)	0.0000
Pre 1 online collaboration tools	65	102 (101–105)	Post 1	103 (101–105)	0.0006
Pre 1 e-communication tools	65	103 (101–105)	Post 1	103 (101–105)	0.1192
Pre 1 graphic development (for example infographics, mind maps/ knowledge maps)	65	102 (101–105)	Post 1	103 (101–105)	0.0000

Table 3
Codes:

(1) I'm not sure at all	101
(2) somewhat confident	102
(3) I am confident	103
(4) very confident	104
(5) I rate my competencies as „Excellent"	105

It was verified by the Wilcoxon test that there is a *significant difference* in the question „pre 1 Which statement most accurately reflects your approach to using ICT in your own teaching? & post 1", p value = 0.006 <significance level alpha = 0.05.

There is a significant difference when we look at the medians. However, for the pre- and post-tests the medians *are the same*, but the lower and upper quarter for the pre-test is 102 to 103 while it varies from 102 to 104 in the post-test. According to the codes, 102 means a bit confident, 103 = I'm confident, 104 = very confident. So, over a period of time, it appears that we have a growing tendency in self-confidence (Figure 2).

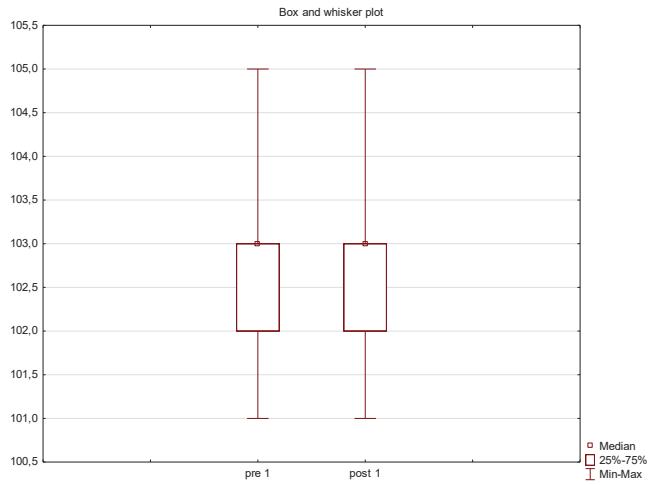

Figure 2. Comparison of the answers to the question "Which statement most accurately reflects your approach to using ICT in your own teaching?" in the pre and post-tests.

As we live and work in a digital society, including e-economy, e-finance, e-business and e-education, our teachers should be prepared for the changing learn-

ing environments as well as the students' learning needs. The world is changing together with the contents, technologies, tools, teaching and learning methods. The teachers should also learn how to be flexible in using a variety of the teaching techniques and tools to adjust them to the learning purposes. As practice shows, the students' motivation to learn depends, to a large extent, on the attractiveness and creativity of the teaching methods and tools. Realizing this condition and knowing how to implement it into the teaching practice is an important component of the teachers' professional competence. Thanks to the course, the students could learn and broaden their knowledge about modern tools for the development of various types of video, digital storytelling, infographics, and knowledge maps. (www.navoica.pl)

It was verified by the Wilcoxon test that there is a significant difference in the question „pre 1 How would you rate your competence in the adaptation and use of digital technologies in your teaching? & post 1", p value = 0.004 <significance level alpha = 0.05.

There is a significant difference when we look at the medians. However, for the pre- and post-tests the medians *are the same*, but the lower and upper quarter for the pre-test is 102 to 103 while it varies from 102 to 104 in the post-test. According to the codes, 102 means a bit confident, 103 = I'm confident, 104 = very confident. So, over a period of time, it appears that we have a growing tendency in self-confidence (Figure 3).

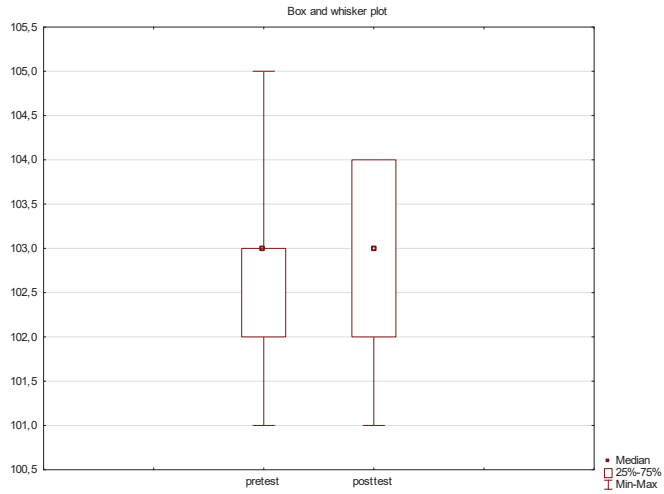

Figure 3. Comparison of the answers to the question "How would you rate your competence in the adaptation and use of digital technologies in your teaching?" in the pre and post-tests.

The participants of the MOOC could learn the principles of effective usage of gamification in education, the methods of flipped classroom, e-communication and e-collaboration, and online tutoring. The materials are diverse, varying from the simplest and accessible descriptions to scientific publications with the results of the research by scientists from different countries. (www.navoica.pl)

It was verified by the Wilcoxon test that there is a *significant difference* in the question „pre 1 In general, how would you rate your level of skills and effectiveness in using ICT and innovative teaching methods in designing the educational process and / or at work? & post 1", p value = 0.0008 < significance level alpha = 0.05. (Figure 4).

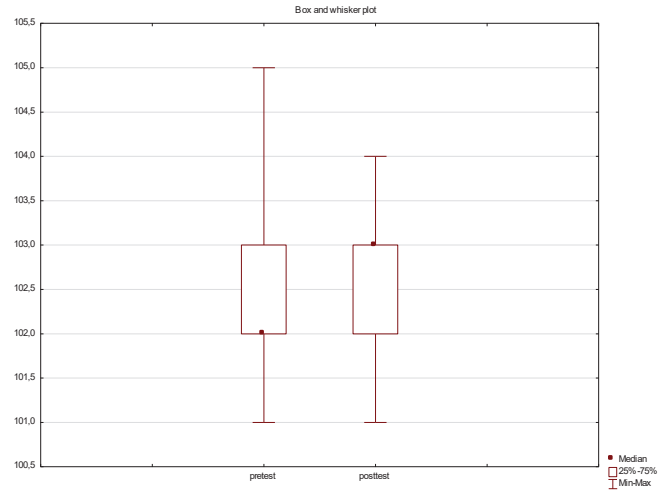

Figure 4. Comparison of the answers to the question "In general, how would you rate your level of skills and effectiveness in using ICT and innovative teaching methods in designing the educational process and/or at work?" in the pre and post-tests.

The course targeted a wide audience of users – pre-service teachers, tutors, educators, methodologists, educators, and all other categories of learners. The participants could actively participate in the discussion forums, present their experiences and examples of good practice. The tests were provided with the feedback and evaluative comments at all stages, the formative assessment was applied to objectively determine the level of the students' achievements. Thanks to the numerous videos, including instructional tutorials, the MOOCs participants could improve their knowledge and skills of effective teaching and learning, while learning itself became friendly and fun. (www.navoica.pl)

2.2. The respondents highly assessed their skills and self-effectiveness in the use of information and communication technologies, as well as innovative teaching methods in the design of the educational process and/or at work before and after attending a MOOC.

3. Knowledge of different types of ICT tools and innovative educational methods in learning and (online) learning practice (based on self-assessment) has increased before and after participating in a MOOC.

It was verified by the Wilcoxon test that there is a *significant difference* in the question „pre 1 development of multimedia presentations & post 1 development of multimedia presentations", p value = 0.0018 <significance level alpha = 0.05. (Figure 5).

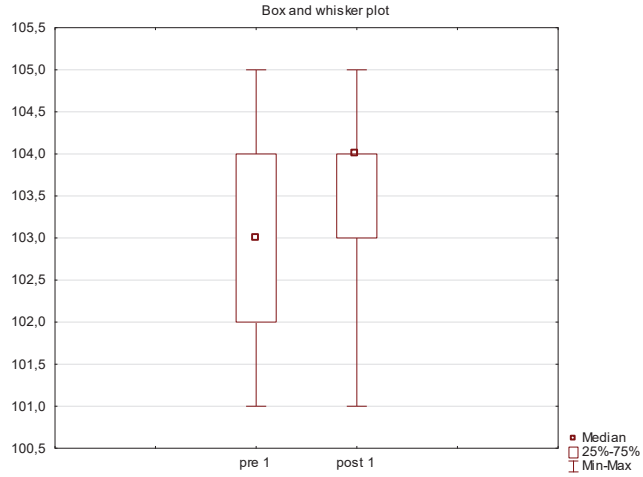

Figure 5. Comparison of the answers to the question on the development of the multimedia presentations in the pre and post-tests.

Module 2 of MOOC was devoted to the development of multimedia presentations and included Lesson 1 Theoretical, methodological, and practical aspects of making presentations and Lesson 2 Methodological and practical aspects of making presentations, ICT tools.

Among its main aims were as follows:

– Find out what a presentation is;
– Study the classifications / types of presentation;
– Learn about the stages of making presentations;
– Extend knowledge about programs and applications for making presentations;

– Learn software for making and converting presentations into a didactic video;
– Learn about services for posting presentations;
– Extend knowledge about methodological aspects of developing and using presentations;
– Find out the required competences;
– Errors students usually make when designing a multimedia presentation;
– Additional requirements for presentations and specific slides;
– ICT instruments and applications for developing presentations;
– Practical use of ICT tools: A video on PowerPoint 365;
– Practical use of ICT tools: A video on Prezi.

The content of the module was developed based on the research of the experts from different countries in the field of multimedia presentations and their didactic potential. In particular to mention is the study by Cong, Tago, & Jin (2022), where the researchers investigate cognitive load in multimedia presentations. It states that the development of the interface design can reduce extraneous processing for users and increase the effectiveness of multimedia presentations.

For the question „pre 1 video recording & post 1 video recording", it was verified by the Wilcoxon test that there is a *significant difference*, p value = 0.0009 <significance level alpha = 0.05. (Figure 6).

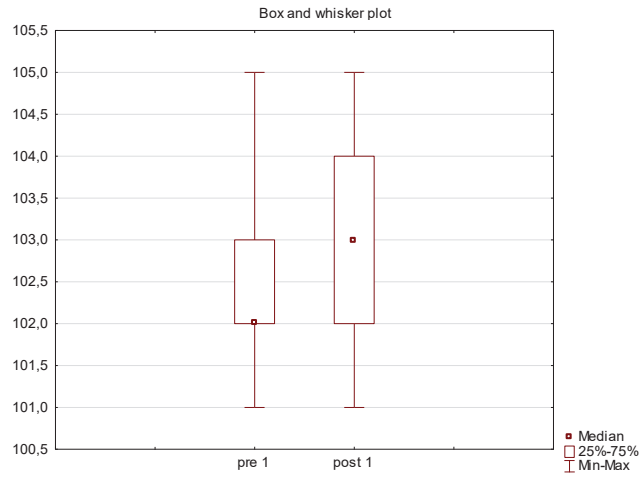

Figure 6. Comparison of the answers to the question on the video recording in the pre and post-tests.

It was verified by the Wilcoxon test that there is a *significant difference* in answers to the question „pre 1 video publishing & post 1 video publishing", p value = 0.0005 <significance level alpha = 0.05. (Figure 7).

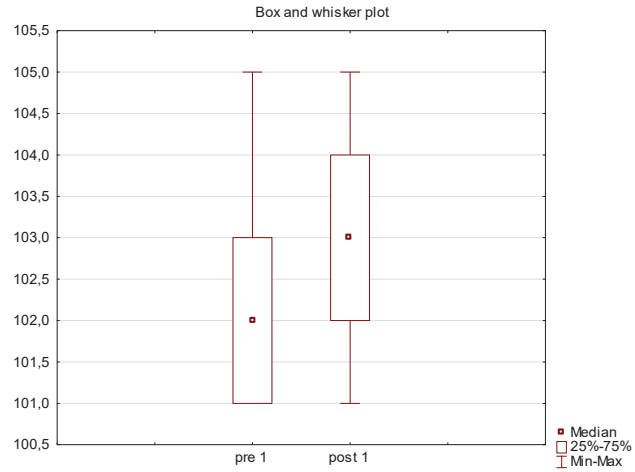

Figure 7. Comparison of the answers to the question on video publishing in the pre and post-tests.

It was verified by the Wilcoxon test that there is a *significant difference* in answers to the question „pre 1 video online / streaming video & post 1 video online / streaming video", p value = 0.0005 <significance level alpha = 0.05. (Figure 8).

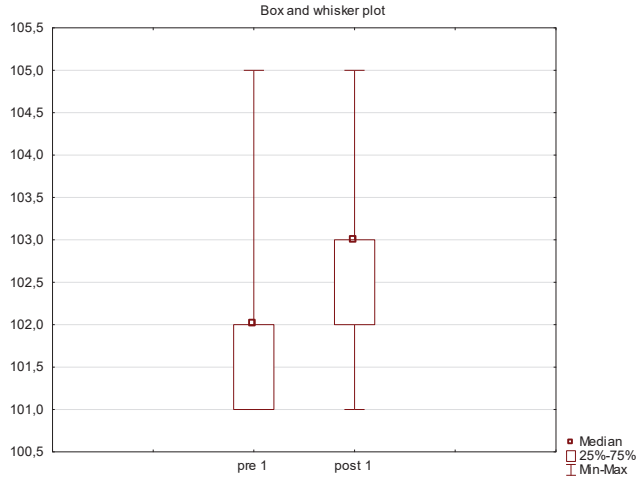

Figure 8. Comparison of the answers to the question on online video / video streaming in the pre and post-tests.

In Module 3, titled "Theoretical, methodological and practical aspects of developing a didactic video", the students could find out what a didactic video is,

learn about its classification and types. They also studied the rules of developing a didactic video and necessary tools. Another study point covered the methodological aspects of developing and using a didactic video as well as the rules and examples of its practical use in education, explaining the required competences. The content of the module included the following topics:

- Theoretical, methodological and practical aspects of developing a didactic video;
- What is the video? Classification / types of videos;
- Stages of developing a video;
- Programs for developing a video;
- Programs for developing and converting a presentation into a didactic video;
- Services for posting videos;
- Methodological aspects of developing and using presentations;
- Required competences;
- Theoretical and methodological aspects and basic guidelines for the use of Screencast in the teaching process;
- Theoretical and methodological aspects of a Screencast in PowerPoint;
- Some recommendations on the use of didactic videos in e-learning courses;
- Basic rules for developing didactic videos in the computer form for the digital storytelling;
- Important suggestions for didactic video authors.
- Services for posting videos (www.navoica.pl)

We agree with the experts and their research stating that while "the video production (VPR) group of students use multimodal semiotic resources to design a video and establish their relationships with viewers, they simultaneously adapt their discoursal identities." (Yu, & Zadorozhnyy, 2022). From this point of view, the competences and skills to design a video which would be effective enough to translate the teachers' ideas and bring them to the students' understanding are of exceptional importance in our time of extensive visualization.

The evaluated MOOC also included the content on the Dynamic Adaptive Streaming over HTTP (MPEG-DASH), which ensures online videos display of good quality without interruption and can be useful for the specific field of Massive Open Online Courses (MOOCs) where learners can profit from an exceptional visual experience that improves their commitment level and eases the course assimilation (Sebai, D. & Mani, E. (2020).

Other authors emphasize that students get "motivated by the dynamic streaming feature that allows a video stream to consist of multiple chunks having different qualities" (Kim, & Choi, 2022).

The answers to the question „pre 1 digital storytelling & post 1 digital storytelling" were verified by the Wilcoxon test which showed a *significant difference*

in the answers before and after taking the MOOC, p value = 0.0000 <significance level alpha = 0.05. (Figure 9).

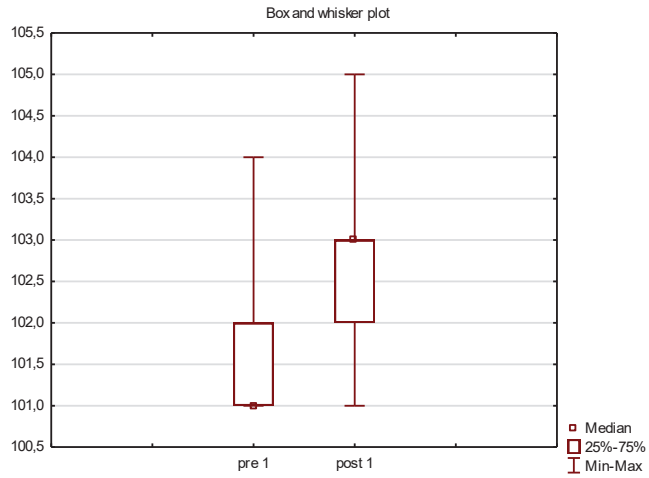

Figure 9. Comparison of the answers to the question on digital storytelling in the pre and post-tests.

In Module 4, "Theoretical, methodological and practical aspects of developing a digital story (digital storytelling)", the participants learned what a digital story is and what it is for. They became familiar with different types of tools and principles of development of a digital story. The information presented was illustrated with selected examples of completed digital story projects. The students module also learned about the competences needed to create a digital story. (Smyrnova-Trybulska, et al., 2021)

Thus, the students learned:

- What is a digital story?
- Digital story classification / types.
- The changing face of digital stories.
- A few suggestions for digital storytelling and game designers.
- Methodical aspects of developing and using a digital story.
- Stages of developing a digital story (Create a digital story). The process of creating a story.
- Competences to be developed and required competences.

They also gained the knowledge on the programs and tools to be used for creating a digital story:

- Selected programs for the development of a digital story.
- Additional useful ICT tools for developing digital stories.

- Websites to post your digital story.
- Storytelling e-tools. (www.navoica.pl)

As it was stressed by Kameas, Quarta, & Maratou, (2018), "digital storytelling is a powerful and effective learning tool in stimulating creativity, digital literacy and critical thinking." The researchers emphasize that the act of publishing one's story, trying to influence peers and/or not to remain silent about social issues is an important factor in nurturing a learner's personality as a critical thinker and an active citizen of their community. (Kameas, et al., 2018). In this sense, we agree with the experts that with the development of the digital storytelling skills, learners can transform into empowered actors who choose to put their stories out in order to raise awareness and help others (Kameas, Quarta, & Maratou, 2018).

A *significant difference* was verified by the Wilcoxon test between the answers to the question of „pre 1 discussion forums with general questions and answers & post 1 discussion forums with general questions and answers", p value = 0.0015 <significance level alpha = 0.05. (Figure 10).

The MOOC contained several forums about the program in general and specific forums on the subject of each module. On the platforms of the forums, the course participants could discuss different learning and content issues, present their experience in the field of the selected contemporary ICT tools for didactic and innovative methods of creative education. These activities and experience were useful for developing students' competences on participating in the discussion forums with general questions and answers. Their positive impact was proved by the significant difference between the answers in the pre and post-tests.

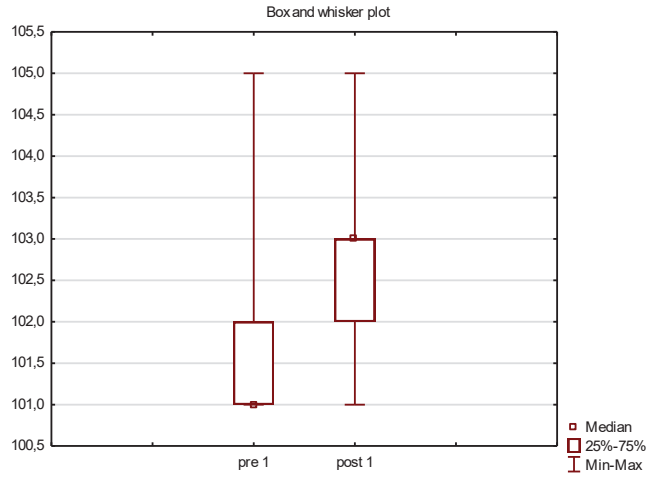

Figure 10. Comparison of the answers to the question on gamification in the pre and post-tests.

A *significant difference* was verified by the Wilcoxon test in the answers to the question „pre 1 gamification & post 1 gamification", p value = 0.0000 <significance level alpha = 0.05. (Figure 10).

In Module 5 „**Theoretical, methodological and practical aspects of gamification",** the participants found out what gamification is and what it is for. They learned about its types and stages of its development. Among the main subject topics were:

– What is gamification?
– Theoretical and methodological aspects of developing and using games in education (damification);
– Structure, concepts of games;
– Stages of developing games;
– Programs for uploading games;
– Websites dedicated to the discussed subject;
– Classification / types of games;
– Required competences.

The students learned that gamification is the application of game-design elements and game principles applied in non-game contexts (Werbach, 2014). The main reason for defining gamification as a process is to provide a scale for gamification and not an absolute category. Gamification commonly employs game design elements to improve user's engagement, for example in the educational process, to increase organizational productivity, data flow, learning, employee recruitment and evaluation, physical exercise, traffic violations, etc. The long history and varied ways of incorporating gameful interactions to educational contexts has also lead to varying terminology for the approach, e.g. serious games, edugames or games for education, game-based learning, and lately, gamification (Landers, 2014; Seaborn & Fels, 2015; Deterding, 2014). Researchers believe that all of these varied approaches are manifestations of gamification in education and learning (Majuri, Koivisto, & Hamari, 2018).

It was verified by the Wilcoxon test that there is a *significant difference* in the question „pre 1 tools to support innovative teaching methods of learning & post 1 tools to support innovative teaching methods of learning", p value = 0.0000 <significance level alpha = 0.05. (Figure 11).

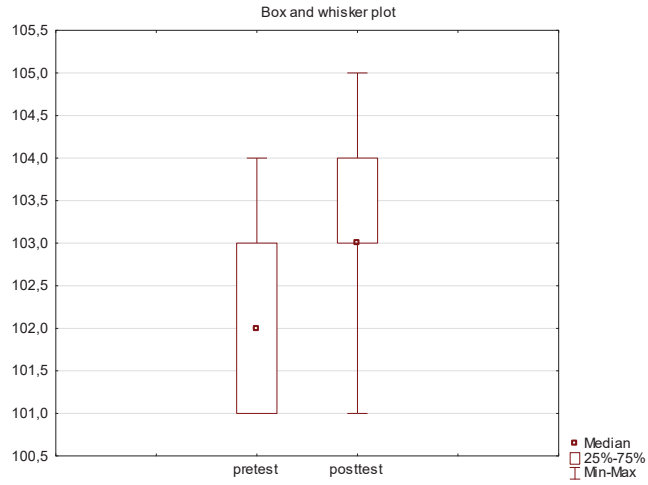

Figure 11. Comparison of the answers to the question on tools to support innovative teaching methods of learning in the pre and post-tests.

At various educational levels, in particular in the development of the pedagogy students' IT competence at university, instructors should use innovative, active teaching-learning methods, which include first of all:

– Problem-based learning;
– Project-based learning;
– Inquiry based learning;
– Flipped classroom;
– Adaptive learning,

which were described and analyzed in Module 6. "Innovative teaching and learning methods".

The participants of the MOOC could also learn about the basic psychological and pedagogical aspects of the ICT and e-learning supported educational process, among others, the theories of constructivism and connectivism, scientific aspects of the implementation of the zone of proximal development, psychology of limitation and more.

The Module featured various theoretical, methodological and practical aspects of the use of these methods, interesting examples, suggestions, propositions of the ICT and e-learning supported educational process design.

A *significant difference* was verified by the Wilcoxon test in the question „pre 1 online tutoring tools & post 1 online tutoring tools", p value = 0.0000 <significance level alpha = 0.05. (Figure 12).

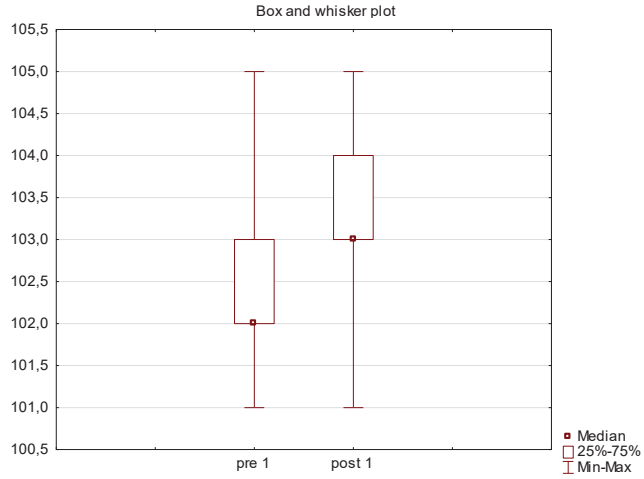

Figure 12. Comparison of the answers to the question on online tutoring tools & post 1 online tutoring tools in the pre and post-tests.

The students' positive evaluation of their progress within the module on online tutoring can refer to the module's systematic layout of the learning material which targeted the specifics of online tutoring as a teaching/learning activity.

As far as the students had already got the knowledge of different kinds of ICT tools and innovative teaching methods before joining the module on online tutoring, the aim of the module was to streamline the obtained knowledge and enrich it with the one, concerning specifics of online tutoring.

Together with that, it was important to highlight the peculiarities of assessment as an important part of the educational process either in a formal or informal context as a crucial component of monitoring the learning process and the knowledge formation.

Another crucial moment of the content was stressing the idea that communication online and face-to-face differs in its features, therefore, online communication with learning purposes should be considerably re-evaluated in terms of sharing emotions, personalisation and interaction to enhance students' personal involvement into the learning process.

The last but not the least moment to mention about the content of the module is the guidelines for launching an online learning system which can be helpful for the institutions which are planning or already running online courses, or individuals who are going to start their own career in developing and delivering online programs. Enhancing the module with this part of the material was believed to be helpful for pre-service and in-service teachers to broaden their minds on the

potential of their profession and skills, turning them into the area of online education and tutoring.

The videos of the modules were designed to facilitate students' self-assessment in a more creative way, using graphics and music to make the tests and inputs more alive and appealing to the students' understanding.

It was verified by the Wilcoxon test that there is a significant difference in the question "pre 1 online collaboration tools & post 1 online collaboration tools", p value = 0.0006 <significance level alpha = 0.05. (Figure 13).

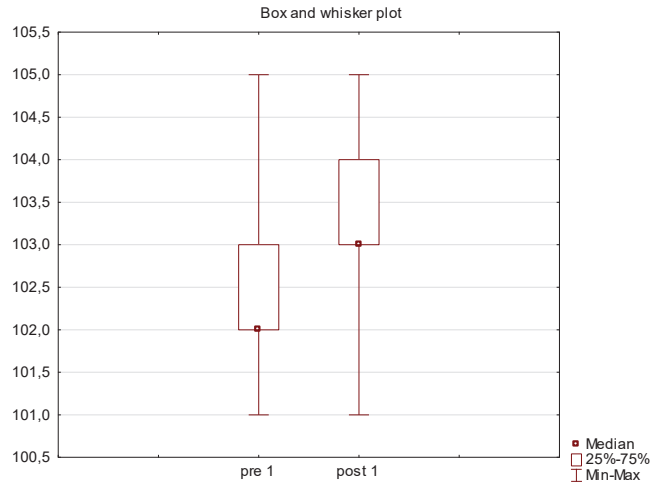

Figure 13. Comparison of the answers to the question on online collaboration tools in the pre and post-tests.

Module 7 "ICT tools for e-communication and e-collaboration" contained three lessons.

In Lesson 1, "Skills and Collaboration in the 21st Century and Criteria for Successful Collaboration" the participants learned about the issue of cooperation skills in the 21st century. They also acquired the competences needed and found out the criteria for effective cooperation.

Lesson 2 "Methodological and practical aspects of using ICT tools for e-collaboration and e-communication (basic)" included the content on ICT tools for collaborative learning blended learning, classification models of ICT tools for collaboration, requirements for collaboration tools.

Within Lesson 3 "Examples of tasks related to organizing student cooperation (basic)" the students became acquainted with the examples of tasks related to organizing students' cooperation (purposes, participants, conditions and types of

cooperation) and examples of tasks related to organizing students' collaboration (digital tools).

The module included a lot of models, schemes, tools description and examples to illustrate the content.

Simultaneously it was verified by the Wilcoxon test that there is *no significant* difference in the answers to the question „pre 1 e-communication tools & post 1 e-communication tools", p value = 0.1192 > significance level alpha = 0.05.

The probable reason for this result is that before joining the module, the students had already got extended knowledge and experience in using e-communication tools, e.g. messengers, social media etc., which were also well-known and widely spread among various categories of users for the purposes of private and business communication.

It was verified by the Wilcoxon test that there is a *significant difference* in the answers to the question „pre 1 graphic development (e.g. infographics, mind maps/knowledge maps) & post 1 graphic development (e.g. infographics. mind maps/knowledge maps)", p value = 0.0000 <significance level alpha = 0.05. (Figure 14).

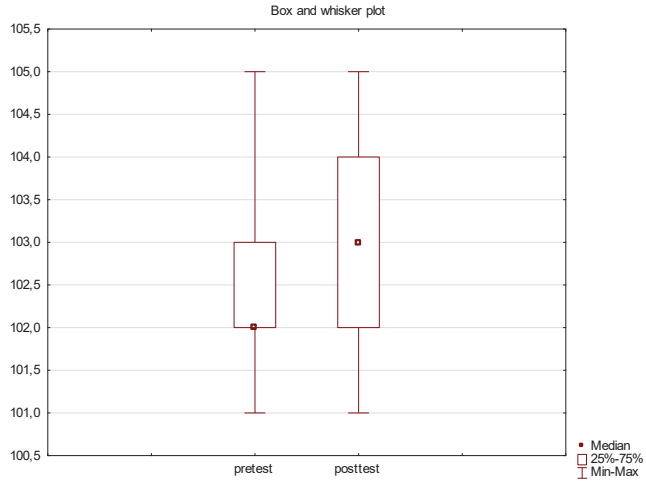

Figure 14. Comparison of the answers to the question on graphic development (e.g. infographics, mind maps / knowledge maps) in the pre and post-tests.

The Module "Presentation of graphic materials in the form of infographics and mind maps" included two lessons: 1) Theoretical, methodological and practical aspects of creating infographics in education and business; 2) Theoretical, methodological and practical aspects of creating mind maps.

In this module, the participants could learn what infographics are, their classifications / types, rules of creating infographics and relevant software, methodological aspects of creating and using infographics, rules and examples of their practical use in teaching and required competences.

They also learned what mind maps are, their types, how to create mind maps and software needed for these purposes, methodological aspects of using mind maps in teaching and learning, rules and examples of using mind maps for different educational purposes.

The results presented in this article confirmed that the MOOC "Contemporary ICT Tools and Innovative Methods of Creative Education" was elaborated according to the internationally acceptable criteria and successfully achieved its main aim to improve and enhance the digital competences and their use in education of pre-service and in-service teachers.

Conclusions

The data from the Pre-test and Post-test confirmed the participants' positive self-evaluation in developing their digital competences, which proves the research hypothesis of this study (H1, H2, H3).

The data received from the students, who attended the course, confirmed the hypothesis as follows:

1. Taking the MOOCs on Digital Competences in Education helped the students to enhance their competences in adapting and using digital technologies in their teaching, and the difference in the level of their competences before and after the course is significant.
2. The students' level of skills and effectiveness of using ICT and innovative teaching methods in designing the educational process and / or at work increased after participation in the MOOC.
3. Based on the students' self-assessment, the level of their knowledge of different ICT tools and innovative educational methods in learning and online learning practice has risen after taking the course.

In addition to the knowledge and skills obtained, the students became much more confident in using ICT technologies in their teaching and learning, which can ensure their better professional performance and openness for other educational innovations.

Taking into account findings of the recent studies on MOOCs and their quality, requirements of formal education and quality standards for online learning

made it possible to develop an effective, good-quality course, which was positively evaluated by the students.

Among the main criteria and requirements which were followed to organise the course and shape its structure was the provision of detailed description of the course, a label and a developed trailer, which included the course title and subtitle clarifying in one sentence the content of the course, information on the duration of the entire course, number of weekly modules, number of hours the students were supposed to work throughout the course and during the week, prerequisites for the required knowledge and / or skills of the course participants (no prerequisites to join the course), difficulty level, course completion conditions (short information), certification conditions (if the course ends with a certificate), information about the author / authors. It also stated the course type (open / with a limited number of participants), assumed learning outcomes, goals and outcomes of the courses, a detailed description of the assessment strategy (summative assessment and formative assessment that is consistent with the objectives, learning outcomes and course assignments), specific objectives of the modules that were consistent with the learning outcomes throughout the entire course, the modular hierarchical structure of the MOOCs.

A large amount of illustrative materials (diagrams, drawings, videos) was developed specifically for this MOOC. Special support was provided to the participants with limited abilities (visual and hearing impairment). The textual materials were accompanied with audio tapes and a variety of graphics, audio and video to make the course content accessible for the learners with special needs.

The next stage of the activities and research in this area will consist in further analysis of the students' opinions, taking into account their comments, updating and improving the course as well as analysis of the contemporary trends in improvement of MOOCs and their implementation.

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Eugenia Smyrnova-Trybulska, Iryna Sekret, Nataliia Morze, Elspeth McKay

Ocena jakości MOOC i jego skuteczności w szkoleniu nauczycieli w zakresie kompetencji cyfrowych i ich wykorzystania w edukacji: Studium przypadku

Streszczenie

W niniejszym opracowaniu przedstawiono wyniki badań uzyskane w wyniku oceny kompetencji cyfrowych przyszłych i czynnych nauczycieli po ukończeniu kursu MOOC „Współczesne narzędzia ICT i innowacyjne metody kreatywnej edukacji". Artykuł zawiera krótki opis MOOC, wymagania do zaliczenia kursu oraz analizę efektów uczenia się poprzez samooce-

nę i informację zwrotną studentów. MOOC został opracowany w języku polskim i angielskim w ramach projektu „MOOCs for Sciences of Education" i udostępniany na polskiej platformie MOOCs Navoica (www.navoica.pl) w ramach konkursu, zainicjowanego przez Ministerstwo Edukacji i Nauki RP oraz Narodowe Centrum Badań i Rozwoju (NCBR – Narodowe Centrum Badań i Rozwoju) pt. „Kierunek do MOOC". Mając na uwadze, że masowe otwarte kursy online (MOOC) stały się głównym nurtem dla uniwersytetów, reformatorów edukacji i firm rozpoczynających działalność, szczególnie w czasach COVID-19, uważa się, że badanie przyczyni się do rozwoju pedagogiki MOOC oraz pozwoli zająć się kwestią skuteczności MOOC w zakresie efektów uczenia się i satysfakcji uczniów. Eksperymentalny MOOC „Współczesne narzędzia ICT i innowacyjne metody kreatywnej edukacji", który miał na celu zwiększenie kompetencji cyfrowych nauczycieli, składał się z 8 modułów i w jego pierwszej edycji w latach 2020–2021 wzięło udział ponad 90 uczniów. Konkluzje MOOC w ogólne zalecenia dotyczące zwiększenia skuteczności MOOC w zakresie edukacji formalnej i efektów uczenia się zostały ocenione na podstawie danych z badań i odpowiednio przedstawione. Wybrane analizy statystyczne i porównania danych wykonano testem Wilcoxona na poziomie istotności alfa = 0.05. Normalność rozkładów badanych zmiennych sprawdzono za pomocą testu Shapiro Wilka.

S ł o w a k l u c z o w e: MOOC; edukacja, kompetencje cyfrowe; nauczyciele; narzędzia ICT w edukacji

Евгения Смирнова-Трибульская, Ирина Секрет, Наталия Морзе, Элспет МакКей

Оценка качества MOOC и его эффективности в формировании у учителей цифровых компетентностей и их использования в образовании: тематическое исследование

А н н о т а ц и я

В работе представлены результаты исследования, полученные в результате оценки цифровых компетенций педагогов до и после прохождения ими MOOC «Современные средства ИКТ и инновационные методы креативного образования». В статье представлено краткое описание MOOC, требования к прохождению курса и анализ результатов обучения посредством самооценки и обратной связи студентов. MOOC был разработан на польском и английском языках в рамках проекта «MOOC для наук об образовании» и размещен на польской платформе MOOC Navoica (www.navoica.pl), разработан в рамках конкурса, инициированного Министерством образования и науки Польши, и Национальным центром исследований и развития (NCBR – Narodowe Centrum Badań i Rozwoju) по теме «Направление на MOOC». Принимая во внимание тот факт, что массовые открытые онлайн-курсы (MOOC) стали основным направлением для университетов, реформаторов образования и начинающих компаний, особенно во время COVID-19, можно предположить, что исследование способствует развитию педагогики MOOC, а также способствует решению вопроса об эффективности MOOC для результатов обучения и удовлетворенности студентов. Экспериментальный MOOC «Современные средства ИКТ и инновационные методы кративного образования», направленный на повышение цифровых компетенций учителей, состоял из

8 модулей и в l-м выпуске которого в 2020–2021 годах приняли участие более 90 студентов. Выводы основных МООС и общие рекомендации по повышению эффективности МООС для формального образования и результатов обучения были оценены на основе данных исследования и представлены соответствующим образом. Выбранные статистические анализы и сравнения данных были выполнены с использованием критерия Уилкоксона при уровне значимости альфа = 0.05. Нормальность распределений исследуемых переменных проверяли с помощью теста Шапиро-Уилка.

К л ю ч е в ы е с л о в а: МООС; образование, цифровые компетенции; учителя; ИКТ-инструменты в образовании

Eugenia Smyrnova-Trybulska, Iryna Sekret, Nataliia Morze, Elspeth McKay

Evaluación de la calidad y eficacia de los MOOC en la formación del profesorado en competencia digital y su uso en la educación: un estudio de caso

R e s u m e n

Este estudio presenta los resultados de la investigación obtenidos tras la evaluación de las competencias digitales de los docentes en formación y en servicio tras la realización del MOOC "Herramientas TIC Contemporáneas y Métodos Innovadores de Educación Creativa". El artículo proporciona una breve descripción del MOOC, los requisitos para aprobar el curso y el análisis de los resultados del aprendizaje a través de la autoevaluación y la retroalimentación de los estudiantes. El MOOC se desarrolló en polaco e inglés dentro del proyecto "MOOCs for Sciences of Education" y se alojó en la plataforma polaca de MOOCs Navoica (www.navoica.pl) en el marco de la competencia, iniciada por el Ministerio de Educación y Ciencia de Polonia. y el Centro Nacional de Investigación y Desarrollo (NCBR – Narodowe Centrum Badań i Rozwoju) sobre "Dirección hacia el MOOC". Teniendo en cuenta que los cursos masivos abiertos en línea (MOOC) se han convertido en una corriente principal para universidades, reformadores de la educación y empresas emergentes, especialmente en tiempos de la COVID-19, se cree que el estudio contribuye al desarrollo de la pedagogía de los MOOC., y abordar la cuestión de la eficacia de los MOOC para los resultados de aprendizaje y la satisfacción de los estudiantes. El MOOC experimental "Herramientas TIC Contemporáneas y Métodos Innovadores de Educación Creativa", que tenía como objetivo mejorar las competencias digitales de los docentes, contenía 8 módulos y contó con la asistencia de más de 90 estudiantes hasta su primera edición en 2020–2021. Las conclusiones del MOOC en el enfoque y las recomendaciones generales sobre la mejora de la eficacia de los MOOC para la educación formal y los resultados del aprendizaje se evaluaron en función de los datos de investigación y se proporcionaron en consecuencia. Los análisis estadísticos seleccionados y las comparaciones de datos se realizaron mediante la prueba de Wilcoxon al nivel de significación alfa = 0.05. La normalidad de las distribuciones de las variables estudiadas se comprobó mediante la prueba de Shapiro Wilk.

P a l a b r a s c l a v e: MOOC; educación, competencias digitales; maestros; Herramientas TIC en la educación

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The Impact of Support for Language Development in Online Classes at Gdansk University of Technology During the COVID-19 Pandemic

Abstract

The COVID-19 pandemic has caused a significant disruption to education. To adapt to new conditions, academics immediately had to restructure their teaching programmes. Not all of them, however, had sufficient skills to be able to deliver effective online classes. Neither did the less qualified have enough time to increase their competencies by getting pre-emptive support coming from peers and technical staff, nor did they have an opportunity to self-direct their training. Yet, to achieve the best effect, to develop an e-learning environment in which they could deliver high-quality teaching that would meet various language needs of their students, they needed general and specific support mechanisms. The former relates to the technological aspect, that is the functionalities of available tools and the affordances they allow. The latter comes from the course structure, educational material, teachers and students. With strong support provided by certified peers, the English teachers at Gdansk University of Technology managed to engage their students in interactive, collaborative and active learning. The ideas shared in the paper are supported by qualitative and quantitative research conducted in 2020 and 2021.

K e y w o r d s: e-learning, support, active learning, language skills, COVID-19 pandemic

Cohort-Based Language Classes During the Pandemic and Beyond it – Key Factors in Learning Design

Online classes can be very effective if flexible support structures allowing course designers and tutors to meet the individual needs of each student have been designed. A cohort-based programme with synchronous and asynchronous interactions between and among the four pillars of the educational process – the tutor, students, technology and educational material (Mokwa-Tarnowska, 2013) – allows for novelty, versatility and personalisation. Well-structured, thought-out e-learning programmes delivered during the COVID-19 pandemic can be used to enhance traditional classes in a post-pandemic era. They can better satisfy varied needs of a mixed-ability group of university students whose competencies range from relatively basic to fairly advanced, who have different learning styles, preferences and goals. However, for online classes to be effective, their designers should introduce a wide variety of support mechanisms into every stage of learning design (Littlejohn & Pegler, 2007: 75-76), taking into account the affordances (Gibson, 1979: 127) of the tools used. They should also adopt a learner-centred approach (Bremner, 2019) with personalised educational paths.

Research conducted during the COVID-19 pandemic has shown that school teachers have received some support from the national government and managers (Vu et al., 2020) and that it might be instructional, technology-oriented, or emotional (Pressley, 2021). However, its in-depth nature and mechanisms have not yet been analysed, nor has their impact on the effectiveness of online delivery in the case of university academics and lecturers been tested. The paper aims to show to what extent the online classes run by the Language Centre of Gdansk University of Technology during the first three semesters of the pandemic satisfied the needs of the students and how tutors with a different degree of expertise coped with the challenges of learning design and delivery. With strong pre-emptive and reactive support provided by their peers who were certified online tutors, the English teaching staff managed to offer online replacement of traditional classes immediately after the lockdown was introduced in March 2020. The ideas shared in the paper are supported by qualitative and quantitative research conducted at Gdansk University of Technology (GUT) in 2020 and 2021.

Support Mechanisms

Support (Simpson, 2012) coming from administration staff, tutors, peers, course materials and tools can be divided into general and specific (Herriot-Watt University, 1999: mod. 3: 7). The former relates to the technological aspect, e.g., how to enrol on the course, how to use software. The latter comes from the educational material and tools available on the course pages, tutors supervising coursework, and peers. Research shows that all specific support stimulates engagement and active participation, helps pace learning and meet course aims and objectives (Mokwa-Tarnowska, 2014; Meltzer & Hamman, 2004; Egbert, 2007). It can be pre-emptive and responsive.

Without general and specific support structures, an e-learning course can be very ineffective, and can discourage and demotivate learners, especially those who are not self-directed (Schraw, Crippen Hartley, 2006) and who need guidance, supervision, assistance, advice and help. For example, massive open online courses (MOOCs), whose some support systems are weak by definition, particularly tutor support, have a very high non-completion rate, which according to Clow (2013) and Jordan (Parr, 2013) on average amounts to 90% and 93.2% respectively. It can be higher, with the median around 60%, if students pay for certificates (Chuang & Ho, 2016; Handoko et al., 2019).

Support inherent in course materials, coming from the course website, the resources, activities and tools available on the course, results from premeditated delivery in the case of pre-emptive support, and active re-redesigning as regards responsive support. It fosters creativity in students (Mokwa-Tarnowska, 2017: 81-83), and encourages them to be active participants in the educational process, who construct meaning by formulating hypotheses, finding solutions and putting forward proposals. Self-assessment tasks, which are formative in character, allow learners to develop the ability to control and direct their learning. Through a conscious analysis of their skills and understanding of the subject matter, they gradually become more confident and more independent pursuers of their educational goals.

The evaluation of progress carried out by automated assessment tools provides students with constructive feedback (Al-Hattami, 2019; Du Toit, 2012; Ovando, 1994) by appraising and rewarding excellent performance as well as pinpointing problem areas. The analysis of the most frequently occurring mistakes spotted by the system, which shows how many times each student has approached every task, and what mistakes they have made in close-ended questions such as multiple-choice, cloze and matching, can result in tutors changing support structures by updating, rephrasing and extending the content or even redesigning it. Once

problem areas have been identified, e.g. inappropriate and incorrect use of the active and passive voice, conditionals, the gerund or the infinitive, new resources and activities with additional information, suggestions and advice as to what to revise can be added.

Tutor support accelerates the learning process in an online environment. Tutors, who are facilitators, supervisors and guides, provide vital information, answers and advice. Synchronous meetings and asynchronous interactions with them through text, images and audio files decrease the feeling of isolation that some online learners may experience.

Pre-emptive tutor support consists in clarifying the features of the course management system, its tools, the layout of the course, its granularity, navigation around the material, linear and non-linear educational paths, compulsory and optional coursework, types of tasks and assignments, assessment and communication channels. During the course, the tutor has different asynchronous and synchronous tools at their disposal to pre-emptively support their learners. They can provide encouragement, or point out some important issues that learners will have to concentrate on in the next phase of the course. Such text-based tools as email, discussion forum, instant messaging, chat, which are available in every course management system, allow various tutor-student interactions. Webinars and video-conferenced tutorials are a valuable addition, as they enhance e-learning by providing an authentic communicative context.

Responsive tutor support can be delivered before, during and after the course. By addressing queries prior to the course commencement or by meeting their prospective students at a kick-off workshop, the tutor learns a great deal about them. During-the-course tutor support takes different forms and responds to student needs when they arise. Questions and problems can range from strictly technical to purely linguistic. Automated assessment through testing and progress monitoring allows identifying problem areas and taking corrective action. After-the-course responsive support is very rare, and it obviously depends on learning design and tutors themselves. Continuous constructive tutor feedback stimulates engagement, which leads to reaching learning aims and objectives and intended learning outcomes.

Peer support, which comes from fellow students, is pre-emptive or responsive, whichever is available depends on how active student participation in the course is, on support structures included in learning design, and on how important for the tutor it is. Creating strong support groups is particularly beneficial if the tutor's presence is limited, like in the case of MOOCs.

Responsive peer support can be provided in various ways. During the course it can be offered through email communication, threaded discussion forums, collaborative and co-operative activities (Mokwa-Tarnowska, Roszak, & Kołodziejczak,

2018), video and text conferencing, and peer review of the instructional design of the courses and educational material already developed. Interactivity achieved through different communication channels is one of the factors which enhances interest and motivation (Kishabale, 2019; Sebastianelli, Swift, & Tamimi, 2015; Zorko, 2007). Not only is a communication-based activity in itself an excellent exercise that enables students to develop communicative, analytical, critical and reflective skills, but it is also a beneficial language practice – its execution through written communication gives students an additional chance to gain language competence.

Creating well-functioning support groups is an enormous challenge for an online language tutor. If they succeed, benefits can be substantial. Firstly, strong support groups reduce the feeling of isolation that Internet-based courses evoke in a significant number of inexperienced participants, which was seen in many e-learning environments during the COVID-19 pandemic (Kaisara & Bwalya, 2021; Abbasi, Ayoob, Malik & Memon, 2020; Aini, Budiarto, Putra & Rahardja, 2020). Students who feel uncomfortable sitting alone in front of a computer screen more eagerly contact other members of the cohort if they know that they will be supported by them. Support groups can operate like social networks (Poore, 2013: 82-91), where students continually share their thoughts, circulate information, link up with people from another town, city and country. Unlike them, however, in-class support groups rarely grow organically, and their existence can result from previous successful project collaboration and execution (Christudason, 2003). Secondly, if there are many participants, and tutor support is weak, which is determined by the nature of the course and tutor skills, both teaching and technological ones, peers can become a powerful source of advice and encouragement. Support groups can stimulate those who would otherwise drop out, lag behind or unwillingly participate in collaborative activities.

A very effective method of supporting students is peer review. For it to be successful, clear and precise guidelines with instructions for assessing must be provided by tutors. Constructive and positive feedback based on sharing ideas is a powerful tool in teaching and learning (Hattie & Timperley, 2007) from the constructivist point of view. Peer review increases awareness and makes students more conscious of what learning entails. It causes them to work harder to produce a thorough analysis of the project being reviewed. According to Gibbs (2010) metacognitive awareness is an important element of the educational process. His research shows that it even improves retention.

Research Design and Implementation

Since mid-March 2020 to mid-June 2021 the Language Centre at Gdansk University of Technology conducted online classes for both 1st and 2nd degree students of all the faculties. Due to the COVID-19 pandemic traditional teaching was replaced by Moodle-based e-learning, asynchronous in the case of the spring semester of the academic year 2020/2021 and integrated with synchronous meetings of increasing frequency as regards the following academic year. Within the first two weeks of the first pandemic semester all the teaching staff started developing online resources and activities. Only 7 out of 35 foreign language teachers were certified online tutors with varied experience, mostly in web-supported teaching. The other staff's online pedagogy skills and technological competence in online material production and delivery were non-existent, some had only basic ICT skills. With strong support, both general and specific, pre-emptive and responsive, coming from the certified teachers, who established the Centre's E-learning Unit four years before, they not only managed to deliver online education but were also able to provide varied programmes including a growing number of high quality educational material with online resources and activities.

In June 2020, at the end of the first semester of the three-semester pandemic online teaching, the students who participated in the classes run by the Language Centre were asked to complete online questionnaires with close-ended questions about their attitudes towards their e-learning experiences. As many as 1522 students completed the survey – the response rate was 79%. The analysis of the answers to selected questions is presented in this study. It is supported by findings collected during qualitative research, based on observation and answers to a survey with open-ended questions completed by 1064 GUT's students, conducted at the end of the third pandemic semester in June 2021 – the survey achieved a 66% response rate.

Research Questions and Methods

The qualitative and quantitative research presented in this paper aimed to investigate the nature of the online language classes delivered at GUT during the first three semesters of the COVID-19 pandemic, the level of student satisfaction with the adopted teaching approach, and the impact of the environment on an increase in students' hard and soft skills. The students' opinions and needs enumerated

in the answers to the open-ended questions have helped to uncover some ways to improve traditional language education offered by GUT. Two basic tools were used to produce a qualitative analysis: direct observation and a questionnaire. The quantitative research involved an online survey. The research questions targeted in both phases were as follows:

– What are the students' attitudes to online work during the pandemic?
– How effective can online learning which has replaced traditional classes be in terms of learning outcomes?
– How successful were the online environments created by beginner tutors and more advanced ones?
– How did the e-learning environments developed by more advanced tutors differ from the ones created by beginner tutors?
– To what extent did the online programmes satisfy the expectations of the BSc and MSc students who participated in them?

It can be assumed that the composition of each study group was homogeneous with respect to many factors: age, intellectual capacity, interest in science and engineering, and B2–C1 level of English according to the Common European Framework of Reference for Languages. The only major difference was university study experience as both first-year and second-year undergraduate students as well as MSc students participated in the research, which could have had an impact on their perception of online learning. It might have been easier for the second years and master's students as they were well acquainted with university requirements, had participated in numerous activities before, and knew their peers.

Data were collected through an online questionnaire available on every Moodle course's website in the last module. The number of participants per language group ranged between 3 and 28. Every group had a separate Moodle course built using the same instructional design. The questionnaire aimed to evaluate the summer semester of the academic year 2019/2020 included five questions with answers on a five-point Likert-type scale (5: totally agree; 4: agree; 3: neither agree nor disagree; 2: disagree; 1: strongly disagree), and all of them finished with a request to justify the chosen answer. The one at the end of the academic year 2020/2021 consisted of six open-ended questions. The questionnaires were not authorised to collect sociodemographic information. They are considered reliable and valid – they included standardized questions that are frequently asked to evaluate online education, they produced generalizable results, which was seen across the whole sample, all the participants were given the same questions and were tested under the same conditions – through an end-of-semester Moodle activity. The questions were drafted and their scope was discussed by the Language Centre's Council, prior to the approval by the Director of the Language Centre.

The quantitative data collected during the research are presented as mean values or percentage, as appropriate. The comparison of groups (categorical data) was analysed with the χ^2 test. Most of the results were considered insignificant at $p>0.05$, but they gave a significant insight into online teaching. The statistical analyses were performed with RStudio.

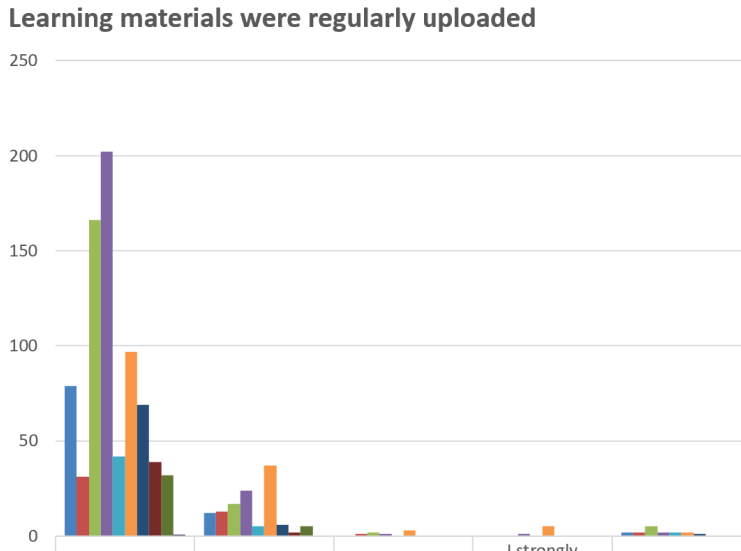
The qualitative data were analysed via inductive coding, which helped to conceptualise students' attitudes, their assessment of the language skills they had developed over the previous months. This approach resulted in defying possibly erroneous preconceptions imposed by deductive data analysis, and allowed dominant and significant themes inherent in raw data to emerge. It also aimed to establish clear, transparent and justifiable links between the aims and the findings. The trustworthiness of the findings was assessed by comparison with the findings from the previous research conducted at GUT. Initial categories were created from actual words and phrases used in specific answers. The categories were later combined under a superordinate category when the meanings were similar. Thus, codes were developed inductively from the data downloaded from Moodle (Saldaña, 2021).

The respondents were divided into two groups based on their lecturer's online teaching experience – students taught by beginner tutors and students taught by more advanced ones. This aimed to understand if and how the teaching staff's pedagogical and technological competence affected student learning. Beginner tutors had no previous experience in e-learning. They had used neither Moodle nor simple applications to develop educational materials before. Some of them did not even know how to access the university's Moodle. However, they had sufficient ICT skills to prepare text-based exercises, as well as use video and audio files. More advanced tutors had regularly enhanced their traditional classes with Moodle resources and activities, and web-based educational material before. The majority of them, 6 out of 7, had been certified online tutors prior to the onset of the pandemic, and one obtained a certificate during the pandemic in 2021, awarded by the Association of Academic E-learning, Poland.

Qualitative and Quantitative Research – Results and Discussion

The total number of survey participants in the first research phase in June 2020 amounted to 1522 first degree students. Their responses were not analysed according to their language competence, only the level of university degree was taken

into account. The research targeted the online environment that was created by the staff with a different degree of e-learning and e-teaching expertise to replace traditional classes, and not the subject matter. Second degree students had far more experience in using online components at that time because many of the language classes they had had before had been web-based. This could have influenced their attitudes, therefore their responses were not taken into account in the first phase of the research devoted to the analysis of e-learning.

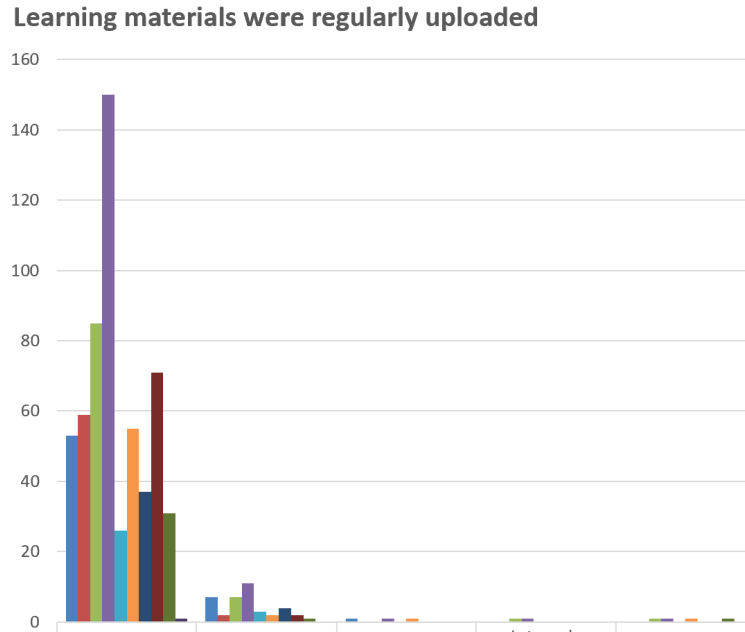


	I strongly agree	I agree	I disagree	I strongly disagree	No opinion
Architecture	79	12	0	0	2
Chemistry	31	13	1	0	2
Civil and Environ Eng	166	17	2	0	5
Electron, Telecom, Inform	202	24	1	1	2
Electrical and Control Eng	42	5	0	0	2
Management and Economics	97	37	3	5	2
Mechanical Engineering	69	6	0	0	1
Physics and Mathematics	39	2	0	0	0
Ocean Eng, Ship Techn	32	5	0	0	0
	83%	13%	1%	1%	1%

Figure 1. 1st Degree Students taught by beginner tutors – June 2020.

With strong support from the e-learning team under my supervision, from the very beginning of the pandemic the beginner teachers were able to design online material and develop regular, weekly modules with resources and activities based on the syllabus. Figures 1 and 2 show that no matter how advanced the tutors

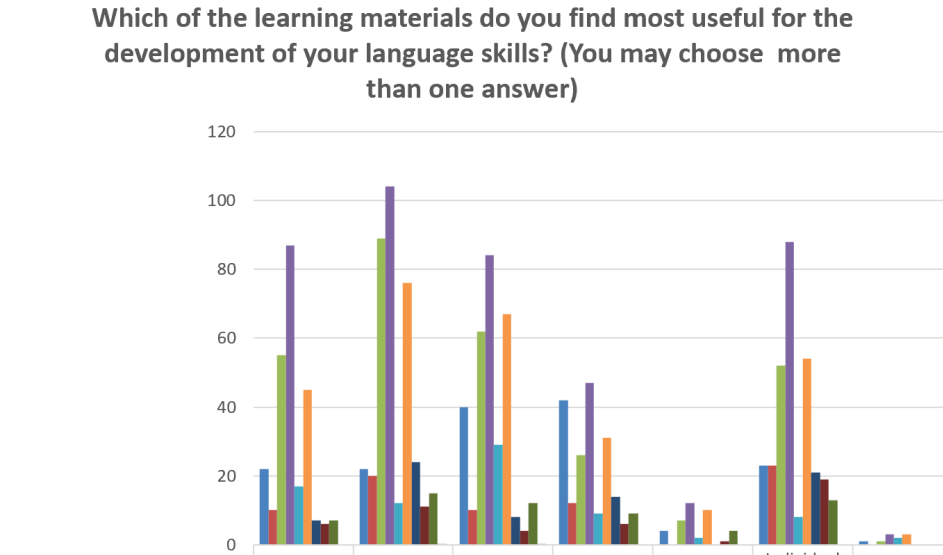
were, they succeeded in creating an online environment, which was confirmed by the substantial majority of the respondents, 96% taught by the beginner tutors and 98% by the more advanced ones. The difference between the responses in both groups is statistically insignificant ($p=0.054$, $p>0.05$). This shows that the pre-emptive and responsive support structures used to guide the staff were successful and all the lecturers quickly became online tutors who managed to proceed with their teaching duties when other GUT academics often failed to do so in the first period, as was reported by the students in the comments they added to their responses.



	I strongly agree	I agree	I disagree	I strongly disagree	No opinion
Architecture	53	7	1	0	0
Chemistry	59	2	0	0	0
Civil and Environ Eng	85	7	0	1	1
Electron, Telecom, Inform	150	11	1	1	1
Electrical and Control Eng	26	3	0	0	0
Management and Economics	55	2	1	0	1
Mechanical Engineering	37	4	0	0	0
Physics and Mathematics	71	2	0	0	0
Ocean Eng, Ship Techn	31	1	0	0	1
	92%	6%	0%	0%	1%

Figure 2. 1st Degree Students taught by more advanced tutors – June 2020.

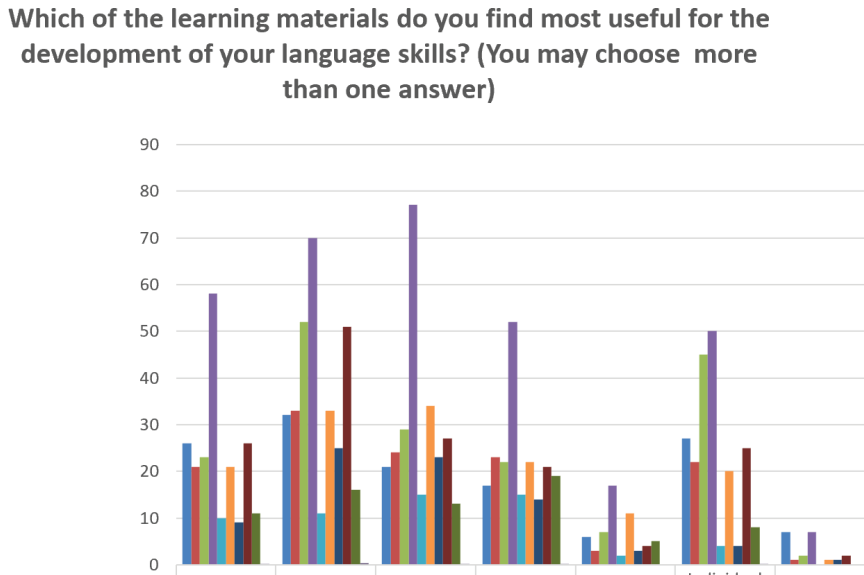
Based on the responses received (Figs. 3 and 4), it can be said that the tools to develop online materials were those which allowed preparing typical language tasks, i.e. reading comprehension, vocabulary and grammar exercises, writing and listening practice. They ranged from the ones to upload resources in Moodle, i.e. *Label*, *URL*, *Page*, to the ones for doing activities, i.e. *Assignment* and *Quiz*. The last tool was initially used only by the more advanced tutors but gradually the number of the teaching staff who learnt how to set such tasks began to increase. As can be seen, the respondents' preferences in both groups are similar and do not depend on the tutor's online teaching skills. Following the monitoring activities that took place each semester, which I supervised as the Coordinator for



	Reading	Quizzes/tests	Video/audio materials	Forum discussions	Groupwork	Individual tasks sent via the platform	Giving peer feedback
Architecture	22	22	40	42	4	23	1
Chemistry	10	20	10	12	0	23	0
Civil and Environ Eng	55	89	62	26	7	52	1
Electron, Telecom, Inform	87	104	84	47	12	88	3
Electrical and Control Eng	17	12	29	9	2	8	2
Management and Economics	45	76	67	31	10	54	3
Mechanical Engineering	7	24	8	14	0	21	0
Physics and Mathematics	6	11	4	6	1	19	0
Ocean Eng, Ship Techn	7	15	12	9	4	13	0
	17%	25%	21%	13%	3%	20%	1%

Figure 3. 1st Degree Students taught by beginner tutors – June 2020.

E-learning at the Language Centre, it can be stated that even the more advanced tutors chose only the Moodle tools that allowed them to create a typical educational environment with basic interactions. Their students felt comfortable with what was familiar to them and they perceived quizzes (25%), listening exercises (21%) and writing tasks (16%) as having a major impact on the development of their language skills (Fig. 4). There are some differences between the respondents, e.g. the Electrical and Control Engineering students as well as the Ocean Engineering and Ship Technology ones chose forum discussions to be the most useful material, with video/audio materials being almost as frequently mentioned.



	Reading	Quizzes/tests	Video/audio materials	Forum discussions	Groupwork	Individual tasks sent via the platform	Giving peer feedback
Architecture	26	32	21	17	6	27	7
Chemistry	21	33	24	23	3	22	1
Civil and Environ Eng	23	52	29	22	7	45	2
Electron, Telecom, Inform	58	70	77	52	17	50	7
Electrical and Control Eng	10	11	15	15	2	4	0
Management and Economics	21	33	34	22	11	20	1
Mechanical Engineering	9	25	23	14	3	4	1
Physics and Mathematics	26	51	27	21	4	25	2
Ocean Eng, Ship Techn	11	16	13	19	5	8	0
	16%	25%	21%	16%	5%	16%	2%

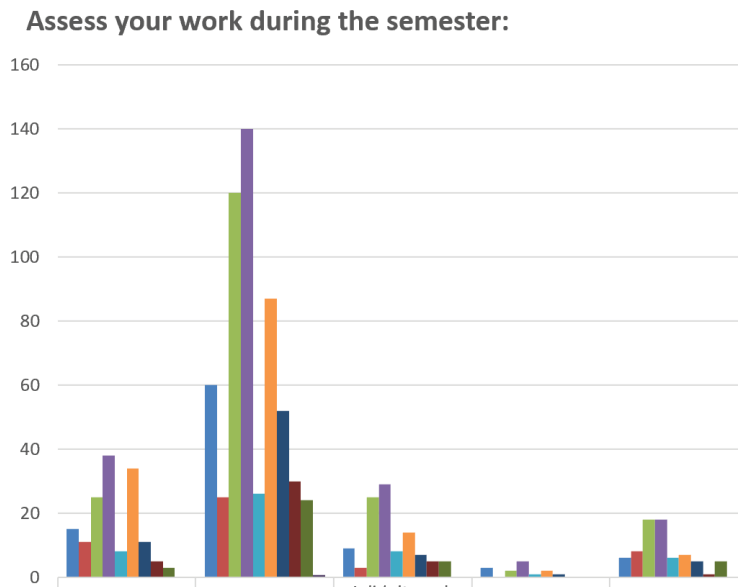
Figure 4. 1st Degree Students taught by more advanced tutors – June 2020.

The responses of the students taught by the less experienced tutors were almost identical – however, more students found writing tasks to be useful (20%), an increase of 4% compared to the more advanced tutors' groups (Fig. 3). 'Quizzes' was the most common answer – they were probably the most interactive activities on the courses developed by the inexperienced tutors. The Physics and Mathematics students as well as the Chemistry ones regarded individual tasks sent via the platform as the material that best developed their skills. The Architecture respondents were the only group to choose forum discussions as the most useful activities, which probably resulted from them being more advanced learners. The percentage of the Electrical and Control Engineering students who choose video/audio materials was the highest (37%), the differences between the other groups in this category are not substantial – they range around 20%.

Collaborative activities were not appreciated by the respondents, which can result from them being introduced at a later stage and not in significant numbers. Also, the students might not see them as a valuable addition to an online language course because, as research has shown, the collaborative skills of both undergraduate and postgraduate students are usually limited and require developing (Mokwa-Tarnowska, Roszak & Kołodziejczak, 2018). If they are insufficient, students tend to avoid group work. In the second semester of the pandemic period all the more advanced tutors introduced collaborative projects executed by different tools, e.g. the *wiki* tool in Moodle, *PiktoChart, Canva***,** *Genial.ly*, *Infogram* and *Venngage,* which most students engaged in. However, to appreciate the impact of untypical activities for language development, students must understand their value and the reasons for incorporating them into the curriculum. If they do not, they are unlikely to see their advantages even if they are substantial.

Figures 5 and 6 show how the respondents perceived their engagement and workload during the first semester of the pandemic period. Slightly more students from the groups supervised by the more experienced tutors than the other ones decided that they had worked regularly and intensively (82% – 504 students versus 79% – 716 students). The 3 percent difference is negligible. A *chi – square* test confirmed that the results were non-significant ($p = 0.857, p > .05$). It appears that both groups worked equally regularly and intensively regardless of how advanced in online learning design the tutors were.

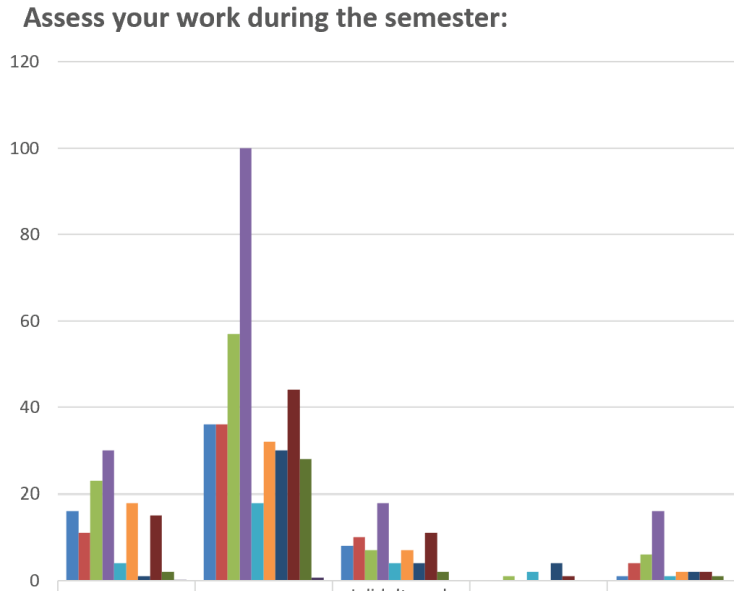
The first and the second most popular answer chosen by the students taught by the beginner tutors show that the staff managed to create an engaging environment, which means that they quickly developed online pedagogy skills and technological competence, both of which were indispensable to achieve a successful programme. The same applies to the students taught by the more advanced tutors.



	I worked regularly and really hard.	I worked regularly and hard enough.	I didn't work regularly and not hard enough.	I definitely worked too little.	No opinion.
Architecture	15	60	9	3	6
Chemistry	11	25	3	0	8
Civil and Environ Eng	25	120	25	2	18
Electron, Telecom, Inform	38	140	29	5	18
Electrical and Control Eng	8	26	8	1	6
Management and Economics	34	87	14	2	7
Mechanical Engineering	11	52	7	1	5
Physics and Mathematics	5	30	5	0	1
Ocean Eng, Ship Techn	3	24	5	0	5
	17%	62%	12%	2%	8%

Figure 5. 1st Degree Students taught by beginner tutors – June 2020.

Although the Ocean Engineering and Ship Technology, Physics and Mathematics, Electrical and Control Engineering as well as Civil and Environmental Engineering students taught by the beginner tutors chose: "I worked irregularly and not hard enough" as a second most popular answer, the percentages were not very high and were overbalanced by the ones showing a great deal of effort put into online learning (Fig. 5).



	I worked regularly and really hard.	I worked regularly and hard enough.	I didn't work regularly and not hard enough.	I definitely worked too little.	No opinion.
Architecture	16	36	8	0	1
Chemistry	11	36	10	0	4
Civil and Environ Eng	23	57	7	1	6
Electron, Telecom, Inform	30	100	18	0	16
Electrical and Control Eng	4	18	4	2	1
Management and Economics	18	32	7	0	2
Mechanical Engineering	1	30	4	4	2
Physics and Mathematics	15	44	11	1	2
Ocean Eng, Ship Techn	2	28	2	0	1
	20%	62%	12%	1%	6%

Figure 6. 1st Degree Students taught by more advanced tutors – June 2020.

The predominantly qualitative research conducted in June 2021 with a sample of 1064 respondents, 691 first degree students and 373 second degree ones, aimed to assess student satisfaction level with a hybrid environment created for them. As the participants had developed e-learning skills by the time and they were familiar with different types of resources and activities, it was interesting to analyse if the attitudes of the undergraduates and postgraduates towards high-impact educational material differed.

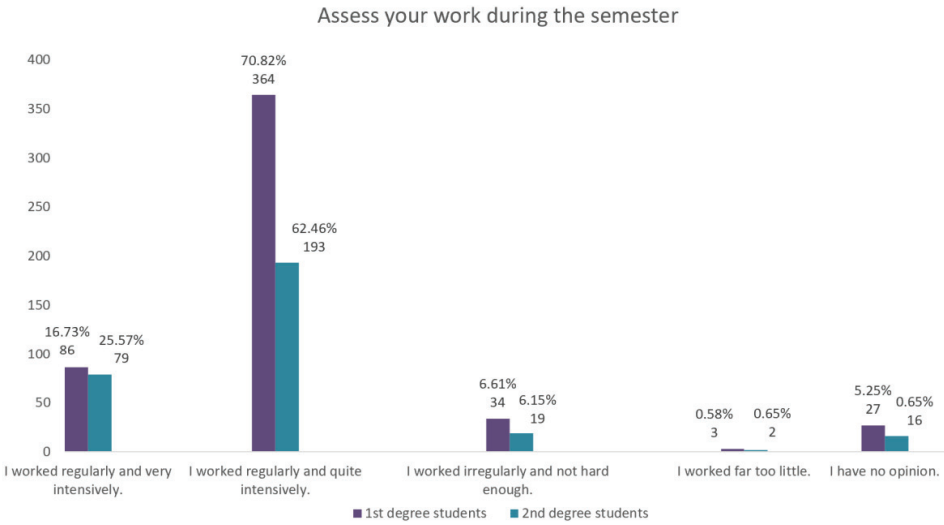


Figure 7. Students taught by less advanced tutors – June 2021.

As can be concluded from figures 7 and 8, the 1st degree students as well as the 2nd degree ones chose: "I worked regularly and quite intensively". This answer was the most frequent regardless of how advanced the tutor was. Slightly more postgraduate students taught by the more advanced tutors perceived their engagement to be higher, which is particularly seen in the percentage of the second choice responses. The chi-square statistic is 3.9161. The *p-value* is 0.048. The result is significant at $p < 0.05$. This could have resulted from them being encouraged to participate in more varied activities including collaborative projects of various kinds and peer review, which they had not done before.

In both conditions, "I worked regularly and very intensively" was the second most popular answer for all the students. Generally, the 2nd degree students appear to have worked harder regardless of how advanced their tutors were. In both cases the percentage of those who studied the most intensively was higher for the 2nd degree students (25.57% and 17.19%) in comparison with the first degree ones (16.73% and 14.12%).

When compared to the results of the first survey (Figs. 5 and 7), it must be emphasised that in the group taught by the less experienced tutors, more students in June 2021 than in the spring semester of the academic year 2019/2020 regarded themselves as hardworking (88% and 79% respectively). An increase in the number of those who worked regularly and intensively can also be seen in the case of the respondents in the group educated by the more advanced tutors – 88% versus 82%. Improved online teaching skills seem to have enabled creating a more engaging and effective educational environment (Figs. 6 and 8).

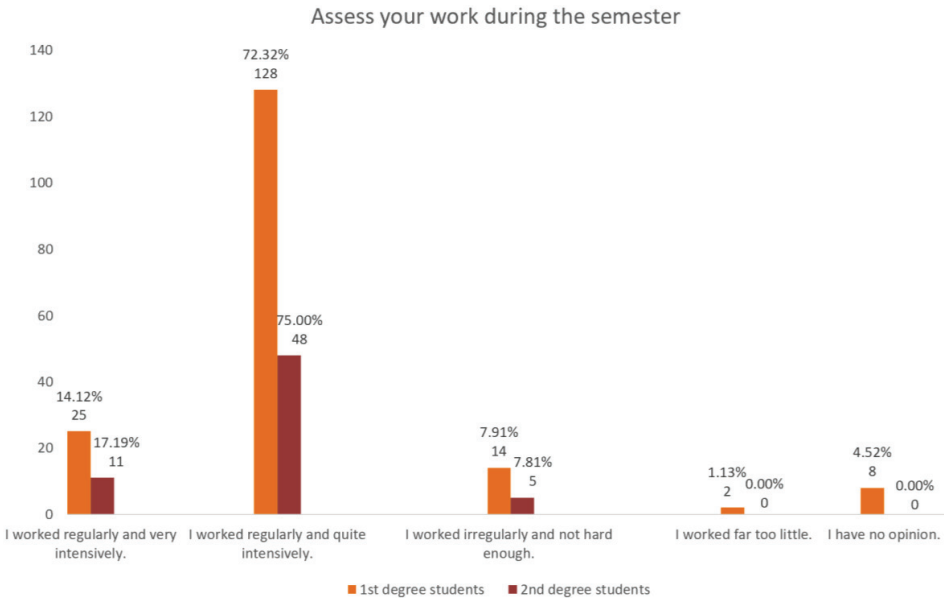


Figure 8. Students taught by more advanced tutors – June 2021.

A statistical comparison of the two groups shows that there is a statistically non-significant difference between them ($p=0.63$, $p > 0.05$). This indicates that the 1st degree students as well as the 2nd degree ones worked equally regularly and intensively when taught by the more advanced tutors. Similarly, a *chi – square* test showed that the difference between the undergraduates and postgraduates taught by the less advanced tutors was non-significant ($p=0.229$, $p>0.05$). In both cases they studied hard and regularly. This proves that all the teachers were eventually skilful enough to create a successful online environment. Their students focused more on the general quality of the course they were on rather than the technological aspect and the sophistication of the tools used. They were not accustomed to using a complex online programme, because there were none such, given all the ones run by their faculties.

The analysis of the answers to open-ended questions about the materials and tasks that have had the most considerable impact for language skills development has revealed that the students regarded synchronous activities during Zoom meetings as very beneficial – they were mentioned in the majority of comments. This attitude could have resulted from many factors. The most significant ones seem to be: an opportunity for synchronous tutor-student interactions, non-existent or very rare in the previous semesters as obligatory online meetings were introduced in the spring semester of 2020/2021, and online activities during such meetings,

which mimicked typical classes in a traditional setting and which the students felt comfortable with.

The students mainly described the language content from which they had benefitted the most. However, their comments have revealed certain general attitudes towards the learning design of the online courses they attended. First of all, students seek interactivity understood as tutor-student interactions – it can come from both synchronous components and asynchronous ones – discussions were mentioned as a favourite activity by the majority. Secondly, feedback is valued substantially, in whatever form – it can be summative, e.g. quiz result, and formative, e.g. teacher comments on assignments sent via the platform and posts in forum discussions. Thirdly, varied resources increase engagement if they relate to students' professional interests and latest advances, e.g. video talks, presentations and animations. Master's students prefer activities allowing opinion sharing during discussions, both synchronous and asynchronous ones, whereas undergraduates like their language skills being tested through online quizzes with question types such as multiple choice and matching. Moreover, if students are taught by experienced tutors, who can use their pedagogical skills and technological competence to a synergistic effect, they understand the added value of online interactions available due to the functionalities and affordances of online tools incorporated into learning design. If tutors are inexperienced or if their online teaching skills are limited, their students look for an online environment which mimics a traditional setting, and they can reject e-learning not understanding the benefits it offers. Finally, unsupported students or students inexperienced in online learning can feel fatigue and can express a sense of underachievement and underperformance, which can be seen in their complaints about heavy workloads, too much homework and time consuming activities.

Some online programmes were thought to be too intensive, packed with too many activities requiring too much effort. Some asynchronous tasks that replaced face-to-face meetings were identified as homework, and thus appeared to be excessively demanding. However, the estimated amount of work was within the specified workload indicated by the ECTS credits allocated to the subject. Some respondents mentioned that their Moodle-based language classes were far better that other seminars and lectures taught by their faculty. They were structured around a wide range of varied asynchronous activities and team tasks during Zoom meetings, which was considered an advantage but also a disadvantage by those students who preferred video-based tutorials and presentations, i.e. instructivist teaching methods.

Conclusion

Creating supportive virtual classrooms where students' needs, wants, abilities, interests, and goals are taken into account should be of utmost importance to course developers and tutors if they choose to develop e-learning programmes in the post-pandemic time. No matter what they study, online learners need strong support from the course website, i.e. the layout and structure of course materials, tutors and peers. Even highly motivated students who are interested in the subject matter can become discouraged when they feel unsupported, if they do not understand the nature of e-learning, and the impact of interactions available in an online setting. With synchronous and asynchronous activities, an e-learning programme can satisfy the needs of mixed-ability students with a wide range of interests and learning preferences.

A variety of activities including self-assessment tasks, e.g. educational quizzes with summative and formative feedback, synchronous and asynchronous discussions, online collaborative projects and peer review enable students to develop various skills, ranging from hard to soft ones. A wider range of online interactions than in a traditional classroom, available through the use of a number of tools, result in a motivating environment, which focuses on a simultaneous development of numerous skills.

All support mechanisms must raise student confidence, increase engagement as well as provide guidance and remedial action. Peer support can substantially enhance the feeling of being part of a community, which consists in teamwork skills and positive emotional bonds. Its lack was observed during the synchronous meetings which were part of the online language education offered in the spring semester of the academic year 2020/2021. The students did not want to interact with their peers – they barely knew each other due to pandemic restrictions, they preferred tutor-student interactions. Online student-student interactions available in Moodle were more frequent if tutors possessed more advanced online teaching skills and were able to engage their students in more versatile activities which triggered such interactions. However, many of the online language courses offered by GUT during the pandemic were of instructive rather than collaborative nature. A move towards a constructivist environment might be beneficial both for teachers and students. New opportunities that a paradigm shift in instructional design can provide is an area that has to be researched further.

It can be concluded that it is the tutors that play the most important role in providing flexible support structures of various complexity. Constant monitoring, quick identification of problem areas, fast remedial action and formative feedback result in the enhancement of the learning process, and in an increase in student

confidence, motivation and satisfaction, which was seen in the qualitative analysis. The results of the research are in line with what Rowntree (1997: 115) observed at the onset of the online education era – 'without tutorial support, the best materials in the world may prove disappointing (…), quite basic materials can be effective if learners are supported by sensitive and diligent tutors'. However, it has to be emphasised that tutors develop effective online courses if they are themselves supported. Without strong support coming from specialists in online pedagogy and technology, academics and teaching staff are unable to create and deliver online courses that have the potential to meet aims and objectives, and lead to intended learning outcomes.

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Iwona Mokwa-Tarnowska, Viviana Tarnowska

Wpływ wsparcia na jakość zajęć online z języków obcych na Politechnice Gdańskiej w czasie pandemii COVID-19

Strzeszczenie

Pandemia COVID-19 spowodowała znaczne zaburzenia w zaplanowanym procesie dydaktycznym. Aby zaadaptować się do nowych warunków, nauczyciele akademiccy musieli natychmiast zrestrukturyzować swoje programy nauczania. Nie wszyscy jednak posiadali wystarczające umiejętności do prowadzenia zajęć online. Nie było czasu na to, aby mniej wykwalifikowani mogli zwiększyć swoje kompetencje poprzez wsparcie wyprzedzające, ani na to, aby mogli samodzielnie pokierować swoim kształceniem. Żeby jednak być w stanie stworzyć zajęcia w środowisku internetowym, spełniające potrzeby studentów uczących się języka obcego, nauczyciele potrzebowali wsparcia zarówno ogólnego, jak i specyficznego. Pierwsze odnosi się do aspektu technologicznego, to znaczy jest związane z funkcjonalnościami dostępnych narzędzi i afordancjami, na jakie pozwalają. Drugie dostarczane jest przez strukturę kursu, materiał edukacyjny, nauczycieli i samych studentów. Dzięki intensywnemu wsparciu reaktywnemu, którego udzielili certyfikowani współpracownicy z Zespołu E-learningowego, wszyscy nauczyciele języków obcych Politechniki Gdańskiej byli w stanie stworzyć aktywizujące środowisko edukacyjne online. Wnioski zaprezentowane w artykule są wynikiem badań ilościowych i jakościowych przeprowadzonych na Politechnice Gdańskiej w latach 2020 i 2021.

Słowa kluczowe: e-learning, wsparcie, aktywne uczenie się, umiejętności językowe, pandemia COVID-19

Ивона Моква-Тарновска, Вивиана Тарновска

Влияние поддержки изучения иностранных языков на занятиях онлайн в Гданьском технологическом университете во время пандемии COVID-19

Аннотация

Пандемия COVID-19 привела к значительным нарушениям запланированного учебного процесса. Чтобы приспособиться к новым условиям, преподавателям пришлось немедленно перестроить свои учебные планы. Однако не все из них обладали достаточными навыками для проведения онлайн-занятий. У менее квалифицированных не было времени ни повышать свою квалификацию за счет упреждающей поддержки, ни иметь возможность направлять собственное обучение. Однако для того, чтобы иметь возможность создавать классы в онлайн-среде, отвечающие потребностям студентов, изучающих иностранный язык, преподавателям требовалась как общая, так и конкретная поддержка. Первая относится к технологическому аспекту, т. е. к функциональным возможностям доступных инструментов и предоставляемым ими возможностям. Вторая обеспечивается структурой курса, учебным материалом, преподавателями и самими студентами. Благодаря интенсивной реактивной поддержке, оказанной сертифицированными сотрудниками из команды Электронного Обучения, все преподаватели иностранных языков Гданьского технологического университета смогли создать активирующую образовательную онлайн-среду. Выводы, представленные в статье, являются результатом количественных и качественных исследований, проведенных в Гданьском технологическом университете в 2020 и 2021 годах.

Ключевые слова: электронное обучение, поддержка, активное обучение, языковые навыки, пандемия COVID-19

Iwona Mokwa-Tarnowska, Viviana Tarnowska

El impacto del apoyo para el desarrollo del lenguaje en las clases en línea en la Universidad Tecnológica de Gdansk durante la pandemia de COVID-19

Resumen

La pandemia de COVID-19 ha causado interrupciones significativas en el proceso de enseñanza planificado. Para adaptarse a las nuevas condiciones, los académicos tuvieron que reestructurar inmediatamente sus planes de estudio. Sin embargo, no todos tenían las habilidades suficientes para impartir clases en línea. No hubo tiempo para que los menos cualificados aumentaran sus competencias a través del apoyo preventivo, ni para que pudieran dirigir su propio aprendizaje. Sin embargo, para poder crear clases en un entorno en línea que satisficiera las necesidades de los estudiantes que aprenden un idioma extranjero, los profesores necesitaban apoyo tanto general como específico. El primero se relaciona con el aspecto tecnológico, es decir, está relacionado con las funcionalidades de las herramientas disponibles y las posibilidades que permiten. El segundo lo proporciona la estructura del curso, el material didáctico, los profesores y los propios alum-

nos. Gracias al apoyo reactivo intensivo brindado por colaboradores certificados del Equipo de aprendizaje electrónico, todos los profesores de idiomas extranjeros de la Universidad Tecnológica de Gdańsk lograron involucrar a sus estudiantes en un aprendizaje interactivo, colaborativo y activo. Las conclusiones presentadas en el artículo son el resultado de una investigación cuantitativa y cualitativa realizada en la Universidad Tecnológica de Gdańsk en 2020 y 2021.

P a l a b r a s c l a v e: e-learning, apoyo, aprendizaje activo, habilidades lingüísticas, pandemia de COVID-19

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Teachers in Distance Education During the COVID-19 Pandemic Context of Mainstream, Inclusive and Special Education

Abstract

The aim of the article is to present the results of research on distance education conducted during the COVID-19 pandemic in the Silesian Voivodeship (Poland). The research focuses on the work of teachers in mainstream schools and those who work with students with special educational needs. The author presents: the difficulties indicated by teachers, the support they experience and the solutions they apply, especially to students with special educational needs.

The study was based on a quantitative paradigm, using a diagnostic survey method and online survey questionnaires, sent to respondents in the LimeServey system. 958 teachers representing primary and secondary schools participated in the study.

The teachers indicated the difficulties of distance learning, such as the inability to monitor the progress of students, problems with the organization of group activities and the use of activating methods in teaching. They found the support in interpersonal contacts and self-study work; they rarely used the help of specialists. Half of the respondents worked with students with special educational needs. The largest group of such students were those with specific learning difficulties. Students with disabilities accounted for about 36% of those students identified by teachers. The teachers working with students with special educational needs experienced technical problems on the part of the student and psychophysical problems resulting from the specific condition of the student with special educational needs.

The results of the research and the recommendations were presented to the school authorities in order to improve the quality of distance education and raise the standards of teachers.

K e y w o r d s: distance education, COVID-19 pandemic, teachers of mainstream schools, students with special educational needs, students with disabilities, the difficulties of distance learning

It seems that the educational consequences of the SARS-CoV-2 pandemic outbreak will be noticeable long after societies free themselves from it. For now, the whole world is uncertain about the future. Nevertheless, this situation resulted in a certain amount of experience and knowledge. This includes knowledge on the use of distance education to maintain the continuity of the educational process of young generations. After all, the quality of education translates into the quality of life of future generations, and thus also for children and adolescents affected by an unprecedented situation, a situation requiring radical changes in the way of teaching and learning. Different educational solutions have been implemented in different countries during the pandemic (Bozkur et al., 2020). In most of them, where a well-developed network of IT services can be relied upon, the opportunities of distance learning have been exploited. It is safer from the point of view of the risk of infection with the virus, but it carries many challenges, including difficulties and dangers affecting cognitive, emotional, and social processes. That is why so many academics have researched education during the pandemic, focusing on aspects ranging from using modern technology to teaching and educational aspects, and to issues relating to students' and teachers' health and mental well-being (Plebańska et al., 2020; Ptaszek et al., 2020; Pyżalski, 2020; Domagała-Zyśk 2020; Daniel, 2020; Allen et al., 2020; Azorin, 2020; Burgess & Sievertsen, 2020). These studies also include those carried out by Education in the COVID-19 Pandemic Research Team, established at the University of Silesia in Katowice (Poland). The Team brings together representatives of various disciplines of social sciences, such as educationists, psychologists, and political scientists. The result of their work is inter alia the report, which constitutes a small fragment of the scientific effort undertaken and includes the results of research carried out in the 8 municipalities (Dobosz et al., 2021). The tradition of such studies is associated with concern for the future of education e.g., numerous reports prepared by UNESCO including those concerning education during the COVID-19 pandemic (UNESCO 2021a) also Polish publications of Ministry of National Education

(2020a). It is an expression of cooperation between the scientific community and the external environment.

Literature Review

The study of problems in distance education has a long tradition, e.g. Muilenburg and Berge (2001) identified 10 categories of barriers to online learning ranging from technical problems, organisation of the learning process, to social barriers, skills and support experienced. The proposed categorisation became the basis for the study of Cho and Berg (2002), who demonstrated that the main barriers to the effective use of distance education relate to the technical aspect, not only in the sense of using IT tools, but also technical knowledge and skills. An interesting study in this regard, in the context of the COVID-19 pandemic was undertaken by Gan and Sun (2022) – 206 students of different demographic and socio-economic status who started online, distance learning in March and April 2020 responded to a qualitative survey of 20 questions. Their data analysis revealed five technical issues arising in online learning during the COVID-19, such as slow Internet, technical problems, lack of computer resources, lack of Internet access, and skill deficiency. The experience of difficulty was complemented by an analysis of individual coping behaviors and three common strategies for coping with digital barriers, that is improvising, building technical assets, and building social assets.

It seems that research on problems, barriers or obstacles in distance education is more often conducted among students than teachers. This is understandable as the issues of education using online tools were the domain of a selected group of teachers who wanted to get students interested in this way of working. In such circumstances, knowledge of the barriers is the main factor determining the effectiveness of education. Meanwhile, the outbreak of the COVID-19 pandemic forced teachers, regardless of personal preferences, to use distance education, which opened new areas of research concerning, among others, coping with handling and using online tools by all teachers and students regardless of their interest in distance learning. However, the change in the face of school applies not only to mainstream schools but also to schools that have accommodated students with special educational needs. This has created a new context in the understanding of inclusive education and according to Love and Horn (2021) it is more the context than the place that is a potential factor influencing its high-quality implementation. Operationalizing inclusive education independent of physical placement is one of three ongoing challenges in inclusive education research. Although the

authors of the article refer mainly to early childhood education, the conclusions can be generalised to the whole range of activities promoting inclusive education. Noteworthy is the part devoted to teacher preparation, which is a key challenge to the advancement of inclusive education. Analysing different models of teacher preparation for inclusive education, the authors emphasized the importance of contact with professionals, especially when working with students with disabilities. Moreover, they pointed out the important role of co-teachers.

Method

The main objective of the research was to diagnose the nature of actions, problems, and solutions used during distance education in the case of COVID-19 threat in selected municipalities of the Silesian Voivodeship and to develop recommendations that could improve the quality of education in similar situations.

The research was carried out based on the quantitative paradigm (Atieno, 2009; Baskarada and Koronios, 2018; da Silva et al., 2014; Makombe 2017; Sousa, 2013), using the diagnostic survey method (Brewer et al., 2015; Thomson 2017; Xiao et al. 2021), with questionnaires for two groups of respondents, that is teachers of mainstream or inclusive education and of special education (Candil et al,, 2022). The questionnaires consisted of 25 and 27 items on a Likert scale, on closed questions and opened questions. The tool was available online to all respondents using the LimeSurvey system[1]. The research tools were created by the research team and are objects of copyright. The versions of the research questionnaires were consulted with the representatives of the groups, following the idea of subjectivity and the participatory nature of the research. The Ethics Committee approved of the project of the University of Silesia in Katowice.

The survey participants were informed about the purpose of the research and its subject, course, time needed to complete the questionnaire, the way of using the obtained information, and an anonymous form of participation, which was voluntary and allowed for withdrawal. Each individual consented to participate in the research. The research was conducted from December 15, 2020, to February 23, 2021; therefore, it covered significant aspects of distance education implemented during the second wave of the COVID-19 pandemic.

[1] The use of the online survey system LimeSurvey was carried out under a license held by the University of Silesia in Katowice.

The article presents a small part of this project, that is the research focuses on the work of teachers in mainstream schools and those who work with students with special educational needs especially the difficulties indicated by teachers, the support they experience and the solutions they apply. The following research questions were formulated:

1. What difficulties did teachers experience while distance learning? What additional difficulties did teachers face when working with students with special educational needs?
2. What forms of support and assistance did teachers use? What additional forms of support and assistance were used by teachers working with students with special educational needs?
3. With which students with special educational needs did teachers work?
4. How did teachers adapt lessons and organisation of classes to the needs of students with special educational needs?

Demographic characteristics of the study group

A total of 958 respondents – teachers representing primary and secondary schools in 8 municipalities of the metropolis of Silesia and Zagłębie (Bytom, Cieszyn, Dąbrowa Górnicza, Gliwice, Jastrzębie Zdrój, Piekary Śląskie, Pszczyna, Ruda Śląska) participated in the research. The most numerous group comprises teachers from Ruda Śląska (Table 1).

Table 1
Location of the school where the teachers worked

Location	N	%
Bytom	100	10.44
Cieszyn	55	5.74
Dąbrowa Górnicza	105	10.96
Gliwice	105	10.96
Jastrzębie Zdrój	69	7.20
Piekary Śląskie	72	7.52
Pszczyna	26	2.71
Ruda Śląska	355	37.06
No answer	71	7.41

S o u r c e s: own work

The majority of them were employed in primary schools (61%), secondary schools (14%), vocational schools, and technical secondary schools (16%). The detailed structure of employment is presented in the chart below (Table 2).

Table 2
Type of school where teachers worked

Type of school	N	%
kindergarten	2	0.21
special kindergarten	0	0
integrative kindergarten	0	0
elementary school, grades I–III	114	11.90
primary school, grades IV–VIII	359	37.47
special elementary and primary school	11	1.15
integrative primary school or a primary school with integrated classes	41	4.28
preparatory school	0	0
upper secondary school	39	4.07
upper secondary special school	4	0.42
high school	122	12.73
technical school	96	10.02
others	68	7.10
no answer	102	10.65

S o u r c e s: own work

The dominant group consisted of teachers with extensive experience and seniority over 20 and 25 years (Table 3). The vast majority of them have a master's degree, merely 2% of the respondents declared a bachelor's degree, and 1% were people with a different level of education. These professional characteristics of the environment stem from the formal requirements for Polish teachers, especially those working with students of the older grades of primary schools, special schools, and secondary schools (Ministry of National Education 2017a, 2019).

Table 3
Number of years of teachers' service

Number of years of teachers' service	N	%
up to 5 years	66	6.89
above 5 to 10 years	58	6.05
above 10 to 15 years	110	11.48
above 15 to 20 years	135	14.09
above 20 to 25 years	190	19.83
over 25 years	373	38.95
no answer	26	2.71

S o u r c e s: own work

It is worth paying attention to the fact that the seniority of teachers and their complete university education suggest that a large group of respondents had received their degrees even before the Bologna process (Wesołowska, 2013) was introduced in Poland[2]. The age structure of the respondents also confirms this; the average age of the respondents was 47.1 years (median 48.00 SD 8.55), the youngest declared 23, the oldest 74; as well as the level of professional advancement; 75% of the respondents are chartered teachers, 10% appointed teachers, 10% contract teachers, and only 3% are teachers in training (Table 4).

Table 4
Professional advancement level

Professional advancement level	N	%
trainee teacher	26	2.71
contract teacher	91	9.50
appointed teachers	98	10.23
chartered teachers	717	74.85
no answer	26	2.71

S o u r c e s: own work

[2] The Bologna Process is a term used to describe a series of higher education reforms in European countries. The reforms were being prepared and implemented between 1999 and 2012. Its consequence was creating the European Huger Education Area (EHEA) and thus the introduction of, inter alia, the two-stage model of higher education and the European Credit Transfer and Accumulation System (ECTS). These changes aimed to create structures of qualifications in higher education that would be comparable and complementary in different European countries and circumstances favourable for the international exchange of students and academics.

To complete the characteristics, it should be noted that over 80% of the respondents who provided information on their gender were women.

Results of Research

Difficulties in teaching in distance education

The pandemic situation that society has been facing since March 2020 is a challenge for all education entities. A particular responsibility fell on the teachers, who were forced to change their way of working overnight. This is an unprecedented challenge in the history of education. Technology has become, as never before, the fundamental tool of work, the use of which at a distance generates various types of difficulties, from technical to didactic (Table 5, Figure 1).

Table 5
Difficulties in teaching in distance education – context of mainstream education

Difficulties in teaching in distance education – context of mainstream education	definitely not	rather not	a little yes, a little no	rather yes	definitely yes
1	2	3	4	5	6
lack of access to equipment	43%	30%	16%	6%	4%
no Internet access	38%	34%	18%	6%	4%
inability to implement the material according to the plan	27%	36%	20%	10%	7%
problems with the place to do work at home	37%	30%	15%	11%	7%
lack of technology skills	37%	34%	22%	5%	2%
difficulties with preparing materials for classes	32%	41%	19%	6%	2%
lack of access to online teaching materials	33%	40%	17%	7%	3%
inability to monitor the student's progress	10%	21%	28%	25%	16%
inability to assess students' work	15%	29%	32%	17%	7%
inability to verify the presence of students	20%	30%	26%	13%	11%

1	2	3	4	5	6
inability to document your own remote work	36%	43%	14%	5%	2%
difficulties with the organization of group work	12%	23%	25%	23%	17%
difficulties with the use of activating methods	8%	21%	30%	28%	13%

S o u r c e s: own work

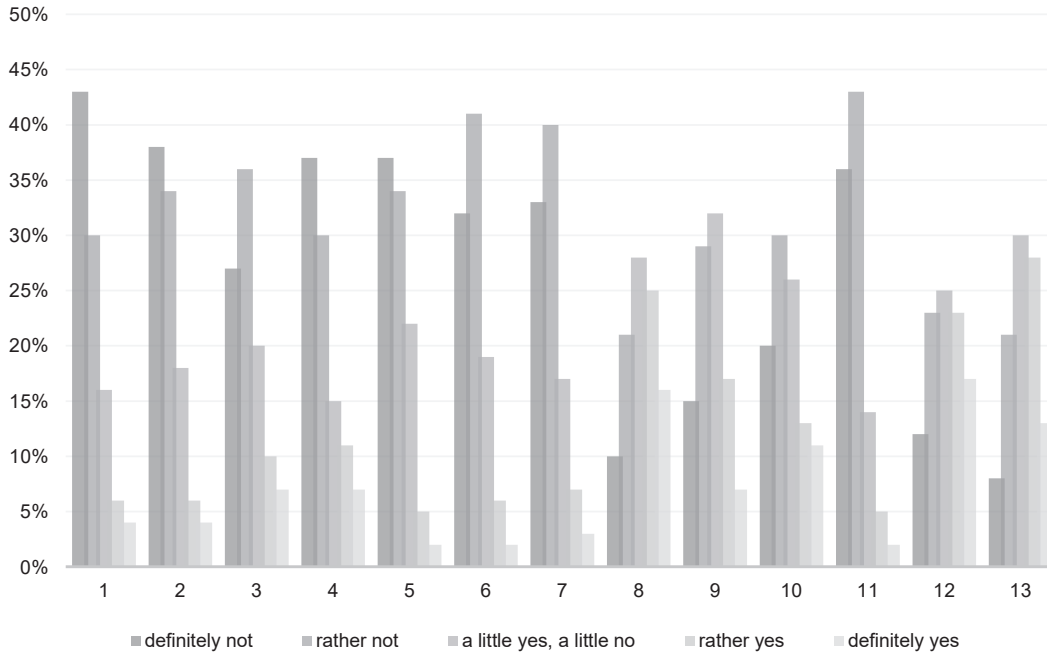

Figure 1. Difficulties in teaching in distance education – context of mainstream education

1 – lack of access to equipment, 2 – no Internet access, 3 – inability to implement the material according to the plan, 4 – problems with the place to do work at home, 5 – lack of technology skills, 6 – difficulties with preparing materials for classes, 7 – lack of access to online teaching materials, 8 – inability to monitor the students progress, 9 – inability to assess students' work, 10 – inability to verify the presence of students, 11 – inability to document your own remote work, 12 – difficulties with the organization of group work, 13 – difficulties with the use of activating methods.

S o u r c e s: own work

The presented research results indicate that the latter turned out to be the greatest challenge for teachers. Almost half (40–41%) of the sample indicated **difficulties related to work organization, especially the inability to monitor students'**

progress or to use activating methods and group work (Table 5, Figure 1). In retrospect, it can be stated that the last two difficulties can be overcome by acquiring skills, expanding the competencies of using online tools, and discovering new possibilities during webinars, online training, and teachers' work. Self-education in such skills becomes the fundamental task of the modern teaching staff, just as it has mainly been the case with the methodological skills. In other words, developing the ability to use distance education tools is no longer a necessity but a norm.

Nevertheless, monitoring the progress of students remains one of the most challenging issues to solve. This problem seems to be the first concern of people responsible for developing online tools that verify knowledge and skills. Teachers' creativity in inventing forms, ways, or conditions of examining is limited by the tool's features and does not reach the sphere of student and parental ethics.

Difficulties in working with students do not seem particularly acute. **50% of the respondents declared that they do not experience problems in not being able to verify the students' attendance** (Table 5, Figure 1). However, about a quarter perceives this as difficulty. At this point, it should be noted that in distance education, the only form of effective verification of students' presence in classes is their participation with the use of a webcam. The responses to the difficulties related to the inability to evaluate students' work were similarly distributed. More than half (54%) of teachers rather do not or definitely do not see any difficulties in this matter; however, 24% assess this difficulty in quite the opposite way.

The teachers reported no problems documenting their work (36% definitely not, 43% rather not) (Table 5, Figure 1). It seems understandable, after all, the classes themselves, lessons, assigned tasks, students' work, and various forms of verification of learning outcomes can be archived in an electronic (digital) version. **They did not experience difficulties in preparing materials for classes (73%)** (Table 5, Figure 1). However, it is impossible to determine how involved the teachers were in the preparation of such materials, going beyond the work with textbooks, workbooks, and methodological materials developed for them. It cannot be assessed whether and how they adapted the classic work methods to the requirements of distance education. These doubts are not unfounded in the context of one of the survey questions, which concerns access to teaching materials in digital form since **the teachers declared that they had no difficulties in accessing online help**. However, in the context of the above analysed questions concerning the frequency of using technological solutions, few use electronic resources prepared for the needs of approved education programs. **On the other hand, 63% of the respondents stated that the inability to implement the didactic material according to the plan was problematic.** The probable reason

for this is that the distance classes are more time-consuming than those conducted traditionally.

At the same time, it is worth noting that the technical problems suggested by some did not affect teachers to a large extent. Over 70% of the respondents did not have problems with access to the equipment necessary to work in distance education (Table 5, Figure 1). The same was valid for Internet access and technology skills. About 2/3 of the respondents rather do not or definitely do not have any problems finding a space to work at home.

Forms of support used by teachers

The assumption about the difficulties experienced by teachers also raised questions concerning how to deal with them by using various forms of help – both formal and informal (Table 6, Figure 2).

Table 6
Forms of support used by teacher

Forms of support used by teachers	no	don't know	yes
on-line training	3%	1%	95%
instructional videos	5%	2%	94%
consultations and conversations with other teachers	3%	2%	96%
support of specialists employed in the school	40%	6%	54%
consultations, talks with the management	11%	4%	85%
making available, renting equipment from the facility	63%	3%	34%
use of information and communications on the Ministry of National Education website	29%	8%	63%
use of information on the Educational Research Institute website	68%	17%	15%
consultations, talks with technical staff/IT specialists	36%	6%	57%
help from family members or friends	27%	5%	68%

S o u r c e s: own work

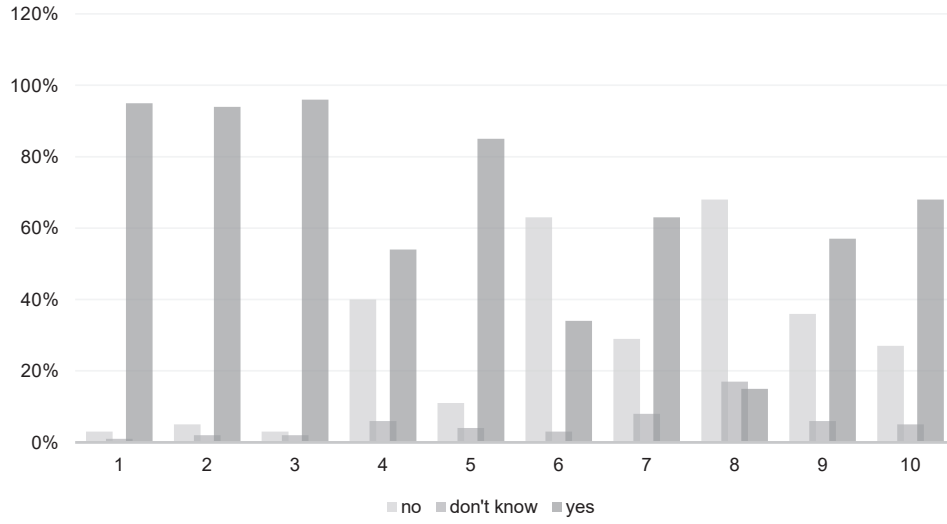

Figure 2. Forms of support used by teachers

1 – on-line training, 2 – instructional videos, 3 – consultations and conversations with other teachers, 4 – support of specialists employed in the school, 5 – consultations, talks with the management, 6 – making available, renting equipment from the facility, 7 – use of information and communications on the Ministry of National Education website, 8 – use of information on the Educational Research Institute website, 9 – consultations, talks with technical staff/IT specialists, 10 – help from family members or friends.

S o u r c e s: own work

The results obtained suggest that the informal ways of dealing with difficult situations are the best. **The vast majority of respondents (over 90%) benefited from consultations and conversations with other teachers** (Table 6, Figure 2). The support of friends and family members also turned out to be significant (68%). The type of assistance based on interpersonal relations also included consultations and interviews with the school management (85%).

An equally important role was played by the self-education work of teachers who used instructional videos (94%) and online training (95%) (Table 6, Figure 2). The latter data is related to previous information on the difficulties encountered by teachers. The use of activating methods, the organisation of group work, and monitoring students' progress were identified as the most problematic. These issues can be solved in a minimum way, thanks to training and instructional videos. In their own opinion, the teachers dealt with the remaining issues well, including reaching for help with technical difficulties. Just over half of them used consultations and interviews with technical (IT) employees (57%) and specialists employed in the facility (54%). This only confirms the difficulties declared by

teachers in the sphere of didactic work with the student rather than searching for technical solutions.

In comparison to the provided assistance, the use of the information available on the website of the Educational Research Institute looks unfavourably. Only 15% of the respondents made use of this option (Table 6, Figure 2). However, it should be noted that even those looking for help on these websites will not find support, specific solutions, or tips that could be used in teaching. For over half of the surveyed teachers (63%), it was essential to follow information and statements on the Ministry of National Education website.

Working with students with special educational needs

Another issue that was addressed in the survey was working with students with special educational needs. As a reminder, this group consists of students who have difficulties in functioning at school, including pedagogic as well as didactic challenges, which is manifested by, inter alia, problems with mastering the core curriculum (Kupisiewicz, 2013, pp.337–338). The reasons for this situation can be seen in various conditions, based on whether it was possible to distinct 12 groups listed in the Regulation of the Ministry of National Education (2017b; 2020b). Students with special educational needs require both psychological and pedagogical support, for which not only school head teachers are responsible, but above all, teachers who are in direct contact with students. This allows for the recognition of the pupils' abilities, quick response to difficulties (also those of an external and environmental nature), and, consequently, to support the developmental capabilities of students and such an organization of pedagogic and didactic processes to minimize the risk of educational failure and contribute to the full use of opportunities inherent in the education process by children and adolescents. It is easy to notice that the introduction of distance education disrupted providing psychological and pedagogical help at its initial stage, which is related to the recognition of students' needs. For the implementation of psychological and pedagogical assistance, with few exceptions, no prior diagnosis from a psychological and pedagogical counselling centre is required. Therefore, the teachers continued distance education with the special educational needs students, being obliged to adapt the work forms, methods, and organization. Only half of the respondents declared to work with this group of students.

Table 7
Students with special educational needs as indicated by teachers

Students with special educational needs as indicated by teachers	%
disabilities	35.81
behavioural and emotional disorders	41.48
risk of social maladjustment or social maladjustment	22.71
specific learning difficulties	76.86
competence deficits and language impairment	15.72
special aptitudes	20.96
chronic diseases	21.83
in a crisis	7.21
educational failures	31.88
environmental negligence	17.47
not applicable	1.31

S o u r c e s: own work

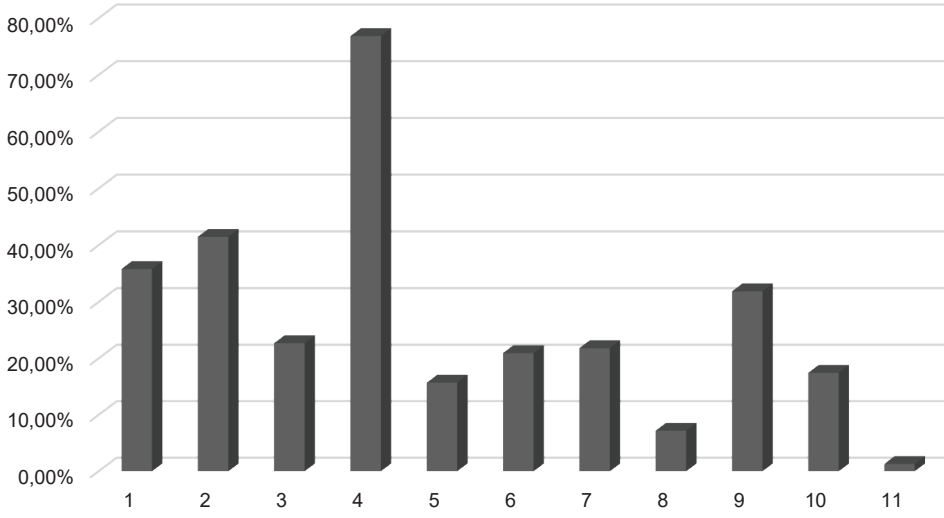

Figure 3. *Students with special educational needs as indicated by teachers*
1 – disabilities, 2 – behavioural and emotional disorders, 3 – risk of social maladjustment or social maladjustment, 4 – specific learning difficulties, 5 – competence deficits and language impairment, 6 – special aptitudes, 7 – chronic diseases, 8 – in a crisis, 9 – educational failures, 10 – environmental negligence, 11 – not applicable.
S o u r c e s: own work

The obtained data indicate that the largest group of students with special educational needs were those with specific learning difficulties (77%), i.e., the group of students with developmental dyslexia, dysorthography, dysgraphia, and dyscalculia (Table 7, Figure 3). It should be added that these are most often students who have an appropriate opinion from a psychological and pedagogical counselling centre, who need support in the field of perceptual-motor and verbal processes. For this target group, teachers can find a significant number of online resources that can be used during lessons and specialised classes.

From the formal point of view, the situation regarding **students with disabilities (36%)** (Table 7, Figure 3) is somewhat similar. In that case, an opinion on the need for special education is required. Psychological and pedagogical counselling centres issue the document. Thus, in the first instance, it is necessary to respect the individual educational and therapeutic program that is created on the basis of a multi-specialist assessment of the student's functioning and introduce revalidation classes. The diversity of causes of disability, and hence the application of special education to students, makes them a heterogeneous group; therefore, it is difficult to draw any unambiguous conclusions.

However, it should be noted that in the surveyed group of teachers, 6% were employees of special schools or inclusive schools and classes (Table 2). At the time of the closure of the institutions in the 2019/20 school year, they did not have the opportunity to carry out any activities at school, even with students with profound and complex disabilities. This situation had changed since September 2020, when most special schools adopted the face-to-face mode of classes. Therefore, working with students with disabilities in the inclusive (public), integrative and special education system during the pandemic would be worth a more detailed comparative analysis. Students with disabilities attending public schools did not have or had limited opportunities to work in direct contact with their teachers.

The group of students with behavioural and emotional disorders (41%) also deserves attention. It appears that the percentage of students with this type of problem is relatively high (Table 7, Figure 3). The number may be worrying, especially in the context of research on the harmful effects of excessive Internet use and behavioural addictions of children and adolescents caused by the abuse of digital technologies. On the other hand, this group of students includes those with school phobia, social phobia, or other disorders manifested by social anxiety. For them, remotely conducted classes could have a positive dimension.

The numerous minor group was students in a crisis (7%) (Table 7, Figure 3). It seems understandable and stems from the nature of the crisis, which is defined as a sudden, breakthrough state, more frequently associated with a change for the worse resulting from external events, affecting life, health, and the material situation (Kupisiewicz, 2013, pp. 164–165). Crisis situations are rather not long-term;

they require rapid and appropriate material intervention, and if needed, emotional support as well as psychological help often related to coping with the imbalance caused by severe stress.

In the students with special educational needs group, no students with adaptation difficulties related to cultural differences or a change in the school environment, including prior education abroad, were identified. This group of students is relatively small, and in the situation of closing the borders and the inability to travel, the obtained results seem to be even more coherent.

The remaining groups of students with special educational needs received indications at the level of 15% to 32%, which suggests that they constitute about a quarter of students with whom teachers work. It is worth noting that some of these students may be attending specialised classes organised outside school, such as speech therapy classes. Then the work of the teachers is limited to teaching school subjects without corrective intervention.

Ways of adjusting lessons to the needs of SEN students

Conducting classes in the new formula required adapting the lessons to the needs of students with special educational needs. This adaptation takes place in three main areas, that is adaptation of teaching content (Table 8), organisation of learning (Table 9), and changes to the duration of lessons (Table 10).

Table 8
Adjusting lessons in terms of educational content to the needs of students with special educational needs

Adjusting lessons in terms of educational content to the needs of students with special educational needs	N	%
reducing, shortening the content of education	216	47.16
selecting key information	360	78.60
simplifying information	332	72.49
giving additional tasks	133	29.04
fewer tasks to perform	280	61.14
providing supplementary content	162	35.37

S o u r c e s: own work

In the educational content, nearly half of the surveyed teachers, first of all, simplified information, selected and passed on the most essential information, and every third respondent reduced the number of assignments. The ways of adjusting the organisation mainly included providing additional instructions to the tasks and solving them collectively (Table 8). It should be noted that the ways in which

lessons were adapted were not specifically due to the use of e-learning but to the demands of the students with special educational needs.

Table 9
Adjusting lessons in terms of work organisation to the needs of students with special educational needs

Adjusting lessons in terms of work organisation to the needs of students with special educational needs	N	%
extending the lesson time	108	23.58
shortening the lesson time	129	28.17
supplementing lessons with additional meetings	108	23.58
maintaining a consistent class time	333	72.71
use of a support teacher who has worked with the student according to teachers' instructions	104	22.71
possibility for the teacher to come to the child's home	11	2.40
feeding printed materials	106	23.14
additional task explanation	344	75.11
joint execution of tasks	290	63.32
individual lessons	157	34.28
consultations	202	44.10
additional breaks	51	11.14
visibility of all pupils' faces	50	10.92

S o u r c e s: own work

The almost equal number of indications of extending the duration of lessons and additional lessons with additional meetings is one of the main arguments confirming that lessons conducted online require a different organization, i.e. more time for realization of topics/curriculum contents, even more so if it concerns students with special needs (Table 9). It was also essential to maintain the routine by keeping the time of the lessons constant. 44.1% of the teachers offered consultations, and nearly 23% used the pre-pandemic formula of cooperation with a support teacher (Table 9). A large group of the surveyed teachers decided to shorten the duration of the lessons. As can be seen, 9,61% of respondents made efforts to ensure that the faces of all students were visible (Table 9). Perhaps the vast majority of teachers have not encountered such a situation. Nevertheless, it should be emphasized that the transmission of content only in the form of sound hinders interaction with the teacher and understanding the topics discussed, which may result in various difficulties during distance lessons, especially in the case of children with special educational needs. The survey results indicate that the

vast majority of teachers complied with the recommendations of the Ministry of National Education and conducted shortened classes following the plan adopted for the time of the pandemic (Table 10).

Table 10
Organization of lesson time working with students with special educational needs

Organization of lesson time working with students with special educational needs	N	%
according to the pre-pandemic timetable	104	22.71
according to the pandemic plan	126	27.51
full-time lessons (45 minutes or 60 minutes revalidation)	54	11.79
shortened lessons during a pandemic	166	36.24
no answer	8	1.75

S o u r c e s: own work

According to the respondents' indications, the most characteristic feature of time organisation was the shortening of lessons, although this was not a common practice, despite the recommendation of the Ministry of Education (Table 10). Perhaps this was due to the necessity to implement the curriculum. It is worth noting the slight difference in declarations about changes in the organisation of the timetable or lack thereof. However, it should be taken into account that such changes affect not only pupils with SEN but the whole school community.

In undertaking the study, we also wanted to obtain information on the difficulties faced by the teachers with the new formula on the part of students with special educational needs (Table 11).

Table 11
Difficulties experienced by teachers of students with special educational needs

Difficulties experienced by teachers of students with special educational needs	N	%
lack of interest in learning	228	49.78
lack of contact	163	35.59
showing boredom/fatigue during lessons	189	41.27
outbursts of anger in task situations where difficulties arise	73	15.94
„technical" issues on the part of the student (e.g., no computer, no Internet access)	256	55.90
rapid loss of student attention	287	62.66

S o u r c e s: own work

The difficulties experienced by teachers can be divided into two main groups, that is those of a technical nature and those arising from the special needs of pupils. The first of these represents more than half of the cases. Certainly, some of them are due to a real lack of equipment for pupils. It should be added, that schools were obliged to provide students with access to education, which they did either by making school computer labs available or by renting laptops to students. This standard procedure, however, did not solve the problems concerning the quality of Internet connections at pupils' and teachers' homes and the special technical equipment and software necessary for some pupils with SEN. The most significant number of indications concerned rapid loss of concentration and attention, technical issues on the part of the students, as well as lack of interest in learning. Weariness during the lessons and, particularly worrying, lack of contact with the student were frequently observed. That loss of attention, rapid fatigue, boredom and lack of interest are a group of difficulties that are difficult to cope with using remote education. They are conditioned by the specificity of the pupils' disorders and disabilities.

Teachers working with special educational needs students during the COVID-19 pandemic could experience many difficulties related to the implementation of distance education, but, importantly, they could count on support (55.44%). At the same time, the respondents indicated the following forms of received support (according to the number of responses, respectively), advice and consultation (88.31%), assistance in the analysis and interpretation of student documentation (opinions, judgments, other specialised documents) (71.43%), advice on solving pedagogic problems with students and cooperating with parents (66.67%), interventions in the case of negative student behaviour, such as refusal to participate in distance education or negative attitudes of parents towards distance education (60.61%), assistance in the preparation of student documentation and teaching materials (56.28%), task teams (49.78%), workshops (37.66%) (Table 12).

Table 12
Forms of support received by teachers of students with special educational needs

Forms of support received by teachers of students with special educational needs	N	%
1	2	3
advice and consultation	405	88.31
assistance in the analysis and interpretation of student documentation (opinions, judgments, and other specialised documents)	327	71.43
advice on solving pedagogic problems with students and cooperating with parents	305	66.67

1	2	3
interventions in the case of negative student behaviour, such as refusal to participate in distance education or negative attitudes of parents towards distance education	278	60.61
assistance in the preparation of student documentation and teaching materials	258	56.28
task teams	228	49.78
workshops	173	37.66

S o u r c e s: own work

It is undeniable that teachers need support in their work. The profession predestines this group to one of the most vulnerable to professional burnout. However, Polish teachers perceive the highest value of support in consultations and advices (88.33%) and much less in practical activities – workshops (37.66%) (Table 12).

By organizing distance education, the surveyed teachers could count on the support of other people, including the school head teacher and school counsellor, another teacher, and a teacher co-organizing special education (a support teacher). The remaining specialists were indicated by a much smaller group of people, which probably results from a small percentage of employment of the specialists mentioned above in schools (Table 13).

Table 13
Persons from whom teachers received support concerning work with pupils with special educational needs

Persons from whom teachers received support concerning work with pupils with special educational needs	N	%
headmaster	188	81.39
pedagogue	196	84.85
psychologist	109	47.19
speech and language therapist	35	15.15
special educator for students with intellectual disabilities	28	12.12
special educator for deaf students	13	5.63
special educator for blind students	12	5.19
social therapist	4	1.73
support teacher	68	29.44
co-organiser of the activities	24	10.39
another teacher	119	51.52

S o u r c e s: own work

Among specialists supporting teachers, headmasters, pedagogues and psychologists come to the fore. This is probably due to the fact that they are most often present in schools. Specialists in special education constitute a much smaller group. This is due to their less frequent employment in mainstream schools.

Summary of results, answers to research questions

Answering the questions about experienced difficulties during distance learning, all teachers indicated problems with using active teaching methods, working in small groups and monitoring students' progress (Table 5, Figure 1). On the other hand, teachers working with SEN pupils experienced difficulties due to the pupils' own difficulties, such as rapid loss of attention, boredom and fatigue of the pupils, lack of interest, and technical difficulties, which they did not point out when working with pupils without special educational needs (Table 11).

In terms of help and support, teachers used mainly peer support and self-study work, the support of the headmaster, to a small extent they used the support of specialists (Table 6, Figure 2). On the other hand, teachers working with students with special educational needs more often used the help of specialists, especially pedagogues and psychologists employed at schools (Table 13).

In the surveyed schools the largest percentage of students with special educational needs are students with specific learning difficulties, i.e. (dyslexia, dysgraphia, dysorthography, dyscalculia), while students with disabilities constitute less than 40% of students indicated by teachers (Table 7, Figure 3). These are mostly pupils in integrated schools or classes. Pupils with severe disabilities attend special schools which, as of the school year 2020/21, i.e. as of September 2020, have abandoned distance education and have returned to the form of face-to-face work.

When working with students with special educational needs, teachers used different forms of adaptation of activities; most often they selected and simplified, reduced the information provided to students, they prepare printed materials for pupils, they give fewer tasks to be completed but to supplement them with additional explanations or to do them together with pupils, they use consultations, individual lessons or suggest additional meetings, they use a help of support teacher, they shorten the duration of lessons (Tables 8, 9, 10).

Discussion

The presented research shows the differences experienced by teachers working with different groups of students during distance education. Students with special educational needs place additional demands on teachers. Their participation in distance education and the quality of this education may be conditioned not only by the state of health but also by socioeconomic factors. Technical problems that

arose in the work of teachers of students with special educational needs suggest such a dependence, pointed out by Gan and Sun (2022).

Although Polish teachers coped well with the challenges of distance education during the COVID-19 pandemic, the difference in the use of professional support and assistance by teachers working with students with special educational needs and those who did not work with such students is noteworthy. This confirms the general principle that teachers practicing in different contexts have different in-service professional development and support needs, especially in professionals focused on implementing inclusive practices (Muccio et al., 2014). However, in addition to the support of special education professionals – as highlighted in our research – and administrative and infrastructural support worthy of further research and practice development are issues of adapting commonly used distance learning tools to the needs and abilities of students with special educational needs. Statistical data showing the third largest number of indications given by other teachers as persons from whom teachers received support concerning work with pupils with special educational needs, confirm that the co-teaching service delivery model used to support inclusive education is in the opinion of Polish teachers the most useful. This is consistent with research by Shim et al. (2004) indicating that classrooms led by co-teachers scored higher compared with a hierarchical two-teacher structure (i.e., teacher and assistant teacher) or a single teacher. It may be worth organising education in such a way that the co-teacher is also a person with strong IT skills and knowledge. Education based on the European Framework for Digital Competence for Educators can help in this regard. As reported Walter & Pyżalski (2022) DigCompEdu are adequate in preparing teachers for the use of IT in education but there are issues that need to be changed that arose as a consequence of research on education during the pandemic and that may be relevant for their implementation after COVID-19. The co-teachers could then play the role of a facilitator in the use of distance learning applied to students with chronic diseases or social disorders that significantly limit the possibility to come to school and learn face-to-face. This would be one of the arguments for organising hybrid learning for students with special educational needs. And it should be noted that organisational issues are among the most uniquely important to inclusive education that utilises a co-teaching service delivery model (Kohler-Evans, 2006).

We cannot forget about students with extensive support needs who require special help from not only teachers, co-teachers and also para educators. In the Polish education system such a function is performed by support teachers. In the surveys conducted, approximately one third of the respondents indicated that they use their assistance. The question arises why so few teachers used such assistance? The more so as the tasks they perform are difficult to replace and fulfil by other staff mem-

bers. The explanation can be sought in systemic solutions. After all, only a small number of pupils with disabilities attend mass and integrated schools; in the case of our study, pupils with disabilities constituted almost 36% of pupils with special educational needs and only pupils with disabilities are entitled to teacher support. The majority of students with disabilities, especially with extensive support needs attend special schools, which, after the experience of distance education during the first wave of the pandemic, have been providing face-to-face teaching since September 2021. Meanwhile, attention should be paid to para educators working in inclusive schools (Walker et al., 2021) as it was on their shoulders that the burden of educating pupils with disabilities during remote education fell, which could not be applied in a form typical of other pupils.

The teachers who participated in the research used a variety of forms to adapt their organisation and ways of working to the circumstances of distance education and the needs of students with specific and special educational needs (Tables 8, 9, 10). In contrast to special education teachers who work with students with specific disabilities (Hurwitz et al., 2021; Algraini, Alasim 2021), mainstream school teachers had to use more universal arrangements that were comfortable for different students with special educational needs. On the other hand, shortening and simplifying the content, selecting information or even giving additional tasks, which are used by teachers teaching students with special educational needs, is/should be implemented regardless of the form of direct or remote education.

Teachers of pupils with special educational needs sometimes used extra tasks for them. This is an interesting point. We do not know whether these were on-line or traditional assignments; what was the extent to which the on-line formula was used for these assignments? This is an important issue which raises questions about the validity of using the online formula for working with students with special needs. This is because any additional tasks in the online formula place an additional burden on these students. On the one hand, it is appropriate to give additional tasks, but is it appropriate to give them remotely? We should bear in mind the problem/disability of the pupils and the desirability of limiting their contact with computers. A kind of solution could be a combination of assignments made with traditional materials and an on-line formula for submitting them.

It is not a solution that opens up the possibility of creating new technical options. Quite the opposite. But it should be taken into account that in the case of some disabilities, learning on a computer may be particularly inadvisable, e.g. when working with students with neurodevelopmental or neurological disorders, exposure to blue light from a monitor may be particularly problematic. Moreover, as Batubara (2021) points out the obstacles faced in implementing this learning method, were namely the unpreparedness of students in the online teaching and learning process.

The results of the research indicate a kind of paradox that the teachers had to face; on the one hand they needed more time to complete the topic, on the other hand, due to special educational needs and hygiene this time was reduced. Moreover, despite the use of remote education, some teachers (23.14%) prepared the materials in printed form and even visited their students at home (2.4%), which in itself has nothing to do with remote education. Apart from the lack of direct contact between teacher and student. Meanwhile, it must not be forgotten that there are two different shared approaches in the use of e-Learning and ICT in the promotion of learning for students with SEN, that is the use of ICT as assistive technologies, aiming to increase specific cognitive/academic abilities and to guarantee "reasonable accommodation" according to Convention of the Right of People with Disability; the use of e-learning platforms and other tools with the aim to increase accessibility to information and learning materials, and with the aim to promote participation, inclusion and to keep in contact with other students and with teachers (Bjekic et al., 2014).

A question worth considering is whether the difficulties of students with special educational needs noted by teachers during distance education, such as lack of intimacy in learning, lack of contact, boredom or fatigue, anger, loss of attention (Table 11) are a consequence of the general situation caused by the pandemic or are they related to the situation of online learning itself? If we juxtapose the results of our study with others on the general psychological well-being of students with special educational needs during the pandemic of COVID-19 (Asbury et al. 2021) we find that few of them are shared with the learning situation. However, noteworthy is the sense of loss declared by children and parents „these losses were organised into four sub-categories: loss of routine, loss of support network and structures, loss of specialist input and, for a minority, financial loss" (Asbury et al., 2021). According to this research children indicated feelings of boredom, communication and motivation problems but in much lower intensity (e.g. anxiety 106 frequency; change in routine 84; boredom 14; communication 11; motivation 11).

It can be said that the situation of the pandemic was not conducive to practical forms of teacher support, however, this does not seem to be a sufficient explanation of the results obtained. After all, a large number of institutions, including psychological and pedagogical counselling centres, organised practical forms of support for teachers, including the use of tools for remote education (O'Connor, 2020). The reason for the lower interest in workshops and task groups should rather be seen in the school's work culture and the fact that teachers are accustomed to traditional forms of support based on oral forms such as training. This is in line with the results of the survey of all teachers presented above, for whom the main forms of support were consultations and talks with other teachers and self-training in the use of tools for remote education. However, it does not change the general

tendency of teachers to work on their own professional development, which is confirmed not only by Polish but also foreign research (see Kalman et all, 2022).

It should be noted that the pedagogue, psychologist or headmaster cannot solve the specific problems encountered by teachers in their work with pupils with special needs. For example, it is significant that more than 60% of teachers indicated problems with pupils' behaviour, but only less than 2% received support from socio therapists (Table 7, Figure 3, Tables 12, 13). This may be due to the low number of such specialists employed in schools. Thus, among specialists, teachers working with pupils with SEN could count more on supportive teachers and co-organisers of tasks than on specialists. It is remarkable that in the context of remote education, teachers did not indicate support from IT specialists. This may be due to the low knowledge of both teachers working with students with special needs and IT specialists regarding the use of remote education with this group of students. More attention should also be paid to the individualisation of distance learning for pupils with SEN, according to their needs and abilities, and this requires closer cooperation between different professionals (Pirani, Sasikumar, 2013). It also seems possible to adapt the community of inquiry (COI) model, through which the determinants of student satisfaction with online learning can be identified through the mediating mechanism of student readiness for online learning, in the context of students with special educational needs. Research conducted by Amka &Dale (2022) has shown that teacher presence, cognitive and social presence and content quality, directly and indirectly, influence e-learning satisfaction.

Conclusions

In terms of mainstream education, the results were consistent with others obtained in national surveys (Plebańska et al., 2020; Ptaszek et al., 2020; Pyżalski, 2020). The teachers confirmed their active approach to using various forms of help, especially in overcoming technical difficulties. Cooperation with other people, especially teachers, exchange of experiences, and the use of distance forms of training for own work turned out to be crucial. It turned out to be more popular than using the help of specialists employed in the facility. Most of the surveyed teachers did not experience any problems related to the lack of computer equipment or the Internet connection.

Teachers have worked with students from almost all categories of special educational needs. However, since this group is heterogeneous and very complex, moreover, since the work can be implemented in various forms of special educa-

tion, the research requires further analysis in at least two aspects, that is analysis of the situation of students with disabilities in various forms of special education; paying attention to the group of students for whom distance education could or may have a positive dimension due to the type of special educational needs.

Teachers working with students with special educational needs experienced additional difficulties during remote teaching due to the specific psychophysical functioning of these students. Consequently, after the experience of the first wave of the pandemic, teachers working in special schools returned to working face-to-face with their students, but teachers in mainstream and integrative schools had to adapt the whole remote education process to the individual needs of students with SEN.

Remote education has further highlighted students' problems with motivation to learn, maintaining interest in lessons, loss of attention and even boredom. This does not imply a need to abandon the use of remote tools for educating pupils with SEN, but rather to develop a different method of organising lessons e.g. by using more specialised tools (by which I mean both equipment and software) in shorter but more frequent lessons and rather in individual work as this allows for longer contact and responds to signs of tiredness or loss of attention or interest, which is difficult to monitor and control when working with a group of pupils. It is important to provide clear instructions (explicit and well-organized information) aiming to prevent students' cognitive overload or difficulty in comprehension and to overcome the difficulties of some specific students (mainly students with SEN) and to provide first basic information, then to provide more advanced information and respecting the individual's pace and rhythm (the "gift of time") (Petretto, 2021). The implementation of such recommendations would require a radical change in the organisation of school work, which was impossible in the reality of the time, when successive decrees of the Ministry of Education introduced overnight either distance or face-to-face education. On the other hand, it is worth using these experiences as an alternative when organising distance learning with students who, for health reasons, cannot attend their classes and when organising individual teaching. However, these are solutions that require additional working hours from teachers.

Most teachers need help in understanding and interpreting the records of pupils with SEN and consulting with parents and more than half need assistance in compiling documentation. This suggests that they are highly concentrated in administrative duties. However, it seems that more attention should be paid to the training of practical skills of teachers, especially working in task teams, assistance in creating interdisciplinary teams consisting not only of teachers but also parents (Trzcińska-Król, 2020; Cahapay, 2020; Cahoon et al. 2020; Schuck et al. 2021; Soltero-González, and Gillanders, 2021) other specialists, e.g. therapists and IT

specialists (Ocal et al., 2021) and programmers who, having their knowledge and skills, would enrich the solutions used in work with students with SEN, especially the use of Internet tools.

As far as supporting teachers is concerned, it is advisable to be more active; both in the form of training, further education and creating their own solutions, especially as regards the use of IT technology in working with students with SEN. It is known that often special educational needs of students require the creation of unique and innovative solutions. In this area teachers did not receive any assistance, and this is one of the important needs that should be met (Bali, 2020).

Limitation

The research presented a general picture of the use of remote education during a pandemic. Although it presents problems for teachers working with pupils with and without special educational needs, it should be borne in mind that it does not present specific solutions for narrow groups of pupils with SEN, e.g. only for pupils with behavioural disorders or only for dyslexic pupils etc. Obtaining such information would require the development of a survey instrument only for teachers working with SEN pupils. However, it should be noted that most teachers work simultaneously with pupils with different educational needs and, as a result, they often apply the same teaching and organisational solutions to all pupils with SEN. This need is underlined by, inter alia Petretto (et al. 2021), when they write that in this field it is mandatory to pay great attention to students with SEN and to their individual and specific needs.

Future research

As mentioned above, the research presented is part of a larger project on the use of remote education in the work of schools. In the second part, a qualitative study is planned, based on the technique of focus interviews with teachers and parents of students in order to learn more about the wider context of issues related to e-learning. The small group research may be helpful in exploring the specifics of remote working of different groups of teachers (subject teachers, support teachers,

therapist teachers, specialist teachers) with identified groups of pupils with SEN. It is also worth exploring parents' views on the applicability of remote education to their children's learning when they are forced to stay at home. The role of teachers and parents or other family members is extremely important in monitoring students' online activities (Petretto et al., 2020; 2021)

Significance

The need to use remote education during the COVID-19 pandemic showed how useful this form of education is in emergency situations. However, the research has uncovered a number of challenges for teachers wishing to use e-learning to work with all students and not, as was previously the case, with selected groups of interested students and teachers. The research shows that e-learning may be an effective way of securing the continuity of education. "Some of the main purposes of the e-learning process are to guarantee continuity in learning, to keep in contact with all students, and to guarantee information also about some coping strategies to adapt to the current pandemic emergency and its consequences (Petretto et al., 2021, p.2). But it also indicated areas for further work, that is the need for better preparation of teachers, assistance in changing students' attitudes towards this form of education (in particular, treating the media as a place for learning and not only for fun, contact, and free search for information), and finally adapting the very tools and methods of remote work to the needs of students with SEN. All the more so because, as we read in the UNESCO report: The Ministry of Education, with support from development partners should provide accessible learning materials to children with various types of disabilities, so that they can continue learning during the COVID-19 period and should invest more in e-learning while ensuring that persons with various types of disabilities including those with visual and hearing impairments are taken care of (UNESCO, 2021b).

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Edyta M. Nieduziak

Nauczyciele w kształceniu na odległość w czasie pandemii COVID-19 Kontekst edukacji ogólnodostępnej, integracyjnej i specjalnej

S t r e s z c z e n i e

Celem artykułu jest prezentacja wyników badań dotyczących wybranych aspektów edukacji zdalnej prowadzonej w czasie drugiej fali pandemii COVID-19 na terenie wybranych gmin województwa śląskiego. Badania koncentrują się wokół zagadnień pracy nauczycieli szkół ogólnodostępnych oraz tych, którzy pracują z uczniami o specjalnych potrzebach edukacyjnych. Autorka przedstawia: najczęściej wskazywane przez nauczycieli trudności, doświadczane wsparcie oraz stosowane rozwiązania, zwłaszcza wobec uczniów ze specjalnymi potrzebami edukacyjnymi.

Badania opierały się na paradygmacie ilościowym, wykorzystano metodę sondażu diagnostycznego i przygotowane przez zespół badawczy kwestionariusze ankiety on-line przesłane do respondentów w systemie LimeServey. W badaniu wzięło udział 958 nauczycieli reprezentujących szkoły podstawowe oraz średnie.

Wśród największych trudności nauczania zdalnego nauczyciele wskazywali: brak możliwości monitorowania postępów uczniów, problemy z organizacją zajęć grupowych oraz z zastosowaniem metod aktywizujących w nauczaniu. Największe wsparcie upatrywali w kontaktach interpersonalnych oraz pracy samokształceniowej; rzadko korzystali z pomocy specjalistów. Połowa respondentów pracowała zdalnie z uczniami ze specyficznymi potrzebami edukacyjnymi. Największą liczebnie grupę takich uczniów stanowili uczniowie ze specyficznymi problemami w uczeniu się. Uczniowie z niepełnosprawnościami stanowili ok. 36% uczniów wskazanych przez nauczycieli – część z nich uczęszczała do szkół specjalnych, w których proces edukacji podczas pandemii przebiegał inaczej niż w szkołach ogólnodostępnych. Wśród trudności, jakich doświadczyli nauczyciele pracujący z uczniami ze specjalnymi potrzebami edukacyjnymi, wymieniano problemy techniczne po stronie ucznia oraz problemy psychofizyczne wynikające ze specyficznej kondycji ucznia ze specjalnymi potrzebami edukacyjnymi.

Wyniki badań i zawarte w nich rekomendacje przedstawione zostały organom prowadzącym szkoły w celu poprawy jakości kształcenia zdalnego uczniów i podwyższenia standardów pracy nauczycieli, zwłaszcza tych pracujących z uczniami ze specjalnymi potrzebami edukacyjnymi.

S ł o w a k l u c z o w e: edukacja zdalna, pandemia COVID-19, nauczyciele szkół ogólnodostępnych, uczniowie ze specjalnymi potrzebami edukacyjnymi, uczniowie z niepełnosprawnością, trudności edukacji zdalnej

Edyta M. Nieduziak

Эдита М. Недузяк

Учителя в условиях дистанционного обучения во время пандемии COVID-19 Контекст общедоступного, инклюзивного и специального обучения

Аннотация

Цель статьи – представить результаты исследования по выбранным аспектам дистанционного обучения, реализуемого во время второй волны пандемии COVID-19 на территории отдельных гмин Силезского воеводства. Исследование сосредоточено вокруг вопросов работы учителей общеобразовательных школ и тех, кто работает с учениками с особыми образовательными потребностями.

Исследование было основано на количественной парадигме, использовался метод диагностического опроса и подготовленные исследовательской группой анкеты для онлайн-опроса, отправляемые респондентам в системе LimeServey. В исследовании приняли участие 958 учителей начальных и средних школ.

Среди самых больших трудностей дистанционного обучения учителя указывали на: отсутствие возможности контролировать прогресс учащихся, проблемы с организацией групповых занятий и с применением активизирующих методов обучения. Наибольшую поддержку они усматривали в межличностных отношениях и самообразовательной работе; редко пользовались помощью педагогов. Половина респондентов работали удаленно с учениками со специфическими образовательными потребностями. Наибольшую группу таких учеников составляли ученики со специфическими проблемами в обучении. Ученики с инвалидностью составляли прибл. 36% учащихся, указанных учителями, – часть из них посещали специальные школы, где процесс обучения во время пандемии протекал иначе, чем в общеобразовательных школах. Среди трудностей, которые испытывали учителя, работающие с учениками с особыми образовательными потребностями, упоминались: технические проблемы со стороны ученика и психофизические проблемы, связанные со специфическим состоянием ученика с особыми образовательными потребностями.

Результаты исследования и содержащиеся в нем рекомендации были представлены руководящим органам школ для повышения качества дистанционного обучения учащихся и стандартов работы учителей, особенно тех, кто работает с учениками с особыми образовательными потребностями.

Ключевые слова: дистанционное обучение, пандемия COVID-19, учителя общеобразовательных школ, ученики с особыми образовательными потребностями, ученики с ограниченными возможностями, трудности дистанционного обучения

Edyta M. Nieduziak

Los profesores de la educación a distancia durante la pandemia de la COVID-19 El contexto de la educación general, inclusiva y especial

R e s u m e n

El objetivo del artículo es presentar los resultados de los estudios relativos a determinados aspectos de la educación a distancia impartida durante la segunda ola de la pandemia de la COVID-19 en determinados municipios del Voivodato de Silesia. Los estudios se centran en los problemas del trabajo de los profesores de centros educativos generales, así como de aquellos que trabajan con alumnos con necesidades educativas especiales.

Los estudios se basaron en un paradigma cuantitativo en el que se empleó el método de sondeo de diagnóstico, así como en un conjunto de encuestas online preparado por el equipo investigador y enviado a los encuestados en el sistema LimeSurvey. En el estudio participaron 958 profesores que representaban a colegios de primaria y centros de secundaria.

Entre las mayores dificultades de la enseñanza a distancia los profesores indicaron: la imposibilidad de monitorizar los progresos de los alumnos, los problemas con la organización de las actividades en grupo y la aplicación de los métodos de activación en la enseñanza. Buscaron un mayor apoyo en los contactos interpersonales y en el trabajo autodidacta, raramente utilizaron la ayuda de especialistas. La mitad de los encuestados trabajó a distancia con alumnos con necesidades educativas especiales. El grupo más numeroso de estos alumnos eran alumnos con problemas específicos de aprendizaje. Los alumnos con discapacidad suponían aproximadamente el 36% de los alumnos indicados por los profesores: una parte de ellos asistía a centros educativos especiales, en los que el proceso de educación durante la pandemia discurrió de manera diferente que en los centros educativos generales. Entre las dificultades que experimentaron los profesores que trabajaron con alumnos con necesidades educativas especiales se mencionaron problemas técnicos por parte del alumno y problemas psicofísicos derivados de la condición específica del alumno con necesidades educativas especiales.

Los resultados de los estudios y las recomendaciones contenidas en ellos han sido presentados a los organismos que dirigen los centros educativos con el fin de mejorar la calidad de la enseñanza a distancia de los alumnos y elevar los estándares de trabajo de los profesores, en especial de aquellos que trabajan con alumnos con necesidades educativas especiales.

P a l a b r a s c l a v e s: educación a distancia, pandemia de la COVID-19, profesores de centros educativos generales, alumnos con necesidades educativas especiales, alumnos con discapacidad, dificultades de la educación a distancia

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Distance Education Along with Pedagogical and Psychological Assistance for SEN Students on the Example of the City of Gliwice

Abstract

During the COVID-19 pandemic, students with special education needs, including students with disabilities, found themselves in a particularly vulnerable position. What raised concern was the organization of remote education for this group of students, the implementation of tasks in the field of psychological and pedagogical assistance, and the effective use of recommendations contained in documents (opinions, decisions on the need for special education, or individual educational and therapeutic programs). The period of the pandemic and closing schools posed new challenges for teachers in organizing education for this group of students and meeting their special and specific educational needs in the online mode. The analyses presented in the article refer to the organization of remote education for students with special educational needs (SEN) and the organization of psychological and pedagogical assistance.

K e y w o r d s: COVID-19 pandemic, distance education, special educational needs, students with special educational needs, psychological and pedagogical assistance, teachers at public schools

Sweeping across the world since 2020, the COVID-19 pandemic has caused major disruptions to societies and affected most of the systems operating in every country. One of the areas that has faced serious challenges is education. In order to contain the pandemic, governments of most countries decided at one point or another to close all or almost all schools at various educational levels. A report compiled by the United Nations (2020) stated that major disruptions to education systems concerned 1.6 billion learners in over 190 countries. The closing of schools and other places of education affected 94% of the world's student population and as much as 99% in less developed countries.

As of 12 March 2020, i.e., the day after the Coronavirus outbreak had been declared a pandemic by the World Health Organization (WHO), the Regulation of the Ministry of National Education of 11 March 2020 suspended teaching and educational activities in Polish kindergartens, schools, and educational institutions (Journal of Laws of 2020, item 410). This decision meant that 4.9 million primary and secondary school students (Statistical Office, 2020, p. 29) and 1.4 million pre-school children (Statistical Office, 2020, pp. 26-28) remained at home. The introduction of distance education became a reality as early as on 25 March 2020, thus putting all participants in the educational process, including nearly 514,000 teachers (Statistical Office, 2020, p.136), in a difficult position as they needed to accommodate to the new conditions under which they were to function. The Regulation of the Ministry of National Education of 20 March 2020 on specific solutions in the period of temporary limitation of the functioning of educational system entities in connection with preventing, counteracting, and combating COVID-19 (Journal of Laws of 2020, item 493) specified the school principal's tasks related to developing a model of distance education. This model was supposed to be characterized by flexibility, purposefulness of activities, a reasonable amount of communicated content as well as clearly defined objectives and requirements (Staszkiewicz-Grabarczyk, 2021). The rapid transition to a different mode of teaching and learning has raised concerns about the quality of education and, over time, the mental health of children and youth (UNICEF, 2020). In this situation, distance education has become an interesting, but also necessary research field for academic community.

The first commentaries and reports regarding online learning on such a large scale appeared as early as in the year 2020. In a short period of time, many researchers were able to conduct research and publish their results.

In an overview of literature published between 2020 and 2021 on teaching and learning during the COVID-19 pandemic, researchers identified six key themes (Vijayan, 2021). These were as follows: the impact of COVID-19 on higher education institutions and challenges they face; the tools and strategies employed by universities to overcome difficulties; the teaching and learning experiences of

schools and teachers; the impact of COVID-19 on the training of medical and nursing personnel; patients' knowledge of COVID-19; and students' anxiety and stress levels as a result of COVID-19 and online learning. The thematic area concerning the experiences of schools and teachers included reports highlighting the problems and challenges brought about by distance education, ways of coping with the difficulties, the effort teachers had to overcome when preparing to teach using Information and Communication Technologies (ICT). Some of the reports dealt with the impact of distance education on the mental health of teachers, students, and parents. The issue of online education in relation to younger children and students with special educational needs was also addressed. Furthermore, the authors of the study highlight the theme of the digital divide and disparities in access to education.

In Poland, the first research reports also appeared in 2020. In relation to distance education, they mostly focused on evaluations, opinions of teachers, students and their parents, principals and directors managing educational institutions (e.g., Buchner et al., 2020; Domagała-Zyśk, 2020; Ptaszek et al., 2020; Jaskulska &Jankowiak, 2020; Plebańska et al., 2020).

Buchner et al. (2020) reported several important issues facing remote education providers. These were:

– the need to manage a new form of education for which teachers were not prepared (only 15% of teachers had had experience with remote education before the pandemic);
– the need to provide teachers and students with equal access to equipment and Internet;
– the need to build new or expand competencies, which consist of digital knowledge and skills as well as methodological knowledge and skills;
– the need to develop a formula for monitoring students from dysfunctional families;
– the need to take into account legal aspects of remote education, including issues such as online safety;
– the need to provide teachers with the necessary psychological support;
– the need to provide support for students with special educational needs.

The afore-presented list of problems related to remote education in the times of crisis is hardly exhaustive. Today it is difficult to say how this form of education has affected students, teachers, and parents. The pandemic has put us all in a unique situation and its effects may be felt much more acutely by students with special educational needs.

Special educational needs and psychological and pedagogical assistance

Appointed by the Ministry of Education in 2008, the Expert Panel on Special Educational Needs proposed two complementary definitions of special developmental needs (SDN) and special educational needs (SEN). "Children and young people with special developmental and educational needs are those with a spectrum of symptoms that impair or prevent motor, sensory, cognitive, communication, emotional, social and/or psychological functioning, which affects their quality of life and their ability to perform social roles now and/or in the future (…) [T]he group also includes those who are at risk of disability, any dysfunction, disharmony or incapacity that may have a negative impact on further development" (Zaremba, 2014, p. 15).

Irrespective of the adopted definition, a student with the above-mentioned needs is a demanding student, posing a particular challenge for teachers to recognize these needs and meet them by creating optimal conditions for his or her development. In practice, taking into account the diversity within the scope of special educational needs, teachers often face a difficult task of meeting the requirements to adapt methods, forms, means, didactic and educational activities to the individual requirements of many students at the same time.

The period of the pandemic and closing of schools presented teachers with new challenges in organizing the education of this group of students and meeting their special and specific educational needs in an online format. Hitherto, in accordance with the Regulation of the Ministry of National Education of 2020 on the principles of organizing and providing psychological and pedagogical assistance in public kindergartens, schools, and institutions (Journal of Laws of 2020, item 1280), these students were able to benefit from various forms of assistance, including participation in specialized classes, support during classes through direct contact with a teacher, or a conversation with a school counselor or psychologist. In accordance with the Regulation of the Ministry of National Education of 9 August 2017 on the conditions for organizing education, upbringing, and care for children and youths with disabilities, social maladjustment, and at risk of social maladjustment (Journal of Laws of 2017, item 1578), students with a decision on eligibility for special education were able to attend specialized classes, including remedial classes, and also receive assistance from a teacher who was co-organizing the educational process. During subsequent lockdowns, these opportunities were reduced and, in the early stages of the pandemic, eliminated. The organization of education for students with special educational needs became a serious problem,

as evidenced by two addresses of the Polish Ombudsman, dated 24 April 2020 and 5 February 2021. In both documents the Polish Ombudsman drew attention to the difficult situation of children and youths with special educational needs, including those with disabilities; he emphasized that the adopted solutions for the operation of institutions during the pandemic do not secure the needs of this group of students (Bodnar, 2020, 2021).

Education of students with special educational needs during the pandemic emerges as an interesting field of research and the subject of separate analyses. In the context of the pandemic and the need to return to distance education, and teachers' experiences of organizing the process of education for students with special educational needs prove to be important. Based on the experience of nearly 800 teachers, Parmigiani et al. (2020) identified factors that support effective e-inclusion processes. According to the authors mentioned, these are strategies that use synchronous and asynchronous activities interchangeably, combined with whole class then small group and individual activities; cooperation among class teachers and special education teachers; collaboration with the family and interaction within the family; as well as appropriate training for teachers. Among the interesting methods of work one should enumerate the use of an innovative online platform for educational games together with a video-conference platform (Aloizou et al., 2001). The authors of the project discuss the positive results of this approach to remote learning with a focus on students with autism. In contrast, Lütje-Klose et al. (2021) list the barriers that teachers in inclusive schools face when organizing distance learning for students with SEN. The authors emphasize that the personal contact with a specialist teacher cannot be compensated for by digital media and that alternating distance and face-to-face instruction is particularly burdensome for this group of students.

Taking into account the general difficulties of students and the resulting tasks for teachers, this paper attempts to show the implementation of remote education as well as remote psychological and pedagogical assistance in the second stage of the pandemic.

Methodology

Purpose of the study and research questions

The research results presented in this article are part of an extensive study on remote education in Silesia, conducted by researchers at the University of Silesia, titled "Education in the situation of public health emergency created by the COVID-19 pandemic in selected municipalities of the Silesian voivodeship as viewed by teachers, parents, and students."

The main objective of the research was to diagnose the quality of distance education experienced by respondents in connection with the COVID-19 public

health emergency, as seen and evaluated from their perspective, and to develop recommendations to improve the functionality of this form of education.

What was of particular interest to the author of the present article were the issues related to remote education for students with special educational needs as well as remote psychological and pedagogical assistance. The research focused on the experiences of teachers who were implementing remote education for students with special educational needs and the specialist teachers who were offering psychological and pedagogical assistance online. Therefore, the research problems took the form of the following questions:

1. How did the teachers implement distance education for students with special educational needs?
2. How did the specialist teachers organize psychological and pedagogical assistance?
3. How do the respondents evaluate remote psychological and pedagogical support?

The research was conducted in a quantitative paradigm using a diagnostic survey method with a questionnaire posted on the LimeSurvey1 research platform at the turn of 2020, i.e. in December 2020 and January 2021.

This paper presents results of surveys conducted among teachers from schools in Gliwice. The choice of this group was dictated by the number of completed questionnaires returned. In Gliwice area, there were 103 teachers who took part in the survey, of whom 58 referred to those questions in the questionnaire which concerned organization of remote education for students with special educational needs. A separate questionnaire for specialist teachers was completed by 31 respondents. The teachers who participated in the research work at public elementary schools, inclusion schools, and schools with inclusion units.

Characteristics of respondent group

The analyses presented in the article refer to the organization of remote education for students with special educational needs (SEN) as well as the organization of psychological and pedagogical assistance.

Table 1 and Table 2 present the size of respondent group and the educational background of surveyed teachers, respectively.

Table 1
Size of respondent group

Group of teachers surveyed	N
Teachers participating in the general survey	103
– including teachers who declare they work with students with special educational needs	58
Specialist teachers	31

S o u r c e: Own work

Table 2
Teachers' educational background

Teachers' educational background	In total	Master's degree	%	Bachelor's degree	%
Teachers who declare they work with students with special educational needs	58	53	91.4	5	8.6
Specialist teachers	31	29	93.5	2	65

S o u r c e: Own work

Organization of remote education for students with special educational needs (SEN) in teachers' experience and assessment

To start with, it is important to refer to the general survey data on the use of technology solutions. As it was established, the surveyed teachers, including those working with students with special educational needs, mainly chose the electronic register from a wide range of options, i.e., a total of 97 respondents (94.2%), while 96 respondents (93.2%) chose educational platforms (MS Teams, Google Classroom), and 91 respondents (88.3%) – e-mail. 24 (23.3%) teachers used the integrated learning platform often and very often.

In the first question, the teachers were asked to identify the types of special educational needs prevalent in the students they teach remotely. The purpose of this question was to identify problems that teachers may have encountered when implementing remote education. The teachers' responses are shown in Figure 1.

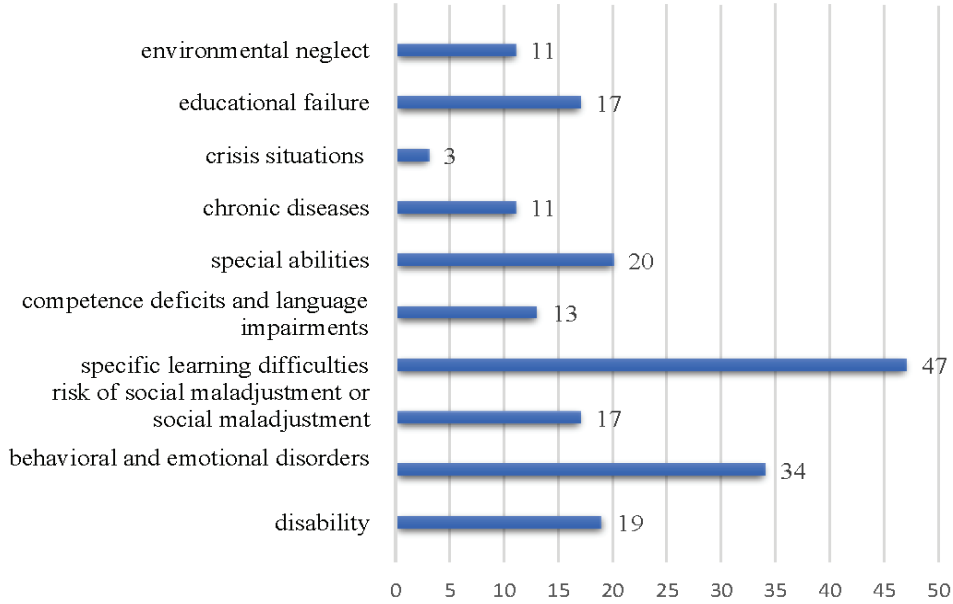

Figure 1. Groups of students with SEN identified by teachers (N=58).
S o u r c e: Own work.

The figure above shows the groups of teacher-indicated students with special educational needs for whom the respondents, 58 in total, implemented remote education. This question was of the multiple choice type.

The largest group were teachers who worked with students whose special educational needs resulted from specific learning difficulties (47 respondents), followed by a group of teachers whose students' special educational needs resulted from behavioral and emotional disorders (34 respondents). The fewest teachers worked with students whose special educational needs resulted from crisis situations.

Conducting classes in the new formula required adapting lessons to the psychophysical capabilities of students with special educational needs in terms of technological solutions, educational content (Figure 2) and organization (Figure 3).

58 respondents answered the questions regarding methods of adapting lessons to the requirements of students with special educational needs (SEN) in terms of educational content and organization. As evidenced by the survey results, teachers employed all of the methods listed in the questionnaire to adapt lessons to the needs of children and youths.

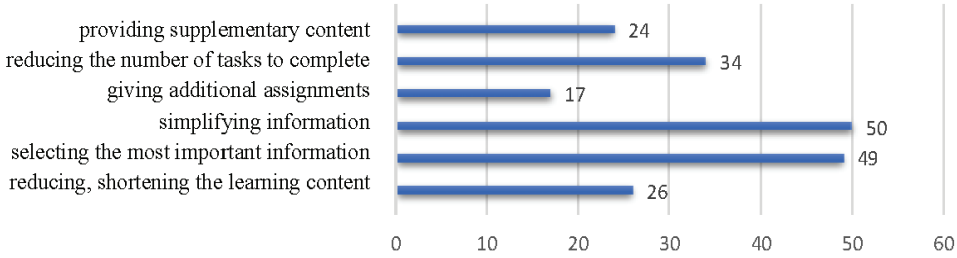

Figure 2. Methods of adapting lessons to the requirements of students with SEN in terms of educational content (N=58).

S o u r c e: Own work.

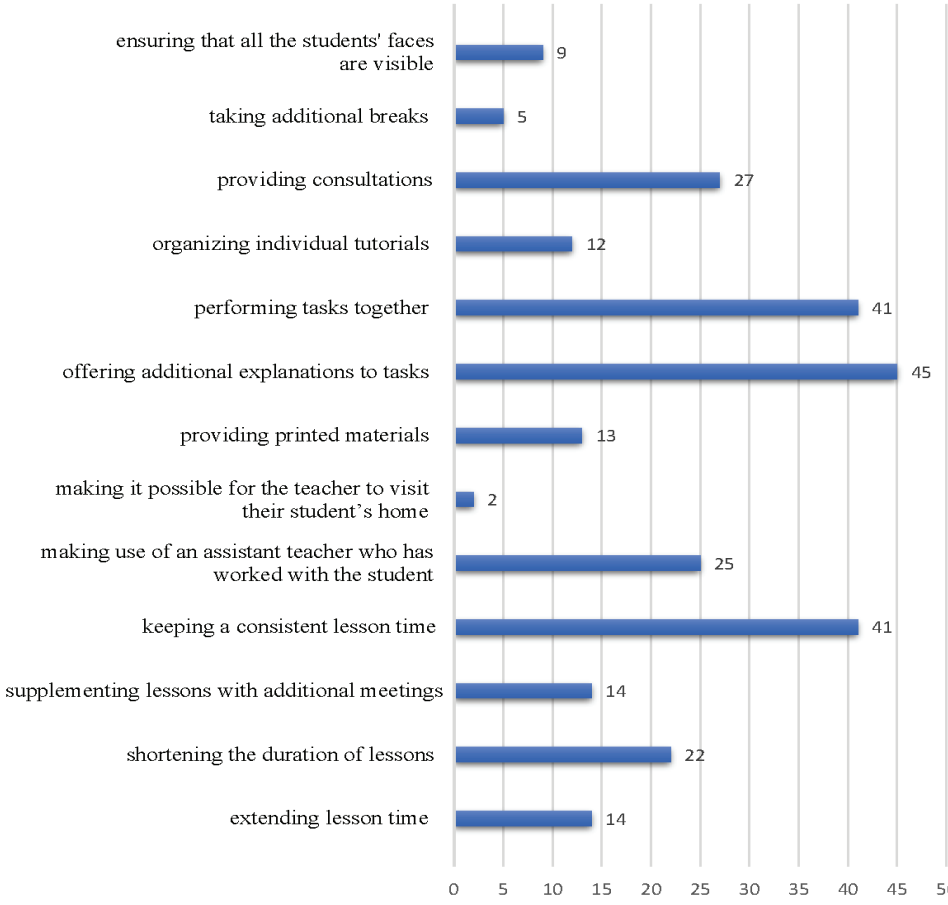

Figure 3. Methods of adapting lessons to the requirements of students with SEN in terms of work organization (N=58).

S o u r c e: Own work.

In the case of learning content (Figure 2), teachers were mainly simplifying information, selecting and providing the most important information, and reducing the number of tasks for students to complete independently. What the respondents were least likely to do was giving students additional assignments. When it came to adjusting organization of work (Figure 3), strategies such as offering additional explanations, performing tasks together, and maintaining routine by keeping the consistent lesson time were most frequently indicated by the respondents. Nearly half of the teachers were running consultations and also used the formula developed before the pandemic period for collaborating with an assistant teacher. A large group used the strategy of shortening the duration of lessons. A few respondents also made an effort to ensure that the faces of all students were visible.

As far as technological solutions are concerned, the respondents used mainly the option of sharing content in a graphic form as well as adjusting the font and color scheme of the teaching materials.

In the next question, it was important to obtain information about the difficulties that teachers encountered from students with special educational needs when conducting lessons in the new formula (Figure 4).

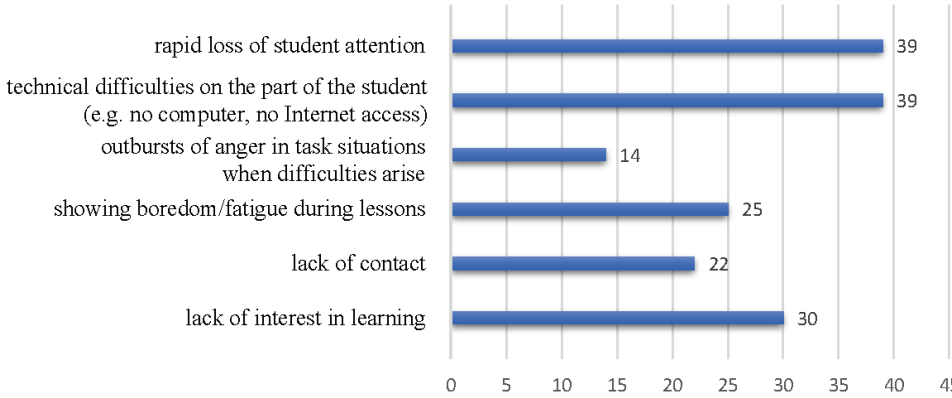

Figure 4. Difficulties students with SEN experienced during lessons (N=58).
Source: Own work.

The above question was of the multiple choice type. Respondents confirmed the occurrence of all the difficulties mentioned in the survey question. As the most frequently experienced, they indicated technical difficulties on the part of their students, rapid loss of students' attention and their lack of interest in learning. Fatigue during lessons and, most alarmingly, a lack of contact with the student were common.

The teachers who were working with students with special education needs during the COVID-19 pandemic could count on receiving support in implementing remote education. The survey results showed that 34 teachers used support when working with their SEN students. At the same time, the respondents indicated the following forms of support received (respectively, according to the number of indications):

– guidance and consultation,
– counseling in solving educational problems with students and cooperation with parents,
– assistance in analyzing and interpreting student records,
– intervention activities in case of negative student behaviors such as refusal to participate in remote education or negative attitudes of parents towards remote education,
– participation in task teams,
– assistance in developing student records and educational materials,
– participation in workshops.

As demonstrated above, the respondents received support not only in didactics but also in pedagogical work.

The responses to the question about who supported the surveyed teachers in working with students who have special educational needs (SEN) presented interesting results (Figure 5).

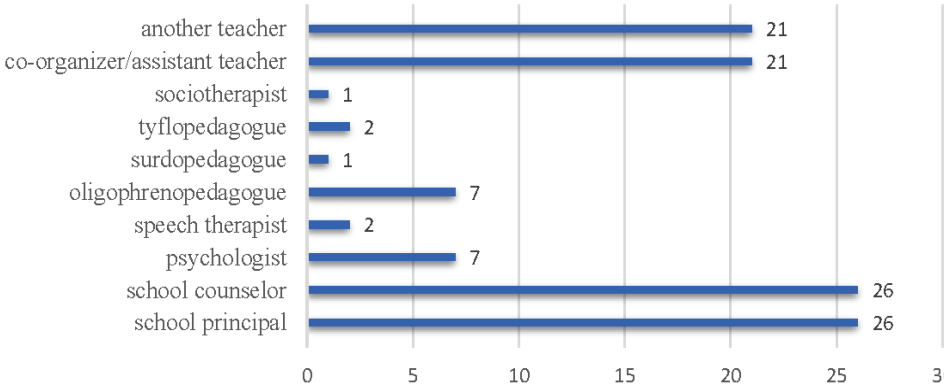

Figure 5. People providing support to the surveyed teachers in their work with SEN students.

S o u r c e: Own work

This multiple-choice question was answered by 34 respondents. When organizing remote education, the surveyed teachers could rely on the support provided by the school staff, including the principal and school counselor,

another teacher, and the teacher who co-organized special education (an assistant teacher).

In the final part of the survey, the teachers were asked to specify how their work with SEN students could have been improved during the period of remote education. Although only 11 respondents answered this question, it can be concluded that for teachers the most important thing in working with students is an individual and direct contact, working in smaller groups, and having an access to teaching materials.

Psychological and pedagogical assistance in distance education

The process of educating students with special educational needs is connected with psychological and pedagogical assistance, which involves providing support to each student who experiences temporary or permanent difficulties of various kinds as well as to teachers and parents.

One of the survey questions concerned the evaluation of how well the schools were prepared to provide psychological and pedagogical assistance. As the results of the survey showed, the majority of the respondents evaluated their schools' preparedness in this area as good or very good, i.e., a total of 21 respondents (67.7%), 7 respondents (22.6%) rated it as average, whereas 3 teachers (9.7%) believed that the school base was poorly prepared to meet the needs in this area. On the other hand, half of the teachers rated their preparedness to provide psychological and pedagogical assistance as average (51.6%) and 6 teachers (19.4%) as good. The rest rated it as poor.

On average, the surveyed specialist teachers reported having provided psychological and pedagogical assistance to 21 students during the COVID-19 pandemic. Additionally, what constituted an important point of interest in the survey was which groups of students received remote psychological and pedagogical assistance (Figure 6).

This multiple-choice question was answered by 31 teachers. As Figure 6 shows, the specialist teachers most often indicated that psychological and pedagogical assistance was provided to students with disabilities (22), followed by students with specific learning difficulties and educational failures (19 and 13 respectively). Nearly half of the respondents identified they had students with behavioral and emotional disorders. Only one specialist teacher was providing support to pupils whose special educational needs resulted from special talents. In this group, only

5 teachers indicated they were providing assistance to students whose special educational needs resulted from crisis situations.

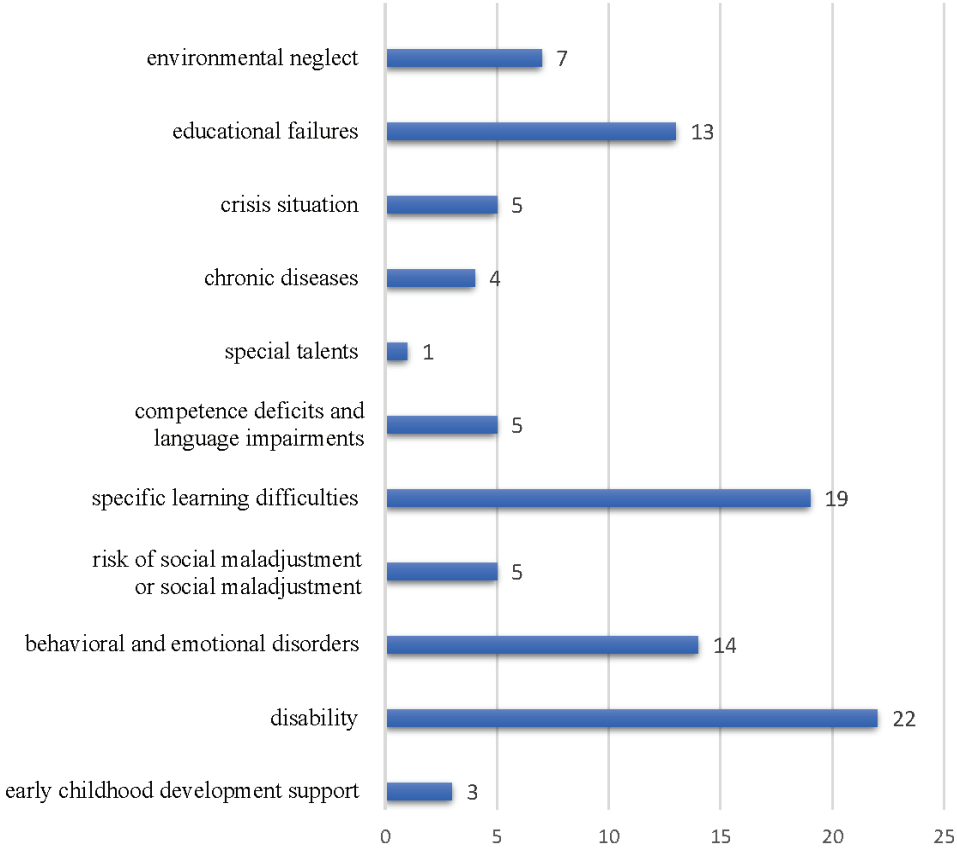

Figure 6. Groups of students with SEN identified by specialist teachers.
Source: Own work.

The next survey questions concerned the forms of psychological and pedagogical assistance provided remotely to students (Figure 7), teachers (Figure 8) and parents (Figure 9).

Questions regarding the psychological and pedagogical assistance provided remotely to students, teachers, educators, and parents were of the multiple-choice type.

Supporting students remotely (Figure 7) was most often accomplished by providing counseling, organizing specialized classes, arranging remedial activities, and undertaking educational interventions. Teachers and tutors (Figure 8) most

often used the assistance in analyzing and interpreting the records contained in opinions and decisions, advisory and consultations on how students function, implementation of learning content, educational problems, undertaking interventions in the event of behavioral problems. Assistance to parents (Figure 9) consisted primarily in counseling and consultation, in arranging specialized care for the child by scheduling visits to counseling centers and other facilities. Assistance to teach-

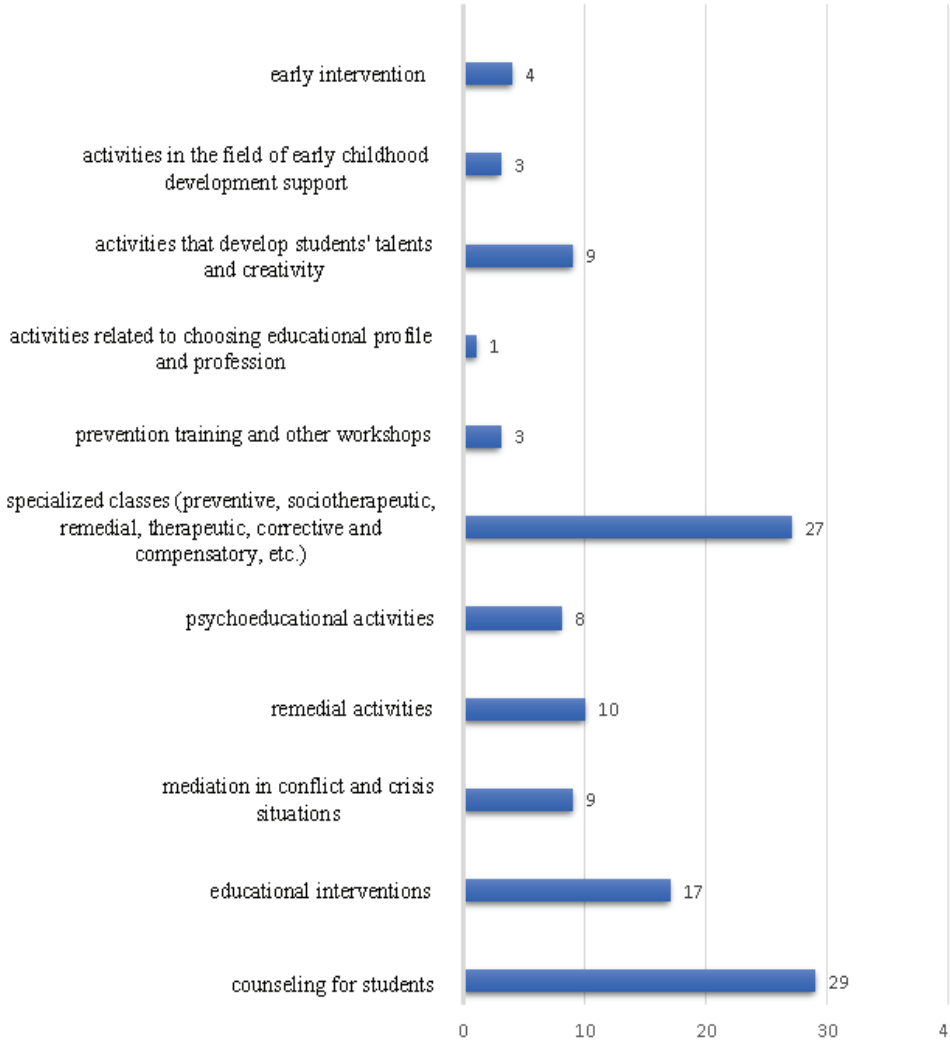

Figure 7. Forms of psychological and pedagogical assistance provided remotely to students.

S o u r c e: Own work.

ers and parents in early childhood development and early intervention (Figures 8 and 9) included providing advice and support.

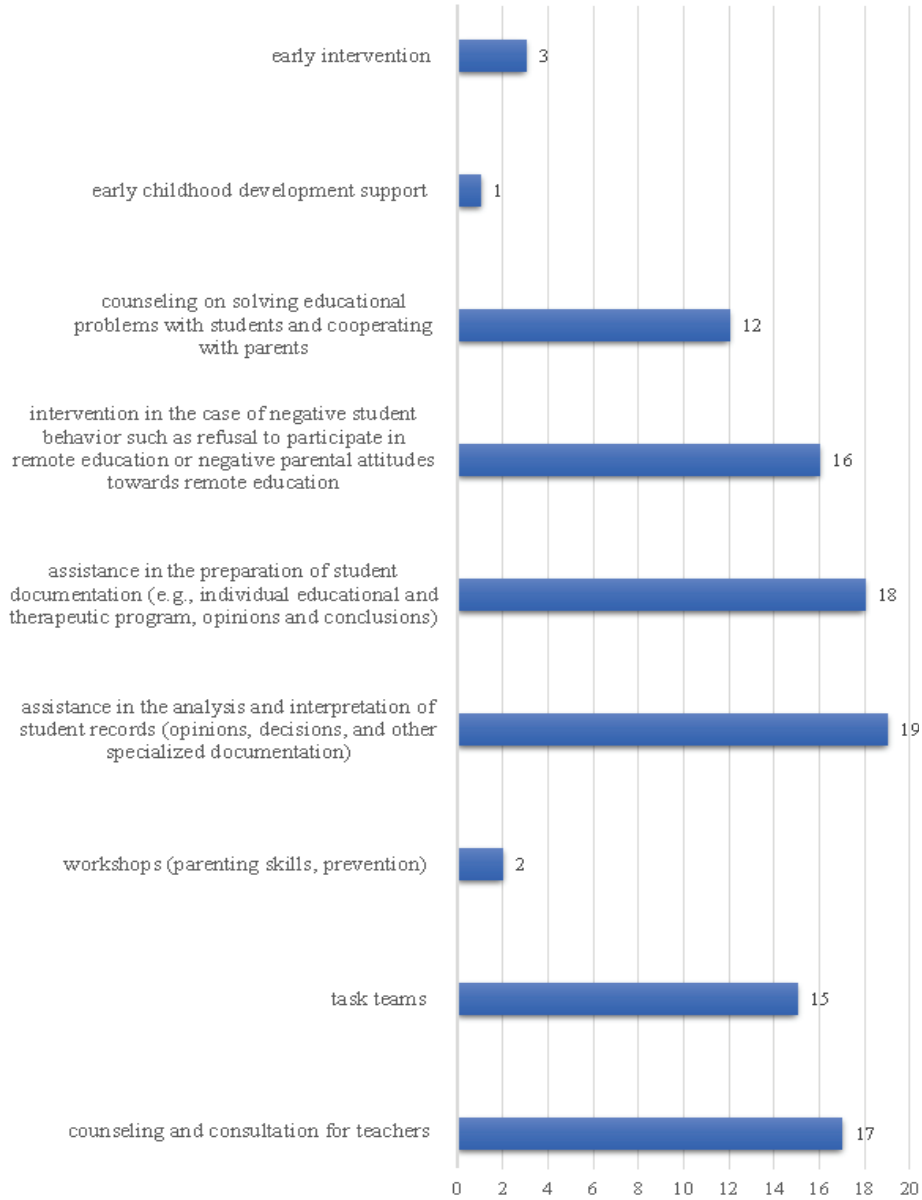

Figure 8. Forms of psychological and pedagogical assistance provided remotely to teachers and tutors.

S o u r c e: Own work.

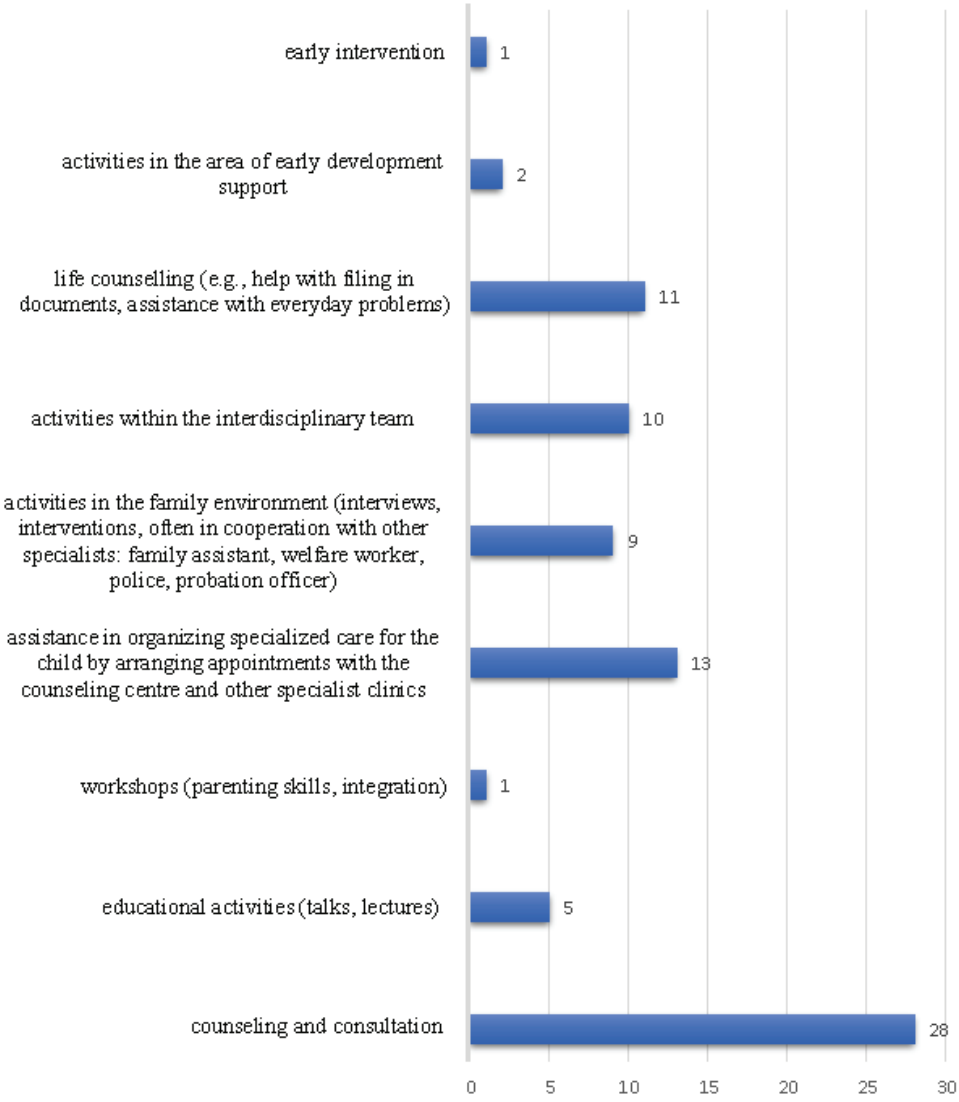

Figure 9. Forms of psychological and pedagogical assistance provided remotely to parents.

S o u r c e: Own work.

The researchers were also interested in assessing the degree to which individual tasks undertaken by specialist teachers were completed (Figure 10).

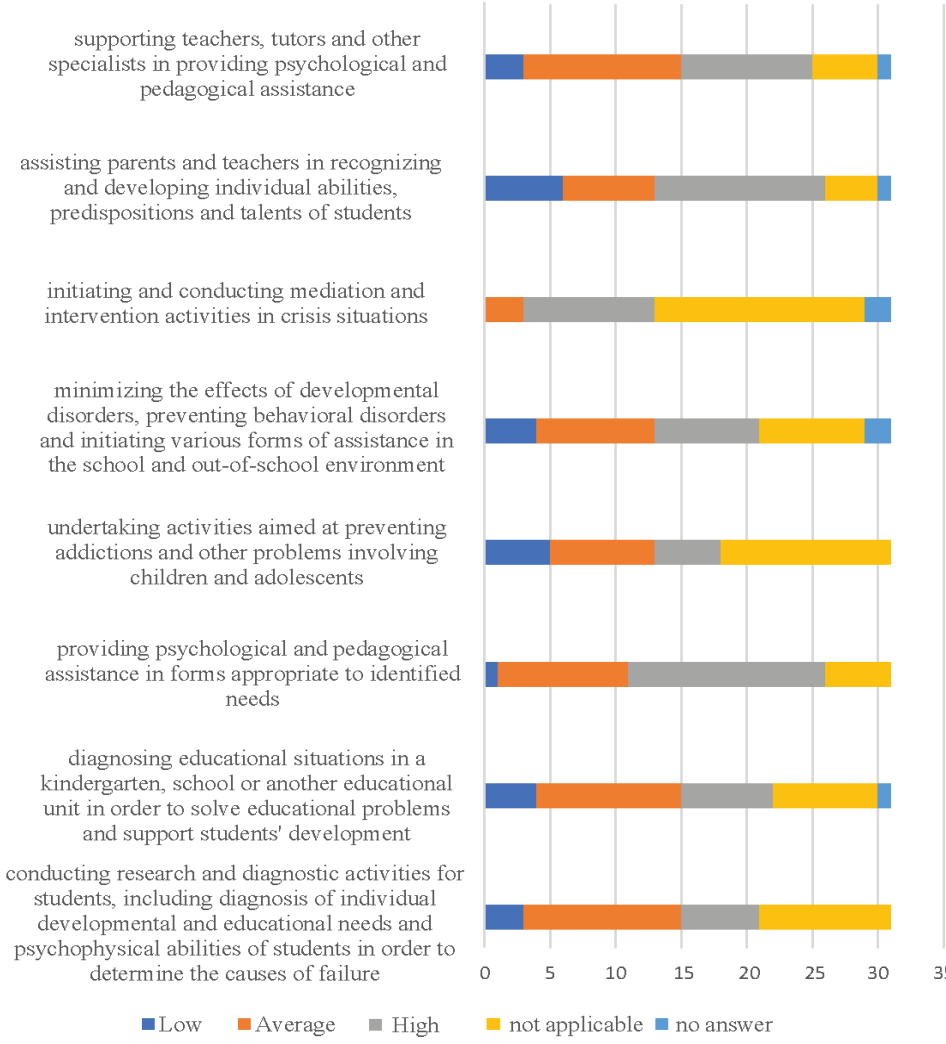

Figure 10. Evaluation of the degree to which tasks resulting from psychological and pedagogical assistance were completed (N=31).
Source: Own work.

The categories in the questionnaire were developed according to the tasks contained in the Regulation of the Ministry of National Education on the principles of organizing and providing psychological and pedagogical assistance in public kindergartens, schools, and institutions (Journal of Laws of 2020, item 1280).

As the results show, the respondents evaluated the level of implementation of individual tasks resulting from the psychological and pedagogical assistance as average or high, and such evaluations dominate. The "not applicable" answer in Figure 10 suggests that the respondents either failed to undertake all the activities specified in the regulation during the COVID-19 pandemic or that they were not part of their duties. It should also be noted that the respondents used the Microsoft Teams and Google Hangouts Meet platforms as well as the telephone to conduct the tasks of psychological and pedagogical assistance.

In the survey, the researchers also asked about the problems, risks, and advantages of providing psychological and pedagogical assistance remotely. The most frequently mentioned challenges included: motivating students and parents to work remotely, establishing and maintaining contact with students and their parents. Most often the surveyed teachers indicated the following threats (listed here according to the number of responses):

– disturbances in social relations – 24
– reduction in quality due to the lack of direct contact with the child – 23
– addiction to the Internet and digital tools – 21
– limitations on cognitive, emotional and social development – 18
– difficulties in recognizing children's abilities and needs – 17
– difficulties in adapting educational materials and forms of work to children with special educational needs – 15
– reluctance to comply with compulsory schooling – refusal to participate in remote education – 12
– lack of insight into family environment – 9.

As for the advantages of providing psychological and pedagogical assistance remotely, only four respondents perceived the positive aspects of this activity, indicating such arguments as: flexible working hours and convenience for those who receive such assistance; facilitation of communication between students, parents, and teachers; better adaptation of the means of intervention to the students' needs; greater variety of support through the use of multimedia and non-verbal presentation of the provided content; and time-saving.

The specialists were asked to share examples of their own initiatives or those of their institutions that can be used by teachers involved in the implementation of psychological and pedagogical assistance. This question was answered by only a few people. Primarily, the respondents mentioned initiatives aimed at students including: counseling for adolescents who were able to talk about their problems in a safe environment, promoting activities such as sharing nice messages with classmates in a forum, writing and reading stories, editing an online journal called "School Specialists Make Suggestions," and recording therapeutic activities.

In conclusion, the specialist teachers were asked to evaluate the psychological and pedagogical assistance provided (Figure 11).

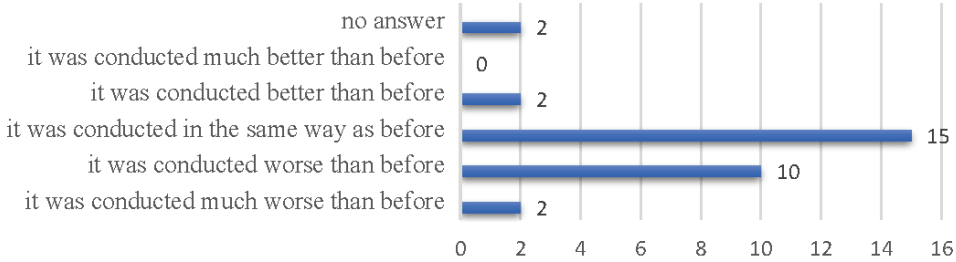

Figure 11. Evaluation of psychological and pedagogical assistance (N=31).
Source: Own work.

The questionnaires show that a little over half of the respondents gave a positive evaluation to the assistance provided in this form, but 12 teachers reported that its quality was worse. At this point it is worth noting that although it was possible for this group of teachers to receive support from external institutions in order to improve the quality of psychological and pedagogical assistance, only one third of the teachers surveyed reported that they had actually taken advantage of such support. The institutions supporting teachers were mainly In-Service Teacher Training Centers.

Discussion of results

As mentioned in the first part of this article, students with special education needs, including students with disabilities, found themselves in a particularly difficult position during the COVID-19 pandemic (López-Noguero et al., 2021; Parmigiani et al., 2021; Tabatadze & Chachkhiani, 2021; Lütje-Klose et al., 2021; Kocejko, 2021). What raised concern was the organization of remote education for this group of students, the implementation of tasks in the field of psychological and pedagogical assistance, and the effective use of recommendations contained in pertinent documents (opinions, decisions on the need for special education, individual educational and therapeutic programs). Over time, questions started to emerge about the physical health and mental well-being of teachers, isolated students, and parents. This issue resounded in the statements made by teachers

participating in a study conducted by Centrum Cyfrowe (Buchner et al., 2020, p. 35) as well as in the research conducted by Ptaszek et al. (2020).

Implementing remote education is a complex and multi-stage process involving activities in two complementary areas of technology and competence. In order to carry out this type of education, an equal access to computer equipment and Internet connection must be provided to all participants in the process. The competence area includes digital knowledge and skills as well as didactic and methodological knowledge and skills (Ptaszek, 2020, pp. 33–34). Meanwhile, the introduction of online education meant that both teachers and students had to change their previous methods of working regardless of their competence.

In the course of the research, it was ascertained that the teachers – in compliance with the recommendations of the Ministry of Education – were conducting lessons reduced in duration and according to the plan prepared for the period when schools were closed. Such recommendations were in line with the principles of hygiene of remote work including the time when the computer equipment was used. This issue was highlighted by Bigaj and Dębski (2020, p. 110), who stated that prolonged screen time, information overload, and social isolation may lower the psychological well-being of students, teachers, and parents. When interpreting the data collected during the study (Figure 2), it can be concluded that during the second period of the pandemic, teachers tended to focus on imparting knowledge by selecting the most important content while simplifying the information given to students. Although it increased screen time, the practice of extending lesson time, introducing consultations, or supplementing lessons with additional meetings for students with special educational needs served the purpose of supplementing educational content with additional information for better understanding. The teacher remaining in an explanatory and supportive role (Figure 3) may have been one of the elements in creating an optimal environment for inclusive education delivered remotely (cf. Parmigiani et al., 2020).

Few teachers from both study groups indicated they were working with a student in a crisis situation. Meanwhile, the difficult, dynamic, and complex pandemic state in the country may have increased the number of students experiencing crisis situations, Additionally, the prolonged duration of the pandemic may have revealed that such situations occurred. It is worth reflecting on this problem, as the pandemic state has proven to be a complicated situation to many people, triggering a crisis (Bilicki, 2020). At this point, the general survey results should be referred to since they show that about 90% of the surveyed teachers, as part of their educational activities, often and very often kept their students' spirits up, talked about their well-being and problems brought about by the pandemic (Bobik et al., 2020, p. 17)

When it comes to the evaluation of remote psychological and pedagogical assistance, the respondents perceived problems and threats to this form of support. Nevertheless, it is noteworthy that the average and high ratings given by the research sample to the implementation of the tasks comprising this activity were prevalent. According to Ptaszek (2020, p. 73), despite the effort made and hardship experienced by the teachers, they are the most satisfied group, which is evident in the evaluation of the remote form of instruction and learning.

Another researcher who highlighted the benefits and risks of remote education in addition to remote psychological and pedagogical assistance is Górnicka (2020). The authoress lists the risks indicated by teachers in the area of learning, health, including addictions, the effectiveness of education and therapeutic activities. Among the positive aspects of this form of education the teachers enumerate the opportunity for the child to benefit from parental support, an increase in the student's independence, the acquisition of time management skills and the security of learning in the family home.

From among the difficulties registered by the teachers, attention is drawn to the problems of technical nature (Figure 4), which include the lack of equipment and lack of access to the Internet. This problem resounded in many reports from Poland (e.g., Buchner et al., 2020, pp. 11–14; Plebańska et al., 2020; Ptaszek, 2020) and from other countries (e.g., López-Noguero et al., 2021; Parmigiani et al., 2021; Tabatadze & Chachkhiani, 2021). While reviewing the literature on the situation of children with disabilities, Kocejko (2021, pp. 80–81) also highlights the mismatch between educational platforms and the abilities of students with special educational needs. Other problems mentioned by the teachers surveyed included the lack of contact with students, rapid loss of attention, as well as boredom and weariness with lessons. Similar data was obtained by Ptaszek (2020, p. 67), who found that more than a quarter of students had difficulty concentrating and the same number of students had difficulty understanding online content. Therefore, it is necessary to educate teachers to develop creative and interesting activities that engage and motivate students, as well as to use attractive materials and resources, create personalized materials, apply group, team, and individual learning activity strategies (cf. Permigiani et al., 2021). No less important issue is to develop a way to monitor students' attendance in class. What is noticeable among the collected data are the teachers' efforts to ensure that the faces of all participants are visible. Such actions are important because transmission of content only in the form of sound makes it difficult to interact with the teacher and to understand the discussed issues, which may result in various difficulties during the lessons run remotely, especially in the case of children with special educational needs.

Due to a variety of factors, the pandemic period may have resulted in a greater need for various forms of psychological and educational support. Here it seems

worthwhile to cite data obtained in the general survey addressed to parents (Bobik et. al., 2021, pp. 28–30). The parents surveyed indicated the occurrence of all forms of assistance included in the regulation on the principles of organizing and providing psychological and pedagogical assistance in public kindergartens, schools and institutions (Journal of Laws of 2020, item 1280), although not all of them made use of the entire scope offered. During this period, only 30% of the respondents used the assistance of specialists employed at schools. And here the respondents most often indicated the use of the support provided by a pedagogue, a speech therapist, a specialist in revalidation, an assistant teacher, and a school psychologist. While analyzing the type of activities conducted and the range of topics covered within the framework of assistance provided to parents, it seems that teachers and specialists may have performed caregiving tasks towards some parents (cf. Marcieca et al., 2021).

What draws attention during the pandemic period is the organization of teachers and mutual support. While working with SEN students, the surveyed teachers benefited mainly from the support of other teachers, the school counselor, the school management, and one-third of the surveyed specialist teachers – from the help of teacher training institutions. Supporting the work of teachers by arranging collaboration among them, short online meetings, working remotely in smaller subject teams, or learning together how to use remote education tools helped to lay the foundation for effective remote learning experience (Śliż, 2020, p. 114; Witkowski, 2020, pp. 90–91; Parmigiani et al., 2021; Tabatadze & Chachkhiani, 2021, pp. 90–91).

Conclusions

Overall, both the teachers' educational work online as well as the psychological and pedagogical support they delivered remotely became a reality in which they had to get actively involved mostly without prior preparation. In the second pandemic period, the teachers who participated in the study focused on the most important problems of organizing the educational process and remote assistance. The respondents primarily adapted their methods and forms of work as well as the forms of assistance to the new formula of running classes. However, the online education of students with SEN as well as the psychological and pedagogical assistance require teachers to be better prepared in terms of both technological skills and the ability to apply diverse methods of remote education and assistance, to use digital materials, and to improve cooperation with parents and other teachers.

The newly gained awareness of what needs are emerging should therefore give an impetus to participation in specialized trainings.

The analyses presented in this paper, despite their limitations, such as a small research sample and the participation of volunteers, provide information about the ways in which students with special educational needs are educated remotely and how psychological and pedagogical assistance is provided remotely. The results indicate issues that may inspire further research. First, it is important to identify areas that were not addressed in the study. Students with special educational needs are a diverse group within the school system, so it would be advisable to extend the research to gather detailed information about the strategies used by teachers in carrying out the recommendations contained in opinions, decisions on the need for special education, and individual educational and therapeutic programs. In order to evaluate the remote education of students with SEN as well as the psychological and pedagogical assistance provided to them, it would be advisable to survey the students and their parents to obtain information on the biggest problems they experienced and the most positive practices implemented by their tutors during this period as well as information on what the school can do to best meet the needs of this group of students. The aforementioned research should be conducted in a qualitative paradigm, too. Concluding the discussion, it should be added that although the analyses are based on only 89 survey questionnaires, the voice of teachers matters greatly in the context of emerging difficulties as well as opportunities for the development and application of remote education.

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Anida Szafrańska

Edukacja zdalna uczniów ze specjalnymi potrzebami edukacyjnymi oraz pomoc psychologiczno-pedagogiczna na przykładzie miasta Gliwice

S t r e s z c z e n i e

W trakcie pandemii COVID-19 w szczególnie trudnej sytuacji znaleźli się uczniowie ze specjalnymi potrzebami edukacyjnymi. Celem artykułu było ukazanie wybranych problemów edukacji zdalnej skierowanej do uczniów ze specjalnymi potrzebami edukacyjnymi oraz zdalnej pomocy psychologiczno-pedagogicznej. Przedmiotem badań były poglądy nauczycieli realizujących edukację w nowej formule oraz poglądy nauczycieli specjalistów na temat pomocy psychologiczno-pedagogicznej realizowanej online. Badania prowadzone były w paradygmacie ilościowym metodą sondażu diagnostycznego za pomocą kwestionariusza zamieszczonego na platformie badawczej LimeSurvey.

W artykule przedstawiono wyniki ankiet przeprowadzonych wśród nauczycieli szkół z terenu Gliwic. W badaniu wzięło udział 103 nauczycieli, z czego 58 odniosło się w ankiecie do pytań dotyczących organizacji edukacji zdalnej dla uczniów ze specjalnymi potrzebami edukacyjnymi. Osobny kwestionariusz ankiety dla nauczycieli specjalistów wypełniło 31 osób.

Uzyskane wyniki pokazały, że biorący udział w badaniu nauczyciele skupili się na najważniejszych problemach organizacji edukacji i pomocy zdalnej. Badani przede wszystkim dostosowywali metody pracy, formy pomocy do nowej formuły zajęć. Dla nauczycieli poważnym problemem były braki sprzętowe, brak dostępu do internetu, brak kontaktu z uczniem, utrata koncentracji uwagi, znużenie lekcjami. Specjaliści udzielali pomocy psychologiczno-pedagogicznej uczniom, rodzicom i nauczycielom, dostrzegali zagrożenia. Badani nauczyciele korzystali z różnych źródeł pomocy, jednak uwagę zwraca współpraca nauczycieli i wzajemne wspieranie.

S ł o w a k l u c z o w e: pandemia COVID-19, edukacja zdalna, specjalne potrzeby edukacyjne, pomoc psychologiczno-pedagogiczna, nauczyciele szkół ogólnodostępnych i integracyjnych, uczniowie ze specjalnymi potrzebami edukacyjnymi

Анида Шафранска

Дистанционное обучение учеников с особыми образовательными потребностями и психолого-педагогическая помощь на примере города Гливице

А н н о т а ц и я

Во время пандемии COVID-19 в особенно сложной ситуации оказались ученики с особыми образовательными потребностями. Целью статьи было показать выбранные проблемы дистанционного обучения, ориентированного на учеников с особыми образовательными потребностями, и дистанционной психолого-педагогической помощи. Предметом исследования стали взгляды учителей, реализующих процесс обучения по новой формуле, и взгляды

педагогов на психолого-педагогическую помощь, предоставляемую онлайн. Исследование проводилось в количественной парадигме методом диагностического опроса с использованием анкеты, размещенной на исследовательской платформе LimeSurvey.

В статье представлены результаты опроса, проведенного среди учителей школ, расположенных на территории города Гливице. В исследовании приняли участие 103 учителя, из которых 58 отнеслись к вопросам, касающимся организации дистанционного обучения учеников с особыми образовательными потребностями. Отдельную анкету для педагогов заполнил 31 человек.

Полученные результаты показали, что участвующие в исследовании учителя сосредоточились на наиболее важных проблемах организации обучения и дистанционной помощи. Респонденты в первую очередь адаптировали методы работы, формы помощи к новой формуле занятий. Для учителей серьезными проблемами были: нехватка оборудования, отсутствие доступа в Интернет, отсутствие контакта с учеником, потеря концентрации внимания, утомляемость уроками. Специалисты оказывали психолого-педагогическую помощь ученикам, родителям и учителям, выявляли опасности. Опрашиваемые учителя пользовались различными источниками помощи, однако, обращает внимание организованность учителей и взаимная поддержка.

Ключевые слова: пандемия COVID-19, дистанционное обучение, особые образовательные потребности, психолого-педагогическая помощь, учителя общеобразовательных и интегративных школ, ученики с особыми образовательными потребностями

Anida Szafrańska

La educación a distancia de alumnos con necesidades educativas especiales y la atención psicopedagógica en el caso de la ciudad de Gliwice

Resumen

Durante la pandemia de la COVID-19 se encontraron en una situación especialmente difícil los alumnos con necesidades educativas especiales. El objetivo del artículo era mostrar determinados problemas de la educación a distancia dirigida a los alumnos con necesidades educativas especiales y la atención psicopedagógica a distancia. El objeto de los estudios fueron las opiniones de los profesores que ejercieron la docencia en esta nueva fórmula y las opiniones de profesores especialistas en el tema de la atención psicopedagógica a distancia. Los estudios fueron llevados a cabo en un paradigma cuantitativo por el método de sondeo de diagnóstico, con ayuda de un cuestionario incluido en la plataforma de investigación LimeSurvey.

En el artículo se han presentado los resultados de las encuestas realizadas entre profesores de centros educativos de la región de Gliwice. En el estudio participaron 103 profesores, de los cuales 58 se refirieron en la encuesta a preguntas relativas a la organización de la educación a distancia para alumnos con necesidades educativas especiales. La encuesta independiente para profesores especialistas fue cumplimentada por 31 personas.

Los resultados obtenidos demostraron que los profesores que participaron en el estudio se concentraron en los principales problemas de la organización de la educación y la atención a dis-

tancia. Los participantes en el estudio principalmente adaptaron los métodos de trabajo, la forma de atención, a la nueva fórmula de las clases. Para los profesores fueron problemas graves la falta de equipos, la falta de acceso a internet, la falta de contacto con el alumno, la pérdida de concentración de la atención, el cansancio por las lecciones. Los especialistas prestaron atención psicopedagógica a alumnos, padres y profesores, advirtieron los riesgos. Los profesores utilizaron diferentes fuentes de ayuda, aunque llama la atención la organización de los profesores y el apoyo mutuo.

P a l a b r a s c l a v e: pandemia de la COVID-19, educación a distancia, necesidades educativas especiales, atención psicopedagógica, profesores de centros educativos generales y de integración, alumnos con necesidades educativas especiales

III. Theoretical, Methodological and Practical Aspects and Psychological Determinants of ICT and E-Learning in Education

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Distance Learning at Pedagogical Faculties of Universities in the Czech Republic

Abstract

This study focuses on the topic of distance education at pedagogical faculties of universities in the Czech Republic during the time of COVID-19 and tries to map how theoretical and practical teaching was implemented during the Coronavirus pandemic.

Based on the research goal, the following research questions were formulated.

RQ1: Which tools were used to enable distance education at pedagogical faculties in the Czech Republic?

RQ2: How were the defences of qualification theses and the state final examinations carried out?

RQ3: How was the practical pedagogical training implemented?

To answer the individual research questions, a content analysis of information provided on the websites of individual faculties and in the reports published on the Internet in the course of theoretical and practical teaching at pedagogical faculties in the Czech Republic during the Coronavirus pandemic was used.

The research found that the distance teaching took place using various tools, frequently mentioned were the Moodle LMS, MS Teams, Zoom, Google Classroom or Meet. Practical subjects, which cannot be fully realised online, were taught in a full-time form in blocks at the end of the semester. The exams also took place online, the MS Teams or Zoom platform was used for oral examinations, and the Moodle LMS was used for tests.

At the Faculty of Education of Palacký University Olomouc, the defences of qualification theses and state final examinations took place in the examination room of the university under strict hygienic conditions. At the University of Ostrava and Masaryk University, the defences of qualification theses and state final examinations took place online, using MS Teams.

Practical teacher training also took place online, students participated in online teaching at individual faculty schools. Students helped teachers create materials for online teaching, participated in online teaching or led online teaching themselves. At the Faculty of Education of University of Hradec Králové, they performed the function of a teaching assistant or led tutoring.

K e y w o r d s: distance education, Coronavirus pandemic, practical teaching, theoretical teaching, state final examination, practical pedagogical training

With the COVID-19 spreading across the globe, many countries have ordered the closure of all educational institutes. At the beginning of February 2020, only the schools in China and a few other affected countries were closed. However, by mid-March, nearly 75 countries have closed of all educational institutions. According to UNESCO, by the end of April 2020,186 countries cancelled traditional education affecting about 73.8% students (Muthuprasad, Aiswarya, Aditya & Girish, 2021).

COVID-19 has been a challenge for educational institutions worldwide to seek stop-gap solutions to continue teaching in a relatively short notice. Educators were forced to shift to an online mode teaching within a few days without any prior preparation (Silva, Alvarez, 2021). Most of the universities have shifted to online mode using online platforms, mainly Blackboard, Microsoft Teams and Zoom.

On 10th March 2020, the Ministry of Health issued an emergency measure (No. MZDR 10676/2020-1/MIN/KAN) in order to prevent the spread of COVID-19. With this measure, the "in-person presence of pupils and students in education and study at Czech primary, secondary, higher vocational and university schools and school facilities" was inhibited. (MZDR No. 10676/2020-1/MIN/KAN). Thus, a number of challenges and complex questions arose before the Czech education system on how to further educate pupils and students. Due to the Coronavirus pandemic, universities in the Czech Republic had to switch to distance learning from March 2020 to September 2021. They received an exception only for teaching some practical subjects that could not be taught online.

Within these practical subjects, students met with the teacher in smaller groups according to government regulations. The Ministry of Education recommended to higher education institutions to use the tools of distance education as much as possible.

Despite the fact that teachers could have found information at Ministry of Education's website or universities' webistes, many teachers might have found the situation very difficult and stressful. Adedoyin and Soykan (2020) list a wide array of possible challenges. Among them are technological issues, socio-economic factors, human and pets' intrusion, lack of digital competence, problems with assessment and supervision of students, heavy workload, and the question of compatibility of online learning with subjects that are more vocational in nature.

Several studies have already been conducted on the impact of Coronavirus on teaching at universities in the Czech Republic. One such example is the research of the University of Antwerp called COVID-19 International Student Well-Being Study, which involved 7 Czech universities (CZU, MU, UHK, CU, PU, UTB, University of Economics and Business, Prague). This research looked at how the pandemic affected the living conditions, studies, health and the impressions of university students. The results of the research showed that 15.5% of respondents suffered from at least one health problem, which is also a risk factor for COVID-19 (obesity, lung disease, weakened immunity, high blood pressure, heart disease, kidney disease, diabetes, cancer). Students in the period of limited functioning of universities indicated more symptoms of depression than the general population in the period before the pandemic, 37.5% of university students in the questionnaire survey showed high values of loneliness. The proportion of students with financial problems increased from 4.2% before the pandemic to 14.8%, and one third of students (32%) moved from their dormitories and rented apartments back to their parents. The closing of full-time in-person teaching was mainly reflected in an increase in personal study time (on average by 7.8 hours per week). The greater the increase in personal study time, the greater the study load and the degree of stress students felt. The workload and stress of students were lower if the university was able to replace the cancelled full-time teaching with online teaching to an extent greater than or identical with the personal study time. There was a significant difference between universities and faculties in their approach to dealing with the closing of full-time teaching (Sociologický ústav Akademie věd ČR, Fakulta sociálních věd Univerzita Karlova, 2020). The results of the research showed that a third of Masaryk University students showed symptoms of depression. The study load increased significantly for 59% of bachelor's students, the average number of self-study hours increased from 13 hours to 23 hours per week, and 43% of university students

moved back to their parents during the pandemic. Research participants also evaluated the university's actions. As many as 80% of respondents agreed with the statement that they felt sufficiently informed about any changes to the operation of the university and were satisfied with the application of safety restrictions (Fojtů, 2020).

It is important to note that the learning quality depends on the level of digital access and efficiency. Although the online learning environment varies profoundly from the traditional classroom situation when it comes to learner's motivation, satisfaction and interaction (Bignoux & Sund, 2018), the results of American study argued that that online class will be as effective as traditional class (Elshami et al., 2021, Lim, Morris & Kupritz, 2007) if it is designed appropriately (Nguyen, 2015). Therefore, an effective online class depends upon several factors. These invove well-structured course content, well-prepared instructors (Sun & Chen, 2016), rate of interactivity in the online setting (Niemi&Kousa, 2021, Arbaugh, 2000), creation of a sense of online learning community, rapid advancement of technology (Sun & Chen, 2016), chances of engaging with teachers and peers in online learning settings (Wise, Chang, Duffy & Del Valle, 2004), social presence (Barab, Duffy, 2000), virtual teaming (Kim, Liu & Bonk, 2005), academic self-concept (Lim, Morris & Kupritz, 2007), discipline and self-motivation of students (Golladay, Prybutok & Huff, 2000), the skills of learner and instructor (Burçin, Hamutoğlu et al., 2021, Shih, Ingebritsen, Pleasants, Flickinger & Brown, 1998), use of the paradigm of flipped education accomplished by formative assessment as well as making materials available in the framework of the Synchronous Online Flipped Learning Approach (Gajewski, 2021). It has proved that the synchronous learning and teaching model is more effective in distance learning (Rigo & Mikuš, 2021). On the other hand it was found that students preferred to study in the evenings and during nights, so that distance education should incorporate the asynchronous delivery model (Ślósarz, 2021). Another study shows that the balance of synchronous and asynchronous teaching and learning models is the best way. It has been shown that in the process of actualization of students' learning experience, as well as presentation and evaluation of learning outcomes, it is advisable to prefer the use of a Synchronous Learning Mode, and in the process of students' learning experience acquisition, the use of the asynchronous one is preferable (Kuzminska, Morze, Mazorchuk, Barna, Dobriak, 2021). It has also been proven in practice that the balance of synchronous and asynchronous teaching and learning models is more effective than pure distance learning and offers many benefits for students, such as accessibility, consideration of individual opportunities, increasing student involvement level due to social interaction (Balyk, Shmyger, Vasylenko, Skaskir, Oleksiuk, 2021).

Table 1
A comparison of synchronous and asynchronous Learning Mode

Comparison criterion	Synchronous	Asynchronous
Place of study	Students can ask question and receive answers during the live-session.	Some students may not to be able to attend at the required time due to technical issues.
Student engagement	Not all students will be able to ask questions during the live session.	In the discussion all students can ask question or comment.
Interaction	Online meeting allow you to interact in real time, such as a conversation.	Students can initiate or respond to interactions with the teacher and their peers when it best suits their schedule. But watching a recorded lesson, students may feel less connected to the teacher and less connected to the learning group.
Awareness	The teacher can assess in real time how students understand, respond to feedback from students. Students do not have time to think about the topic.	Students can view the recorded session, for example, in the repetition before the final exam.
Administration	Provides a schedule that helps those who have difficulty in self-organization.	Students can postpone classes because they think that they can always “do it later.” It can lead to procrastination. Requires a higher level of self-awareness and self-study skills.

S o u r c e: Own work based on Kuzminska, Morze, Mazorchuk, Barna, Dobriak, 2021

The literature has focused on favourable and unfavourable student´s perception of online learning. Several studies compared the efficacy of online education with a conventional teaching in classrooms. Several studies deal with the distance education at universities during the time of COVID-19 in the Czech Republic. For example, Fišerová (2020) investigated perceptions of university students and teachers of economy. Pavlisová (2021) investigated COVID-related changes as perceived by university language teachers. However, not many papers have dealt with distance education at pedagogical faculties of universities in the Czech Republic during the time of COVID-19.

Research Method

This study focuses on the issue of distance education at the pedagogical faculties of universities during the COVID-19 pandemic and seeks to find out how theoretical and practical teaching was implemented in the period from 11th March 2020 (the day when universities were closed) to 13th September 2021 (university reopening).

The aim of the research was to find out how the theoretical and practical teaching at the faculties of education in the Czech Republic took place during the Coronavirus pandemic.

Based on the research goal, research questions were formulated.

RQ1: Which tools were used to enable distance education at pedagogical faculties in the Czech Republic?

RQ2: How were the defences of qualification theses and the state final examinations carried out?

RQ3: How was the practical pedagogical training implemented?

To answer the individual research questions, a content analysis of information – provided on the websites of individual faculties and in the reports published on the Internet – on the course of theoretical and practical teaching at pedagogical faculties in the Czech Republic during the Coronavirus pandemic was used. A purposeful selection was carried out, there were selected those faculties that published information in English on their own websites in the era of the Coronavirus pandemic.

When processing the data, I used manifest content analysis, which is an analysis examining explicit content and forms of text. So I did not deal with the contents hidden in the text. I followed Plichtová (1996), who describes the application of content analysis. First, I identified the data which I was working with and collected it. Next, I used coding. The codes helped me sort and create a system of categories. A descriptive approach was used, according to which the categories were created gradually during the analysis. First, I used the open coding technique. Open coding technique was used to analyze the data. Analyzed texts were divided into units, which in this case mean words, sentences or paragraphs based on their meaning. The units are therefore semantic wholes. Units were assigned their codes. Once a list of codes has been created, their categorization could begin. I proceeded to categorization, grouping codes. Axial coding was used, with which I connected individual categories with other subcategories.

ATLAS.ti was used for coding.

During the research we have identified six categories:

– Tools of distance education which are used for online teaching
– Tools of distance education which are used for examination

– Tools of distance education which are used for sending study materials
– Tools of distance education which are used for sending assignments
– Practical pedagogical training
– State final examinations

Results of the Study

1. What tools of distance education were used to teach at the faculties of education in the Czech Republic?

Although teachers could have found information and teaching tips at Ministry of Education's website or universitiy websites many – especially those with no previous experience with online teaching or videoconferencing tools – might have found the situation extremely difficult and stressful (Pavlisová, 2021).

The Dean of PU FE (Palacky University, Faculty of Education) recommended the implementation of a synchronous teaching in order to maintain the full possible contact of teachers with students. Teachers were also advised to provide students with additional study materials or forms of communication that had proved successful, for example, in the previous period. The Dean left it entirely within the competence of individual teachers whether and to what an extent students will be required to self-study using written study aids, structured and recommended study literature, set individual tasks, and additionally use other study methods (videos, forms of shared content and interactions over the network and in virtual classes, etc.). It was the duty of the teachers to make themselves available for individual or group consultation during their scheduled teaching and during the consultation hours through a suitable video conferencing system (MS TEAMS, ZOOM, BBB, MEET). The Dean of PU FE also recommended using Moodle, especially for sending study materials and assignments (Děkanát, 2020).

At the Faculty of Education of Masaryk University, it was recommended to use a combination of various tools for contactless teaching, especially the MU Information System and Moodle. MS Teams was recommended for online meetings. Alternatively, other tools were used (ZOOM, Google Hangout/Meet…). Synchronous online classes and asynchronous pre-recorded lectures were to be held according to official course schedules. There were some exceptions which permitted students to be present at school, for example artistic work involving 15 people at most, one-on-one consultation and practical teaching. The testing was also carried out online, mainly using the MS Teams platform. (IT MUNI, 2020).

At the Faculty of Education of Charles University, academics were recommended to use software that was supported by the university, i.e. Microsoft Teams, Zoom or Adobe Connect. It was recommended to use the Moodle platform for assigning individual works and assignments for students (Faculty of Education Charles University, 2020). Alternatively, other tools were used: the Moodle, MS Teams, ZOOM, Socrative, and Streamserver CUNI (Charles University, 2021). The testing was also carried out online, mainly using the MS Teams platform or Moodle (Karlovkaonline.cz, 2021).

At the Faculty of Education of the University of Ostrava, academics were recommended to use theMicrosoft Teams, LMS Moodle and Zoom for teaching. TheLMS Moodle was used mainly for assigning individual works, while the Microsoft Teams and Zoom for online meetings. Testing also took place online with the use of the MS Teams, Zoom, LMS Moodle (Pedagogická fakulta OSU, 2021).

The Moodle platform was used at the UHK Faculty of Education to support teaching. Testing was also performed using the Moodle platform. MS Teams was then used for oral examination (University of Hradec Králové, 2020).

At the Faculty of Education of the University of West Bohemia in Pilsen, they used MS Teams, Google Classroom and Zoom for online teaching. Examination also took place online using the MS Teams platform, for oral examinations and tests, and Zoom for oral examination (Plzeňský kraj. Nejlepší místo pro inovace, 2021).

2. How was the practical pedagogical training implemented?

The closure of universities has significantly reduced the practical training.

Given that the postponement of internships would cause a collision with practical subjects that cannot be fully implemented online, and which were taught in blocks in the second half of the semester. PU FE decided that the internship would be implemented within the set deadlines, even if it meant online form, i.e. in the form of participation in online teaching sessions (Univerzita Palackého v Olomouci, 2021). A similar approach was adopted also by UJEP FE (PF UJEP, 2021).

At the Faculty of Education of Masaryk University, the project School at Home was implemented within the framework of pedagogical trainings, whose guarantors were Mgr. Lucie Škarková, Ph.D from the Department of Pedagogy and Mgr. Markéta Sedláková from the Department of Social Pedagogy. 70 university students participated in the project. During the closure of schools, these students cooperated with teachers at 13 faculty schools of the Faculty of Education, Masaryk University. They participated in the creation of worksheets, online questionnaires, teaching presentations and other activities that supported children during home schooling or participated in the cleaning of the classroom and the organization of teaching aids after school closures (Pedagogická fakulta, 2020).

Also at the Faculty of Education, Charles University, practical pedagogical training was implemented in such a way that students helped teachers at faculty primary schools in creating distance support for pupils. Based on the instructions of teachers at faculty primary schools, students created presentations on assigned topics, as well as weekly plans or worksheets. Students also participated in online lessons, once a week they met students during online classes or were involved in the morning circle. Teachers at the faculty schools allowed students to lead these online lessons, and the students consulted the lesson with the teachers in advance. After the online lesson, there was a feedback reflection with the teacher, directly through a video call or within an online Google file, through mutual reactions (Krátká & Zemanová, 2020).

At UHK FE, students had the opportunity to implement pedagogical practice so that they could help, for example, in online teaching as teaching assistants. Alternatively, after class, they provided tutoring to school children (Český rozhlas. Hradec Králové, 2021).

In the Praque College students realized their pedagogical praxis by analysis and observation of the classes recorded on video. They also engaged in peer teaching (micro teaching) sessions (Praque College, 2022).

3. How were the defences of qualification theses and the state final examinations carried out?

The state exams and exams took place online for the first time. However, not all teachers were prepared for the unusual form of state examinations, both technically and practically. Therefore, it was necessary to find out the current needs and readiness of individual faculties.

Within a short time, the faculties began to prepare methodologies and scenarios for the implementation of online state examinations (Fojtů, 2020).

At UP FE, it was stipulated that the course of the defence of qualification theses and state final examinations would take place in accordance with the UP Operation Regime valid from 1st August 2021 (Univerzita Palackého v Olomouci, Žurnál Online zpravodajství z univerzity. 2020). According to this regulation, only a person who does not have symptoms of COVID-19 may participate in the defence of qualification theses and state final examinations. Defences of qualification theses and state final exams were planned so that no more than 20 people would be present at a specific examination room at a specific date. Due to this fact, the students and academic staff were not required to provide:

– Confirmation of vaccination against COVID-19,
– Confirmation of suffering from COVID-19 disease in the past 180 days,
– Confirmation from the official test site of a negative antigen or PCR test result,
– A negative result of a preventive antigen test intended for self-testing.

Persons entering the test room were required to perform hand disinfection, with the disinfectant provided by the appropriate workplace. It was not mandatory to cover the airways with a respirator in the test room.

It was further stipulated in accordance with the provisions of the "Rules for the implementation of the defences of qualification theses and state final examinations at UP FE" that if any of the participants in the defence and state final examination belonged to the so-called risk group endangered by COVID-19, all people, at the request of such persons, must use a respiratory covering with a respirator of at least class FFP2. It was forbidden to use tablecloths during the design of the classroom for the defence of qualification theses and state final examinations due to the necessary continuous disinfection. To draw the exam questions, it was recommended to use cards with the number or wording of the question, which the student would keep throughout the exam, i.e. they do not pass it to the examiners and throw it in the trash upon leaving. It was also recommended that the student only pointed to the selected card with the question number or question during the draw.

It was recommended that the assignment of topics or questions for the final state examination be presented to students in transparent disinfectable packaging. It was recommended that students would use their own stationery to prepare for the final state exam. The note paper was to be provided by the workplace. Students were advised against grouping or forming small groups in the corridors. In the case of grouping of students in the corridors, covering the nose and mouth with a respirator or similarly effective respiratory protection was ordered. To prevent students from grouping after the defence or the final state examination, it was recommended that the committee would announce the results on an ongoing basis (Pedagogická fakulta UP, 2021).

At the Faculty of Education, University of Ostrava, there were online defences of qualification theses and state final examinations. Masaryk University also took this approach (IT MUNI, 2020). Both universities used the MS Teams. The following methodological materials were prepared at UO FE for the course of the online form of state final exams: methodical materials for the examination committee, methodical materials for the member of the committee who participates in the online exam, methodical materials for the student who participates in the online exam.

The state final examination (SFE) was carried out in the following steps (Ostravská univerzita, 2020):

– Registration of all committee members and student to the online meeting.
– Recording started
– Verification of the student's identity using ID (National ID, ISIC, Student Cards…), control of his/her room and technology used (closing applications and files irrelevant to the SFE).

– The chairman of the committee informs about the procedure of the exam.
– Student turns on full screen sharing, uses a number generator to draw a question number.
– Student preparation
– Testing
– After the examination, the student is temporarily disconnected, pausing the SFE recording.
– The committee agrees on the grade.
– Recording resumes, the student is invited back (and the public if participating) and the result announced.
– Completion of state examination recording, the student leaves the online meeting.

At Masaryk University, it was recommended to use so-called SFE Assistants and Helpers during the SFE. The SFE Assistant is responsible for the technical and administrative requirements of the SFE course, adds members (committee and students), calls the student from the "Waiting Room" to the video conference "Committee Room", establishes contact with the student when coming to the video conference, verifies the student's identity, informs about the recording, turns recording on and off, removes the student from the video conference in the end. The assistant completes protocols (reports) and records from the SFE afterwards. The SFE Assistant is present in the "Waiting Room". They consult with the student on the functionality of the connection (video, audio), they can check the running applications on the student's computer (Task Manager) and the student's environment. The committee is either present in the "Committee Room" videoconference (or joins individual videoconferences on channels with the student's name) (IT MUNI, 2020).

Discussion

This study focuses on the issue of distance education at the pedagogical faculties of universities during the COVID-19 pandemic. The aim of the research was to find out how the theoretical and practical teaching at the faculties of education in the Czech Republic took place during the Coronavirus pandemic.

The research found that faculties used the balance of synchronous and asynchronous teaching and learning models. The Deans of faculties recommended the implementation of synchronous teaching in order to maintain the full possible contact of teachers with students. It used various tools (mainly Blackboard,

Microsoft Teams, Meet, Socrative, Streamserver CUNI and Zoom). It was also recommended to use asynchronous teaching, for example the Moodle platform for assigning individual works and assignments for students and asynchronous pre-recorded lectures. Although in some research it was found that the synchronous one is more effective in distance learning (Rigo & Mikuš, 2021), another study shows that students preferred to study in the evenings and during nights (Ślósarz, 2021). Most study findings show that the balance of synchronous and asynchronous teaching and learning models is the best way (Kuzminska, Morze, Mazorchuk, Barna, Dobriak, 2021, Balyk, Shmyger, Vasylenko, Skaskir, Oleksiuk, 2021).

Conclusion

The research found that teaching took place using various tools, most frequently online learning. Students were required to self-study on the basis of provided study materials, for this purpose Moddle LMS or MS Teams were frequently used. Video conferencing via MS Teams, ZOOM, Google Classroom or Meet was also used. The Moodle platform, Google Classroom or MS Teams were used for assigning individual works and tasks for students. Synchronous online classes and asynchronous pre-recorded lectures were held according to official course schedules. There were some exceptions which permit students to be present at school, for example artistic work involving 15 people at most, one-on-one consultation and practical teaching.

The exams also took place online, the MS Teams or Zoom platform was used for oral examinations, and the MS Teams again or Moodle LMS platform were used for oral or written examinations.

Practical subjects, which cannot be fully implemented online, were taught in person in blocks at the end of the semester.

The state exams and oral or written exams were also conducted online. It was a very difficult situation for many teachers because they were not prepared for it, both technically and practically.

At UP FE, the defence of qualification theses and state final examinations took place in the examination room of the university under strict hygienic conditions. At the University of Ostrava and Masaryk University, defences of qualification theses and state final examinations took place online, using MS Teams. Masaryk University has also created the roles of assistants and helpers, i.e. people who helped to operate the online platform during the SFE.

Practical pedagogical training also took place online, students participated in online teaching at individual faculty schools. Students helped teachers create materials for online teaching, such as presentations or worksheets. Students also participated in online lessons, led online lessons, or were involved in the morning circle. At UHK FE, students also had the opportunity to perform the function of a teaching assistant or tutor of school children who did not keep up or understand anything during online schooling. At the FE of Masaryk University, the School at Home project was implemented within the framework of practical pedagogical trainings, in which students cooperated with teachers at MU FE faculty schools during school closures. Within this project, students participated in the creation of worksheets, online questionnaires, teaching presentations and other activities that supported children learning from home or participated in the cleaning of the classroom and the organization of learning aids after school closures.

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Lucie Zormanova

Kształcenie zdalne na wydziałach pedagogicznych uniwersytetów w Czechach

Streszczenie

Niniejsze badanie koncentruje się na temacie kształcenia zdalnego na wydziałach pedagogicznych uniwersytetów w Czechach w czasie COVID-19 i próbuje opisać, w jaki sposób nauczanie teoretyczne i praktyczne było wdrażane podczas pandemii koronawirusa.

W oparciu o cel badawczy sformułowano następujące pytania badawcze.

1. Jakich narzędzi użyto w ramach realizacji kształcenia zdalnego na wydziałach pedagogicznych w Czechach?

2. W jaki sposób przeprowadzono obronę prac dyplomowych i egzaminów dyplomowych?
3. W jaki sposób zrealizowano praktyki zawodowe?

Aby odpowiedzieć na poszczególne pytania badawcze, posłużono się analizą treści informacji zamieszczonych na stronach internetowych poszczególnych wydziałów oraz raportach zamieszczonych w internecie dotyczących realizacji kształcenia zdalnego na wydziałach pedagogicznych w Czechach w okresie pandemii koronawirusa.

Badania wykazały, że kształcenie zdalne odbywało się przy użyciu różnych narzędzi. Wśród często wymienianych znalzły się Moodle LMS, MS Teams, Zoom, Google Classroom czy Meet. Zajęcia praktyczne, których nie można w pełni zrealizować online, były prowadzone w trybie stacjonarnym pod koniec semestru. Egzaminy odbywały się również online. Do przeprowadzenia egzaminów ustnych wykorzystano platformę MS Teams lub Zoom, a do przeprowadzenia egzaminów pisemnych w formie testu wykorzystano platformę Moodle LMS.

Na Wydziale Pedagogicznym Uniwersytetu Palackiego w Ołomuńcu obrony prac dyplomowych i egzaminy dyplomowe odbywały się w sali egzaminacyjnej uniwersytetu w ściśle określonych warunkach higienicznych. Na Uniwersytecie w Ostrawie i Uniwersytecie Masaryka obrona prac dyplomowych i egzaminy dyplomowe odbywały się w trybie zdalnym, przy użyciu platformy MS Teams.

Praktyki zawodowe przyszłych nauczycieli odbywały się również w trybie zdalnym. Uczniowie uczestniczyli w nauczaniu zdalnym w poszczególnych szkołach podstawowych. Pomagali oni nauczycielom tworzyć materiały do nauczania zdalnego, uczestniczyli w nauczaniu zdalnym lub sami prowadzili nauczanie zdalne. Na Wydziale Pedagogicznym Uniwersytetu Hradec Králové studenci pełnili funkcję asystenta pedagoga lub prowadzili korepetycje.

S ł o w a k l u c z o w e: kształcenie na odległość, pandemia koronawirusa, zajęcia praktyczne, przedmioty teoretyczne, egzamin dyplomowy, praktyki zawodowe

Люси Зорманова

Дистанционное обучение на педагогических факультетах вузов Чехии

А н н о т а ц и я

В этом исследовании основное внимание уделяется теме дистанционного обучения на педагогических факультетах чешских университетов во время COVID-19 и делается попытка описать, как теоретическое и практическое обучение применялось во время пандемии коронавируса.

Исходя из цели исследования, были сформулированы следующие вопросы исследования.

1. Какие инструменты использовались при внедрении дистанционного обучения на педагогических факультетах Чехии?
2. Как проходила защита диссертаций и дипломные экзамены?
3. Как проходило обучение?

Для ответов на отдельные вопросы исследования использовался анализ содержания информации, размещенной на сайтах отдельных кафедр, и отчетов в Интернете о внедре-

нии дистанционного обучения на педагогических факультетах Чехии в период пандемии коронавируса.

Исследования показали, что дистанционное обучение проводилось с использованием различных инструментов, включая Moodle LMS, MS Teams, Zoom, Google Classroom и Meet. Практические занятия, которые невозможно полностью пройти онлайн, проводились на дневной основе в конце семестра. Экзамены также проводились онлайн, платформы MS Teams или Zoom использовались для проведения устных экзаменов, а платформа Moodle LMS использовалась для проведения письменных экзаменов в форме теста.

На педагогическом факультете Университета Палацкого в Оломоуце защита дипломных работ и дипломные экзамены проходили в экзаменационной комнате университета в строгих гигиенических условиях. В Остравском университете и Университете Масарика защита дипломных работ и выпускной экзамен проходили удаленно, с использованием платформы MS Teams.

Профессиональная практика будущих учителей также проходила дистанционно, учащиеся участвовали в дистанционном обучении в отдельных начальных школах. Студенты помогали учителям создавать материалы для дистанционного обучения, участвовали в дистанционном обучении или сами вели дистанционное обучение. На педагогическом факультете Университета Градец-Кралове студенты работали ассистентами или преподавали.

К л ю ч е в ы е с л о в а: дистанционное образование, пандемия коронавируса, практические занятия, теоретические предметы, дипломный экзамен, производственная практика.

Lucie Zormanova

Educación a distancia en departamentos pedagógicos de universidades de la República Checa

R e s u m e n

Este estudio se centra en el tema del aprendizaje a distancia en los departamentos pedagógicos de las universidades checas durante el COVID-19 y trata de describir cómo se implementó el aprendizaje teórico y práctico durante la pandemia de coronavirus.

Con base en el objetivo de la investigación, se formularon las siguientes preguntas de investigación.

1. ¿Qué herramientas se utilizaron en la implementación del aprendizaje a distancia en las facultades de pedagogía de la República Checa?
2. ¿Cómo se llevó a cabo la defensa de tesis y exámenes de diploma?
3. ¿Cómo se implementó el aprendizaje?

Para responder a las preguntas de investigación individuales, se utilizó un análisis del contenido de la información publicada en los sitios web de los departamentos individuales y los informes en Internet sobre la implementación de la educación a distancia en las facultades de pedagogía de la República Checa durante la pandemia de coronavirus.

Las investigaciones han demostrado que el aprendizaje a distancia se llevó a cabo utilizando una variedad de herramientas, incluidos Moodle LMS, MS Teams, Zoom, Google Classroom y

Meet. Las clases prácticas que no se pueden completar completamente en línea se llevaron a cabo a tiempo completo al final del semestre. Los exámenes también se realizaron en línea, las plataformas MS Teams o Zoom se utilizaron para realizar exámenes orales y la plataforma Moodle LMS se utilizó para realizar exámenes escritos en forma de prueba.

En la Facultad Pedagógica de la Universidad Palacky de Olomouc, la defensa de las tesis y los exámenes de los diplomas se llevó a cabo en la sala de exámenes de la universidad bajo estrictas condiciones de higiene. En la Universidad de Ostrava y la Universidad de Masaryk, la defensa de las tesis de diploma y el examen final se realizó de forma remota, utilizando la plataforma MS Teams.

Las prácticas profesionales de los futuros profesores también se realizaron de forma remota, los estudiantes participaron en educación a distancia en escuelas primarias individuales. Los estudiantes ayudaron a los maestros a crear materiales de aprendizaje a distancia, participaron en el aprendizaje a distancia o dirigieron el aprendizaje a distancia ellos mismos. En la Facultad Pedagógica de la Universidad de Hradec Králové, los estudiantes actuaban como ayudantes de enseñanza o eran tutores.

P a l a b r a s c l a v e: educación a distancia, pandemia de coronavirus, clases prácticas, asignaturas teóricas, examen de diploma, prácticas

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The Role of Emotions in the Context of Shaping the Attitudes of Academic Teachers Towards E-Learning

Abstract

The article attempts to identify emotions displayed by university teachers towards the adoption of e-learning solutions in the academic environment. The article is divided into four main parts. Part one is a description of one of the key components of human attitude, which is emotions. The second part describes the research methodology and defines the original research tool, which was used to measure the emotions manifested by academic staff in the use of e-learning. The third part is the analysis of the research results, which presents detailed summaries of each aspect of e-learning. The final section summarizes the research findings and makes recommendations for higher education institutions in the field of distance learning in an the academic community.

K e y w o r d s: e-learning, remote education, emotion, component attitude, university teacher

Introduction

For many years, emotions have been the object of interest of researchers, and many of them defined them as they saw fit (Howe & Krosnick, 2017). This is confirmed

by the fact that by the end of the 1980s more than 100 definitions had been created to define them (Michalczyk, 2017). The growing interest in the in-depth study of emotions and the attempt to properly explain them dates back to the 1990s (Albarracin, & Shavitt, 2018).

One of the leading contemporary definitions is presented in the *Dictionary of the Polish Language*. It defines emotion as "a strong feeling caused by a particular situation" (sjp.pwn.pl).

According to the *Cambridge Dictionary* we call emotions "a strong feeling such as love or anger, or strong feelings in general"(dictionary.cambridge.org).

According to the *Larousse Dictionary* emotions are „sudden trouble, transient agitation caused by an acute experience of fear, surprise, joy" (larousse.fr/dictionnaires).

Emotion has been defined as a "strong feeling such as love, fear, or anger; the part of a person's character that consists of feelings"(oxfordlearnersdictionaries.com).

According to *American Psychological Association (Dictionary of Psychology)* emotion is a "complex reaction pattern, involving experiential, behavioral, and physiological elements, by which an individual attempts to deal with a personally significant matter or event" (dictionary.apa.org).

Emotions can also be understood as "irruptive motivational complex in higher cognition" (Griffiths, 1997).

N.H. Frijda calls emotions processes of signalling that something important is happening from the point of view of an individual's well-being (Dąbrowski, 2012).

Emotions themselves are not easy to define unequivocally, which can be seen by analysing the literature devoted to them.

The proof can be found in the words of K. Oatley and J.M. Jenkins, who noticed that the indicated state consists of three factors that affect the very understanding of the term "emotions":

1. Emotion is the result of a conscious or unconscious assessment of an event and its evaluation as being key, having an impact on the subject's goals. Emotion is understood as positive when it favours the interest of an individual, and (by analogy) a negative emotion makes it difficult to achieve it.
2. The essence of emotion is readiness to act. The feeling of a given emotion can give priority to certain types of action by placing a certain sense of urgency on them. This means that emotion may interfere with the implementation of currently performed activities of a (predominantly) intellectual or behavioural nature. Alternative cognitive or functional processes can complement each other.

3. A particular emotion is usually experienced as a distinct type of mental state with which somatic changes, myths or reactions of a functional nature can interact (Pawłowska, 2013).

In attempting to explicate the concept of "emotion," attention may be drawn to an issue often equated with it, namely mood, although in reality they are two independent terms.

Both emotions and moods are affects, but the differences between them are crucial. Emotions are triggered by a specific event or a specific cause, their changes occur dynamically, and they are directed toward a specific goal. Moreover, they can be experienced for a very short time, which in the case of mood can last up to several weeks. An emotional response in a person can develop in parallel with the process of perception or recollection, follow it, or depend on the interpretation of the person feeling the emotion (Parkinson 1996).

Since in the case of mood both the purpose and its cause remain unknown, at the stage of theoretical analysis this element can be unequivocally excluded from our study.

The last of the distinguished elements included in the emotion-analytic component are feelings, which, as in the case of mood, are the subject of frequent comparisons to emotions.

Analyzing the literature on emotions, one can notice that they are much more complex states, related to human adaptation to life among others. Moreover, emotions, regardless of the region of the world, can be portrayed in the same way, while feelings are subject to much greater differentiation.

These differences clearly indicate that the complexity of emotions makes it impossible to analyze them reliably, and therefore they will not be studied.

The emotional component of human attitudes

The emotional component is one of the components that make up the full understanding of human's attitudes.

According to G. Allport, the affective (emotional) component of an attitude is directly related to the emotions manifested by an individual. One example of this is reacting strongly to a certain symbol (or specific words) that may be associated with childhood circumstances (Daft, Marcic, 2009).

The affective component is made up of a person's positive or negative emotions toward technology, for example, as in the above-mentioned dimension pleasant versus unpleasant (Svenningsson, Höst, Hultén, 2021).

It should be recognized that the "affective component" of attitudes has been operationally defined in two distinct ways. Both Ostrom (1969) and Kothandapani (1971) view the affective component as a differentiated response class composed of specific emotional responses (e.g., fear, respect).

According to G. Lantos, the above-mentioned component consists of emotions and feelings, as well as a person's mood (2010).

A similar interpretation is presented by W. Soborski, who uses this term to describe the system of feelings and emotions evoked by the object of an attitude. In his opinion, emotions may be positive or negative, with a zero value excluding the existence of an attitude (Soborski, 1987).

J. Strydom describes the emotional component equally accurately, noting that it mainly concerns emotions experienced by a person and they put pressure on his final decisions. This means that they perform both orientation (the task of which is to determine the value of the subject of the attitude) and motivational functions, which determine the behaviour of an individual (2005).

According to S. Nowak, the emotional component consists primarily of higher feelings – moral, aesthetic, religious or intellectual (1987).

In the opinion of M. Marody, this component includes people's emotions towards an object. These emotions have a specific direction and intensity. By direction, we mean a positive or negative attitude towards a given object. Intensity, in turn, tells us about the strength of the emotion that is triggered by a specific situation (1976).

I. Isterewicz believes, in turn, that the emotional component of an attitude "involves experiencing a positive or negative attitude towards the object of the attitude and the related response that stimulates an individual to a specific action" (1978).

Examining the above definitions, it can be noted that most of the authors mainly focus on emotions, feelings and mood.

Since in the case of mood, both the purpose and its cause remain unknown, this element was excluded from the authors' own research at the research stage.

Analysing the literature on feelings, it can be seen that they are much more complex states, related to the adaptation of a person to life among others. Moreover, emotions, regardless of the region of the world, may be presented in the same way, while feelings are subject to much more variation (Dąbrowski, 2012).

Finally, the affective component of attitudes may be particularly important as a direct motivator of behaviour (Peters, 2006). Not only do we appear to automatically classify incoming stimuli as good or bad but these positive and negative evaluations have been linked directly to behavioural predispositions (Bargh & Chartrand, 1999; Chen & Bargh, 1999).

These differences unequivocally indicate that the degree of complexity of feelings prevents them from being analysed reliably, and therefore they will not be investigated.

The organisation and conduct of the research

The research was conducted as part of the project of the National Centre for Research and Development, entitled "Uniform integrated program of the University of Rzeszów – the way to high-quality education" POWR. 03.05.00-00-Z050/17 in the academic year 2019/2020. One of the key tasks of the project was to raise the teaching and information competences of the academic staff of the University of Rzeszów in the field of creating e-learning courses and using them in the process of academic education.

The main purpose of this study was to determine the relationship of the emotional component of academic staff attitudes toward e-learning in higher education to the implementation of distance education training.

The choice of the topic was dictated by the scientific interests, as well as by the fact that in the mentioned scope there is a lack of research verifying the emotional component of attitudes towards the use of e-learning in academic circles and the direction of their changes as a result of participation in various forms of improvement.

Reviewing the research dedicated to the issue of the role of emotions in e-learning we can find some interesting positions.

The first one is by Carl Behnke and concerned the study of the relationship between students' emotional intelligence attitudes towards e-learning. Students were then directed to a computer-based lesson. Students' attitudes toward computer delivery were assessed using the Keller Instructional Materials Motivation Survey. As students' emotions increased, their attitudes toward computer instruction also increased. Students with positive emotional attitudes expressed significantly more positive attitudes toward teaching than those with a low average emotional component (Behnke, 2013).

The second study was conducted by Raafat George Saadé and Dennis Kira and concerned the role of emotions in e-learning. This study examines perceived ease of use and overall computer/internet experience as emotional factors that influence e-learning. The results suggest that the design of online learning systems should consider typical software interfaces so that students feel more comfortable using them (Saadé & Kira, 2009).

Very interesting research on the impact of emotions on e-learning in the context of students' fear of technology (technophobia) was conducted by F. Oluwalola.

The findings of the study show how technophobia can cause problems for students in distance e-learning. These students lack basic computer and technology skills and they are reluctant to learn how to use the new technology equipment or learning method. Their emotions toward computers and e-learning systems are negative, and problems with use cause even worse educational results. The negative cycle causes students to: lose interest in learning and seeking help. Key for these students would be good and fast technical support and tutors to help them move into positive thinking mode and therefore into a positive cycle that feeds the learning willingness and ability to cope better with obstacles (Oluwalola, 2015).

When it comes to literature analysis, let us briefly note that e-learning is commonly defined as the intentional use of ICT in teaching and learning (Najdu, 2003). In more general terms therefore, remote education encompasses teaching activities that essentially rely on e-learning technologies (Borba, Askar, Engelbrecht, Gadanidis, Llinares, Aguilar, 2016).

E-learning embedded specifically in the academic context has been divided into three key models, which are synchronous, asynchronous, and mixed learning.

As for academic universities in Poland, the so-called hybrid education, referred to in the literature as blended learning, is most often opted for, as it blends elements of traditional education with those of e-learning (Albiladi, Alshareef, 2019).

The research process was carried out in the first and last meetings with the respondents. The purpose of this procedure was to establish the initial attitude of academic teachers towards e-learning and to demonstrate the changes made as a result of the 30-hour course.

The argument supporting the choice of the research topic was the lack of research on the emotions felt in the context of the use of e-learning in the academic environment, and the direction of their changes as a result of participation in the improvement course.

A total of 429 university teachers from four Departments: Social Sciences, Humanities, Medical Sciences and Natural Sciences were pre-selected to participate. To make the study more reliable however, the study group was narrowed down via importance sampling to 320 respondents (80 faculty members per Department). Before the COVID 19 pandemic, respondents did not conduct classes using distance learning methods.

As a result of the random selection, the following stratified distribution of respondents was obtained, divided by the employment unit and gender (Table 1).

Table 1
List of respondents by unit/college as a result of stratified selection

Unit	Female	Male	Total
College of Social Sciences	48	32	80
College of Humanities	59	21	80
College of Life Sciences	57	23	80
College of Medical Sciences	45	35	80
Total	209	111	320

On the basis of the data, it can be noticed that the group of women surveyed is almost twice as large as the group of men, which is fully in line with the distribution of academic teachers at the University of Rzeszów.

The division of respondents by age and gender is equally important (Table 2).

Table 2
Age and gender distribution of the respondents

Age	Female	Male	Total
Up to 35 years (early adulthood)	35	20	55
36–55 years (middle adulthood)	148	73	221
55 years and above (late adulthood)	26	18	44
Total	209	111	320

The selection of respondents by age was determined on the basis of the developmental stages of an adult, proposed, among others, by R. Havighurst, D.L. Levinson and E.H. Erikson.

The respondents aged 36–55 (middle adulthood) constituted the largest research group. The smallest number of respondents, only 44, were over 55 years old (late adulthood), and there were 55 in the youngest group, not exceeding 35 years of age.

Research methods and tools

The research tool used was the c*ircular model of affect* by M. Yik. The circle consists of twelve segments, each of them placed on a clock face, with the following parameters: 3 – pleasure, 9 – dissatisfaction, 12 – activation, 6 – deactivation. Each of them was distinguished by an emotional state and an opposite state, which was placed in opposition to it (Szorc, 2012). The full specification is presented in Figure 1.

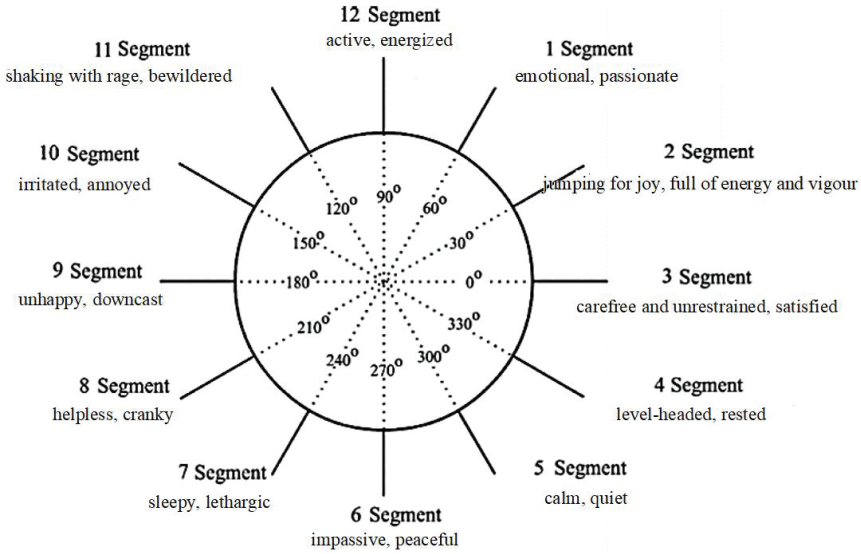


Figure 1. The circular model of affect according to M. Yik with added "basic" affects

On the basis of circular affect, emotional states can be classified according to two basic parameters:

– the extent of emotion, i.e. the level of activation of emotions (deactivation or activation),
– the hedonic tone of the emotions, i.e. the valence of the emotion (positive or negative)[1].

By dividing them by their size, six basic emotions can be distinguished with their opposition "counterparts" (Table 3).

[1] B. Basińska: *Emocje w miejscu pracy w zawodach podwyższonego ryzyka psychospołecznego* [Emotions in the workplace in professions of increased psychosocial risk], „Polskie Forum Psychologiczne" 2013, t. XVIII, nr 1, p. 89.

Table 3
Distribution of emotional states by valence (hedonic tone)

Negative emotions	Positive emotions
Unhappy	Satisfied
Helpless	Full of energy
Lethargic	Passionate
Furious	Calm
Annoyed	Level-headed
Impassive	Active

The implementation was carried out by establishing positive emotions on one side, through zero (indifference), and the opposite (negative) values (Basińska, 2013).

Analysis of research results

The emotional component was examined using a questionnaire developed on the basis of the *Semantic Differential Scale* with a bipolar scale with values ranging from −3 to 3 points (depending on the intensity of the experienced emotions: values −3 and 3 mean *high intensity*, −2 and 2 *moderate intensity*, −1 and 1 *low intensity*, and 0 *no emotions*, that is a neutral value).

The overall analysis of the research results concerned the determination of the results obtained before and after the implementation of a 30-hour course for academic teachers on the use of e-learning in the education process.

The change in the value of the emotional component of the attitude was calculated on the basis of the difference in indications of emotional states experienced by the respondents (in the initial and final tests).

The formula for changing the value of an emotion takes on the following form:

$$C_c = M_F + M_I$$

Change in value of the emotional component
C_c – change in the component level value, M_F – final measurement, M_I – initial measurement

Six pairs of opposing emotions were assigned to each of the highlighted e-learning scopes, and the respondents were asked to identify one in each of them with which they identified.

Table 4
General set of emotions experienced by respondents in the initial and final measurements

Mean of the initial measurement	Mean of the final measurement	Change in the value of emotions (valence)	Significance level (p)
−0.78	0.96	1.74	0.000

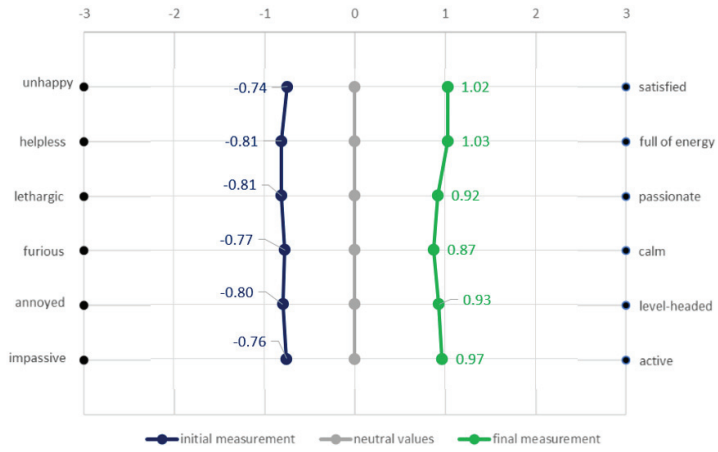
On the basis of the obtained arithmetic means of experienced emotions, it can be concluded that before the training, academic teachers experienced moderate negative emotions (−0.78 points) (Table 4). During the course of the training, they gradually became convinced to use an alternative form of education, as evidenced by the results of the final measurement. Participation in a 30-hour training course changed the valence of emotions into positive ones, with a greater intensity than the initial measurement (0.96 points).

The calculated coefficient of statistical significance level $p = 0.000$ gives an indication of the relationship between the implementation of e-learning training and the emotions experienced.

The calculated median value for the results of the initial test is −1 point (low-intensity negative emotions), and for the final test it is 1 point (low-intensity positive emotions).

Based on the graphical presentation of the results (Graph 1), a detailed analysis can be made to show the emotions experienced by the respondents. A scale containing six pairs of opposing emotions indicates that *fury, annoyance*, and *helplessness* were experienced most strongly in the initial test. The low level of knowledge and skills of the respondents could be the reason for the respondents' indications. During the first classes, an overwhelming number of teachers were reluctant to perform subsequent tasks and they showed apprehension resulting from meeting the new educational situation.

As a result of the training, the valence of emotions has changed towards positive values, regardless of the pair. Among the respondents the most experienced were: *satisfaction* and *full energy* to use e-learning courses in their own activities.



Graph 1. General characteristics of the emotions experienced

Table 5
Set of emotions experienced by respondents in the initial and final measurements in terms of sex

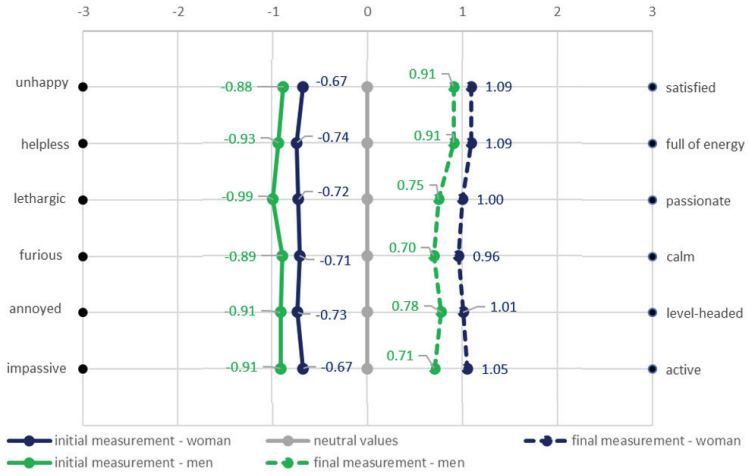
Sex	Mean of the initial measurement	Mean of the final measurement	Change in the value of emotions (valence)	Significance level (*p*)
Female	−0.71	1.03	1.74	0.000
Male	−0.92	0.79	1.71	0.002
Mean	−0.81	0.91	1.73	0.001

The grey colour shows the highest increase in the emotional component

The analysis of the results by sex shows significant differences in the context of emotions experienced with regard to e-learning before and after the training (Table 5). Both women and men changed their valence from negative to positive. This is confirmed by the significance factor *p*, which indicated a value below 0.05. The initial measurement showed that women's negative emotions were more moderate and tended towards neutral values. In the case of men, there was more pronounced apprehension manifested in the reluctance to implement the training, the taught content of which was argued to be of low usefulness and felt to be a waste of time.

The final study indicated higher emotional intensity in women, manifested in positive values, while men were much more balanced in the context of emotions indicated in the questionnaire. The higher level of knowledge obtained as a result of the training and the willingness to participate in the classes could be related to the obtained results. The change in emotions in men was less pronounced, but also indicated a positive valence.

To sum up, a link between sex and the emotions experienced as a result of the training can be confirmed.



Graph 2. General characteristics of the emotions experienced (sex of the respondents).

The graphical interpretation of the emotions experienced by women and men (Graph 2) shows that in the initial measurement, the respondents indicated very similar values within individual pairs of emotions, which testify to the uniform structure of the emotional component of the attitude. The respondents consistently indicated emotions of the same intensity, but in the case of women, the values were shifted by 0.2 points towards neutral emotions. The final measurement showed that for both sexes the highest intensity was *satisfaction*, while the most divergent results concerned the emotion of *passion*, which prevailed in women.

On the basis of the tabulated set of results in terms of age, it can be shown that as a result of the training, there was a significant change in the emotions experienced for each group of respondents, as evidenced by the calculated *p*-factor, which indicates a value not exceeding 0.05.

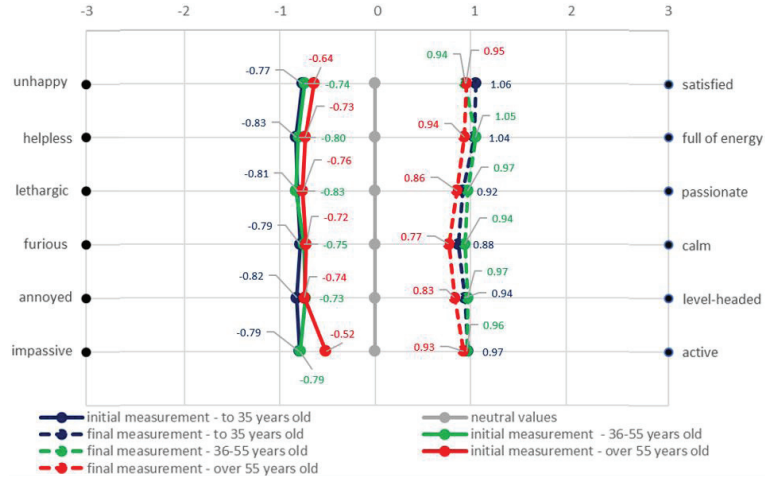
The highest change in values, and at the same time their greatest intensity, was observed in the group of the youngest respondents (up to 35 years of age). The key turned out to be high information and communication competences and those resulting from the use of e-learning technologies in professional and private life. During the training sessions, the youngest respondents easily performed the next steps of the exercises, which could be related to the positive emotions manifested during the classes. Respondents aged 36–55 experienced very similar values compared to the youngest respondents (Table 6).

Table 6
General set of emotions experienced by respondents in the initial and final measurements by age

Age	Mean of the initial measurement	Mean of the final measurement	Change in the value of emotions (valence)	Significance level (*p*)
Up to 35 years	−0.80	0.97	1.77	0.000
36–55 years	−0.77	0.97	1.75	0.001
Over 55 years	−0.69	0.88	1.57	0.003
Mean	−0.75	0.94	1.70	0.002

The grey colour shows the highest increase in the emotional component

Emotional states indicated by the oldest respondents underwent the smallest changes, and in the final measurement they indicated values most similar to neutrality, which could be related to great difficulties in the context of performing some of the tasks. Summing up the considerations regarding the comparison of the emotions experienced by the age of the respondents, the aforementioned relationship should be firmly confirmed.



Graph 3. General characteristics of the emotions experienced (age of respondents)

The graphical presentation of the results shows a detailed distribution of individual emotions for each of the age groups studied (Graph 3). The analysis of the answers in the initial and final tests shows that the respondents from a given group

indicated values of similar intensity in particular pairs of emotions, which proves the uniform structure of the cognitive component and the lack of ambivalence of the experienced emotions. In the initial measurement, the emotional states of the highest intensity in each of the studied groups were *annoyance, fury* and *helplessness*, which can be explained by them meeting a new situation, as well as (in most cases) lack of knowledge in the field of e-learning. The final measurement was dominated by *satisfaction*, being *active* and the *full of energy* option. A significant increase in knowledge in each of the studied groups may have been linked to the emotions with a positive valence displayed.

Table 7
General set of emotions experienced by respondents in the initial and final measurements by unit of employment

College of Sciences	Mean of the initial measurement	Mean of the final measurement	Change in the value of emotions (valence)	Significance level (*p*)
Medical	−0.93	0.18	1.11	0.008
Social	−0.86	1.64	2.51	0.000
Humanities	−0.71	0.79	1.50	0.003
Life	−0.58	0.88	1.46	0.003
Mean	−0.77	0.78	1.55	0.004

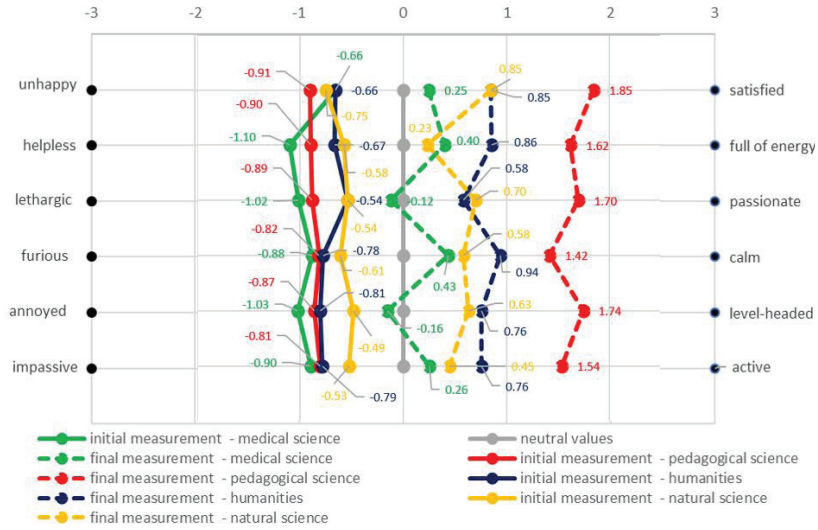
The grey colour shows the highest increase in the emotional component

The analysis of the respondents' answers with regard to the employment unit shows a high differentiation of the emotions experienced as a result of the training (Table 7). This is confirmed by the calculated value of the *p* significance coefficient, which, irrespective of the group under study, shows a value below 0.05.

The initial measurement showed that the employees of each of the units displayed negative emotions, and the highest levels of their intensity were observed in the respondents of the College of Medical Sciences. This group's emotional valence could be closely related to the apprehension observed during the training and the lack of intrinsic motivation to use a complementary form of education. Many of the respondents indicated that there was no point in improving in this area due to the specific nature of their profession. The employees of the College of Life Sciences were the closest to the neutral values of the perceived emotions, and their result can be explained by the use of e-learning technologies in their research and teaching work.

The final measurement showed a much greater differentiation in the context of experienced emotions, while the most extreme values were characteristic of the responses of the employees of the College of Medical Sciences and the College of

Social Sciences. The first of the groups presented in the final test indicated values similar to the lack of feeling any emotions (neutral values), which may have been linked to the difficulty of understanding e-learning as a form of teaching. The lack of an evident perspective in this regard was confirmed by the smallest change in the direction and value of the experienced emotions. In the final measurement, the employees of the College of Social Sciences indicated high values of positive emotions (1.64 points), which may be related to their increased attention and internal motivation to use e-learning. The obtained value indicates the consistency of the components of the attitudes of teachers representing social sciences, who also obtained the highest results in the knowledge test (a high value of the level of the cognitive component was concurrent with the perception of positive emotions).



Graph 4. General characteristics of emotions experienced by respondents (respondents' unit of employment)

The graphical interpretation in the context of the employment unit (Graph 4) indicates high differentiation in the perception of individual emotions. The ambivalence manifested in the responses of the employees of the College of Medical Sciences demonstrated the high efficiency in the use of e-learning technologies, with a simultaneous lack of their connection with the implementation of their own didactic classes. Confirmation of the feeling of various emotions is shown in the indication of the value *full of energy* with a simultaneous *lack of passion* (understood as the enthusiasm to work in this area).

Summing up, it should be pointed out that the implementation of the training of the academic staff of the University of Rzeszów in the use of a complementary form of education brought results in the form of a change of direction and the value of the emotions manifested (from negative to positive). The division of the respondents according to the intermediary variables showed a strong correlation between the changes in the value of emotions and the level of knowledge (cognitive component). The highest values, analogous to the cognitive component, were obtained by women, people under 35 years of age and respondents from the College of Social Sciences. The obtained results indicate a strong correlation between the level of the components of the attitudes of academic teachers, which is an important conclusion of the conducted research. Similarly, the lowest emotional intensity was observed in men, people over 55 years of age and employees of the College of Medical Sciences

Detailed analysis of the research results

The scope of issues which the respondents were asked about included the five main pillars of the supplementary form of education, divided on the basis of theoretical assumptions of our own research concerning the use of e-learning technologies in the academic environment.

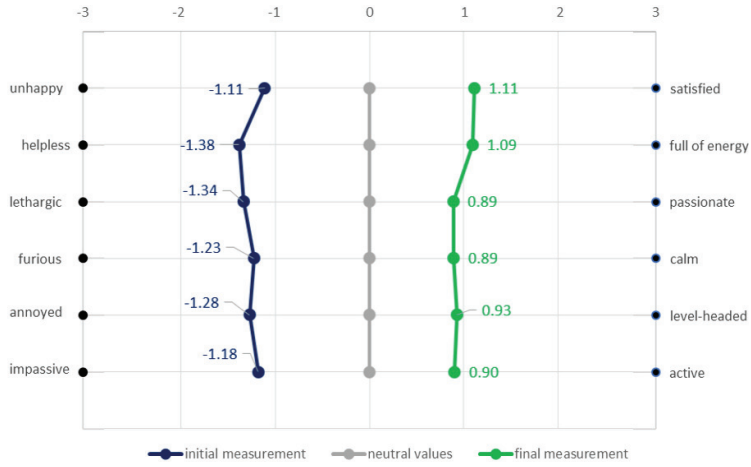
Among them, the following components are distinguished:

– *implementation of the education process,*
– *communication with students*
– *scientific development*,
– *acquisition of educational content,*
– *management of the education process.*

The first pillar of the complementary form of education was the *implementation of the education process through e-learning technologies.*

The respondents' task was to indicate on a bipolar scale the emotions they are currently experiencing in relation to the proposed implementation of didactic activities via e-learning (Graph 5).

The initial test indicated that, regardless of the pair of opposing emotions, the respondents experienced only the negative ones. The negative valence of emotions with moderate intensity (down to −1.38 points) suggests a clear tendency to avoid conducting classes with the use of e-learning technologies. The most evident emotional state was *helplessnes*s, which resulted from the lack of knowledge and skills necessary in the process of on-line education.

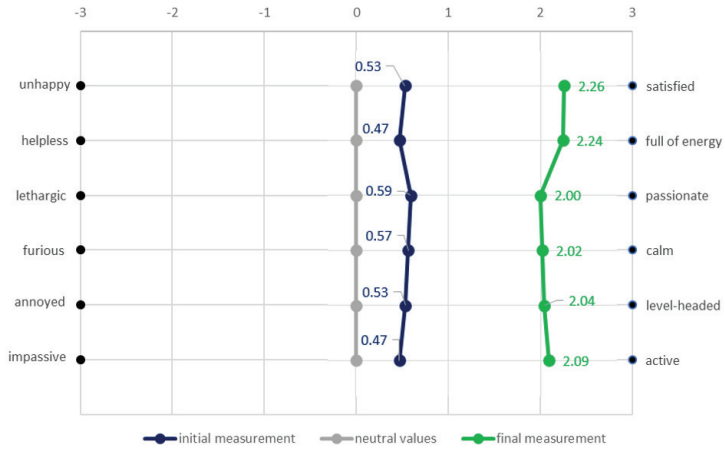


Graph 5. General characteristics of emotions experienced in the context of the implementation of the education process through e-learning technologies

The final measurement showed a clear improvement in the emotions experienced by the respondents. The averaged results are characterised by a lower emotional intensity (to 1.11 points), but their valence (regardless of the pair) changed to a positive value. The improvement could have been due to them getting to know an alternative form of conducting classes that was new to them, in terms of its theoretical aspects (by most of the respondents), as well as the creation and administration of an e-learning course. The academic teachers, getting acquainted with the subject of the training, while performing subsequent tasks, gradually became convinced to conduct classes using e-learning technologies, thus changing the valence of the emotions they experienced.

The second pillar of the complementary form was *communication with students through e-learning technologies*. The respondents' task was to indicate their emotions towards the proposal to contact students via such tools as chat, forum or videoconference (Graph 6).

The analysis of the initial measurement results shows that emotions with a positive valence and low intensity (up to 0.59 points) are clearly displayed. The high optimism, especially among the young educators, could be due to the fact that in their didactic work they use the possibility of communicating with students via e-mail, chat or other instant messaging. The vast majority of the respondents are skilled in this respect, and therefore they would not have a problem with using this form of communication as the main one. The low intensity of positive emotions may, in turn, result from the lack of knowledge of the specific tools that were presented during the training.



Graph 6. General characteristics of emotions experienced in the context of communication via e-learning technologies

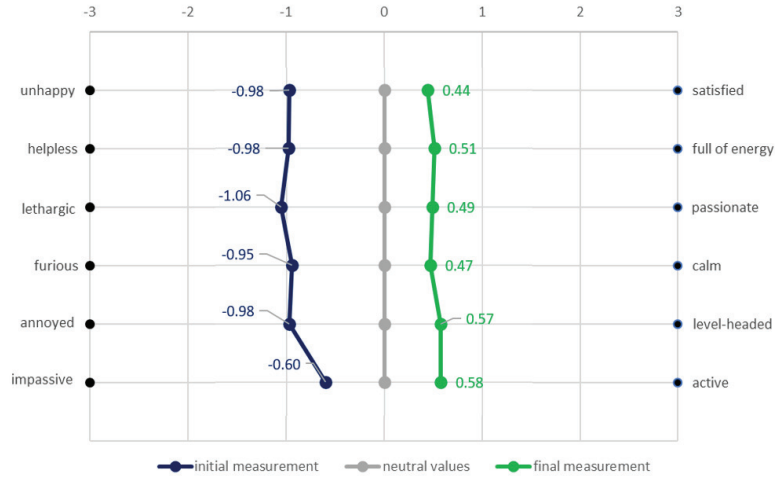
The final measurement of emotions showed an increase in their intensity compared to the initial one by 2 points (to 2.26 points for satisfaction). The reason for such a high intensity may be the combination of the declared initial optimism and partial knowledge with the information that the respondents completed as a result of the implementation of the course. Academic teachers, learning about new communication tools using e-learning technologies, responded to the proposal to implement them in the education process primarily with *activeness, full energy* and *satisfaction*.

The third pillar of the complementary form of education was *scientific development through e-learning technologies*. Respondents indicated the emotions experienced in relation to the proposals for the implementation of articles and other scientific works with the use of professional tools for working in the cloud, i.e. *Google Documents, Office 365*, and the use of scientific databases, i.e. *Cejsh* or *POL-index* (Graph 7).

Based on the analysis of emotions manifested by respondents, it can be noticed that as a result of the training, both the valence (from negative to positive) and the emotional intensity (from moderate to low) changed.

The analysis of the initial measurement showed a negative valence of low-intensity emotion (reaching: −1.06 points). Negative values may have resulted from the fact that the vast majority of academic teachers did not use *cloud-based tools* in their didactic work through which a joint research project (or scientific article) could be carried out with several people in real time. Limiting oneself to research work only in the so-called *offline* mode translates directly into negative emotions

indicated by respondents, such as *lethargy* or *annoyance*. The vast majority of respondents during the training indicated that there was no need to use tools supporting scientific development.



Graph 7. General characteristics of emotions experienced in the context of scientific development through e-learning technologies

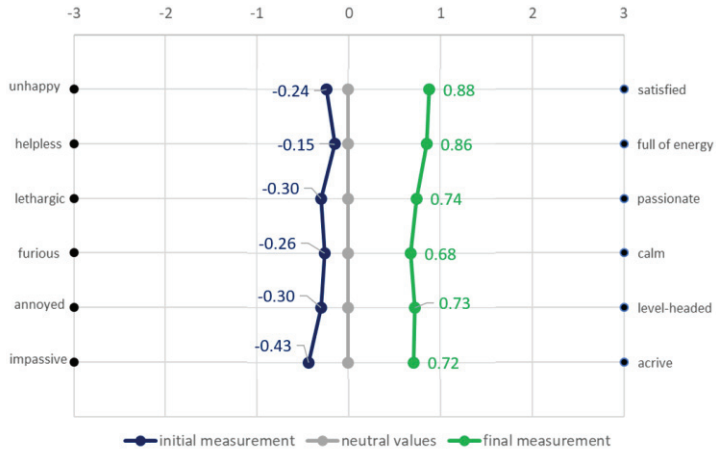
The final measurement showed that both the valence and the intensity of the emotions had changed significantly. Regardless of the pair of opposing emotional states, they changed valence to positive with a very low intensity close to neutral values (indifference). This could have been due to increased knowledge that excluded the feeling of negative emotions while at the same time there was no internal need to use it in the context of scientific self-development. Many academic teachers confirmed an increase in knowledge in this field in the final measurement, but they did not plan to use it in practice in the future.

The fourth pillar of the complementary form of education was the *acquisition of educational content through e-learning technologies* (Graph 8). Respondents indicated their emotions towards the offer of obtaining didactic materials through professional educational websites.

The analysis of the emotions experienced by the respondents indicates the valence and intensity of the emotions they experienced.

The initial measurement showed that the respondents displayed very low intensity of negative emotions (in the range from −0.43 to −0.15 points depending on the pair of opposite emotional states). The respondents' indications of indifferent attitudes to the studied issue may be due to a lack of knowledge about the

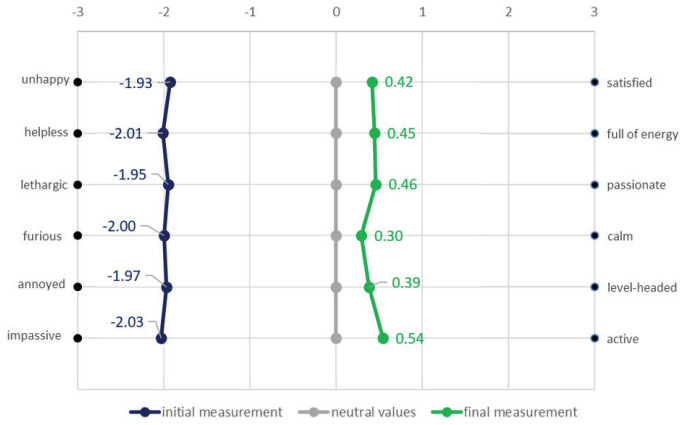
functionality of educational portals and the possibility of using them. Many of the respondents have not before used services such as *Google Scholar* enabling access to a database of thousands of scientific articles or a scientific social networking site such as *ResearchGate*, which allows scientists to exchange experience. The negative valence of emotions may be caused by concerns about the difficulties in using the software discussed during the training.



Graph 8. General characteristics of emotions experienced in the context of acquiring educational content through e-learning technologies

The final measurement of the emotions experienced by the respondents showed a change in their valence to positive, with a low intensity (up to 0.88 points). The improvement may have resulted from the increased knowledge of the use of educational portals (cognitive component). Many teachers were optimistic about their willingness to use them in the preparation of teaching materials for their classes. The highest value of *satisfaction* and *passion* confirms the positive attitude of the teachers subjected to the research. As a result of the training, many of the respondents decided to use educational platforms such as *ScienceDirect* or *ResearchGate* in the future. According to the respondents, supplementing the content of education will increase the quality of the issues they teach.

The fifth pillar of the complementary form of education was the *management of the education process through e-learning technologies*. The task of the respondents was to indicate the emotions experienced in relation to the proposal to administer the education process via the e-learning platform, among others by posting an e-course, assigning students and monitoring their learning achievements (Graph 9).



Graph 9. General characteristics of emotions experienced in the context of managing the education process through e-learning technologies

The initial measurement indicated the highest negative emotional intensity. A possible cause of the apparent reluctance was a lack of knowledge in the administration of e-learning technologies in the process of educating students and the clear avoidance of action in this area (linking the cognitive and behavioural components). High intensity is particularly evident in the case of such emotions as *helplessness* (−2.01 points) and *fury* (−2.00 points). Academic teachers had not previously used e-learning platforms such as WBTServer or Moodle in their didactic work, therefore they indicated considerable concerns in the context of their use in their own classes.

As a result of the training, the valence of emotions changed (to positive) with a very low intensity (0.3–0.5 points). The change in the valence of emotions could have been caused by an increase in knowledge of the use of e-learning platforms. At the stage of learning about new *WBTServer* functionalities, such as: *placing a course on the platform, assigning participants (students) and testing their educational achievements*, the teachers gradually changed their attitudes from negative values, through a neutral state to positive ones. The low intensity could have resulted from the fear of using e-learning platforms instead of traditional education. Conducting classes remotely is associated with a lot of responsibility, therefore the respondents approached this topic with a certain degree of caution.

Summary

On the basis of the research analysis, it was determined that the teachers in the initial measurement showed negative emotions of low intensity (−0.74 points), and the final measurement showed that the emotions changed their valence towards positive emotions of low intensity (0.96 points). The difference in the value of emotions on the scale ranging from −3 to 3 points was 1.74 points.

A detailed analysis of each of the five ranges examined showed large discrepancies in the context of the obtained results.

The first of the main pillars was related to the implementation of the education process through e-learning technologies. The initial measurement showed that, regardless of the opposing pairs, the respondents indicated only negative emotions of moderate intensity. *Helplessness* was experienced the most (−1.38 points), which could result from the lack of adequate knowledge of the respondents in this area. The final measurement showed that each of the six pairs was characterised by positive emotions of low intensity, among which the highest value was obtained by *satisfaction* (1.11 points).

The second pillar of the use of e-learning technologies concerned communication with students. The respondents, in both the initial and final measurements, showed emotions with a positive valence. In the case of the initial questionnaire, they obtained low values (for example*, satisfaction*: 0.53 points), while the final measurement of emotions showed a high intensity (e.g. *full energy*: 2.24 points), which could have been related to the experience that was reinforced with the knowledge gained during the course.

The third thematic scope of the research carried out concerned the support of scientific development through e-learning technologies. The initial measurement showed that the respondents experienced low-intensity negative emotions (in the range from −1.06 to −0.60 points). As a result of the course, the valence of emotions changed in a positive direction, but with a similar intensity (e.g. 0.57 points for being *level-headed* and 0.51 points obtained for being *passionate*).

The fourth pillar of the use of e-learning technologies was the acquisition of educational content. The respondents indicated the feeling of a very low level of negative emotions (the highest value was for being *impassive*: −0.43 points). The final measurement of emotion showed a change of direction to positive with a similar low intensity (e.g. 0.73 points for being *level-headed*).

The analysis of the final pillar concerned the management of the educational process through e-learning technologies. The respondents' indications were limited only to negative emotions of the highest intensity, reaching values exceeding −2.00 points. (e.g. for *helplessness* or fury). The final measurement showed that there

was a change in the experienced emotions towards positive emotions of very low intensity, close to the neutral values (e.g. 0.42 points for *satisfaction* or 0.39 points for being *level-headed*).

Statistical analysis relating the results to intermediary variables showed that sex, age and the unit of employment were linked to the emotions experienced.

Discussion and conclusions

Based on the results of the study, several conclusions should be drawn. The task of universities is to establish distance-learning centers that will offer technical and substantive support to university teachers in the area of remote education. Such centers should provide conditions for conducting classes via e-learning technologies and hold periodic trainings so that academic personnel would stay up-to-date with the novel forms of education that emerge.

Meanwhile, university teachers should take care of continuous self-improvement. It is in lecturers' best interest to update their knowledge using various e-learning tools, as being aware of the importance of lifelong learning in a rapidly evolving society is something that cannot be done without. University teachers should also use their extensive experience gained over the years in traditional education and possibly pour some of that wisdom over to remote education. In an information, technology-driven society such as ours, this is in fact the only viable attitude that can guarantee smooth communication between teachers and students and help avoid digital exclusion, a problem particularly pressing for those whose long-proven teaching methods are no longer relevant yet are still practiced by some of the faculty members.

The key challenge of academics is mainly the use of academic databases with international reach i.e. CEON, Google Scholar or ResearchGate. It is important that the use of the above-mentioned databases should be realized not only by studying available articles, but also by uploading own publications. Scientific development is one of the most important components of not being digitally excluded and opening new educational horizons. This fact is an unquestionable benefit for teachers (increased competence) and universities (increased quality of education).

Equally important is the use of social networking sites dedicated to scientists from all over the world (e.g. Academia.Edu or Linkedin). The exchange of valuable experiences, broadening of horizons and possibility of international cooperation are very important aspects increasing the quality of e-learning education.

The last recommendation concerns the administration of the e-learning process, which received the lowest scores in the research. One of the ways to counteract the negative emotions resulting from poor experience in this field are specialized courses that prepare academic staff for their widespread use.

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Krystian Tuczyński

Rola emocji w kontekście kształtowania postaw nauczycieli akademickich wobec e-learningu

Streszczenie

W artykule podjęto próbę identyfikacji emocji, jakie przejawiają nauczyciele akademiccy wobec przyjęcia rozwiązań e-learningowych w środowisku akademickim. Artykuł podzielony jest na cztery główne części. Część pierwsza to opis jednego z kluczowych komponentów postawy czło-

wieka, jakim są emocje. W części drugiej opisano metodologię badań oraz zdefiniowano oryginalne narzędzie badawcze, które posłużyło do pomiaru emocji przejawianych przez nauczycieli akademickich w związku z korzystaniem z e-learningu. Trzecia część to analiza wyników badań, która przedstawia szczegółowe podsumowania każdego z aspektów e-learningu. W ostatniej części podsumowano wyniki badań i sformułowano zalecenia dla instytucji szkolnictwa wyższego w zakresie kształcenia na odległość.

S ł o w a k l u c z o w e: e-learning, kształcenie zdalne, emocje, postawa komponentowa, nauczyciel akademicki

Кристиан Тучиньски

Роль эмоций в контексте формирования отношения академических преподавателей к электронному обучению

А н н о т а ц и я

В статье предпринята попытка определить эмоции, проявляемые академическим персоналом по отношению к внедрению решений электронного обучения в академической среде. Статья разделена на четыре основные части. Первая часть представляет собой описание одного из ключевых компонентов человеческого отношения, которым являются эмоции. Во второй части описывается методология исследования и определяется оригинальный инструмент исследования, который был использован для измерения эмоций, проявляемых преподавателями в связи с использованием электронного обучения. Третья часть - анализ результатов исследования, в котором представлены подробные резюме по каждому аспекту электронного обучения. В заключительном разделе подводятся итоги исследования и даются рекомендации для высших учебных заведений по дистанционному обучению.

К л ю ч е в ы е с л о в а: электронное обучение, дистанционное обучение, эмоции, компонентное отношение, преподаватель университета

Krystian Tuczyński

El papel de las emociones en el contexto de la formación de las actitudes de los profesores universitarios hacia el e-learning

R e s u m e n

El artículo trata de identificar las emociones mostradas por el personal académico hacia la adopción de soluciones de e-learning en el entorno académico. El artículo se divide en cuatro partes principales. La primera parte es una descripción de uno de los componentes clave de la actitud humana, que son las emociones. En la segunda parte se describe la metodología de la investigación

y se define el instrumento de investigación original, que se utilizó para medir las emociones manifestadas por los profesores universitarios en relación con el uso del e-learning. La tercera parte es el análisis de los resultados de la investigación, que presenta resúmenes detallados de cada aspecto del aprendizaje electrónico. La sección final resume los resultados de la investigación y formula recomendaciones para las instituciones de educación superior sobre la enseñanza a distancia.

P a l a b r a s c l a v e: e-learning, aprendizaje a distancia, emociones, actitud de los componentes, profesor universitario

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E-learning for Prisoners Experience from Sweden, Norway, Poland, Finland and Germany

Abstract

In the following article a discussion on the use of e-learning in education of convicts is presented. The topic discussed by the Author is connected with the fact that the use of new media in education at present has become a common solution applied also to educate inmates. E-learning is a current form of education and vocational training. It provides improvement of contemporary culture in education applied at penitentiary institutions to educate convicts. E-learning helps and lets prisoners obtain education and to update education differences. As a method of education, it requires users' autonomy and self-discipline while working with the use of digital platforms. Education must respond to different needs expressed by the evolving knowledge society. It mainly concerns education of people at risk of social exclusion, e.g. convicts. It is related to the need of dealing with and solving problems that pertain to such issues as increasing possibilities of the media in the area of generating, processing and creating information. The aim of the article is also to describe the use of e-learning in European countries such as Sweden, Norway, Poland, Finland and Germany. These countries were selected for the analysis because they appreciate modern technologies in penitentiary work. They change and develop the solutions. The experience in the use of e-learning in penitentiary work with inmates in Sweden, Norway, Poland, Finland and Germany is different. The aim of the article is also to show how modern technology can be applied in

working with convicts. E-learning becomes a tool used for preventing exclusion. Development of various technologies makes it possible to support convicts and prison staff members in the process involving correctional activities. Technologies offer a chance to return or to start work, to continue education, to meet the needs of one's family, to have an active life in accordance with the social principles after leaving prison. E-learning provides people who have been isolated in prison with a real chance to acquire qualifications. Hence, social issues, family interests, individual interests, business and modern technological solutions are combined in the same field. Coherent and efficient activities come as a challenge to those who perform them and to the society; however, these activities support the process of social rehabilitation.

K e y w o r d s: education, convicts, e-learning, modern technologies, social readaptation

Problems related to educational participation in the Internet has already become of great interest both to scientists and practitioners. Considering the common use of the Internet, this fact is perfectly understandable. In the field of education, some problems have become more and more significant, first of all, in the context of increased application of electronic communication tools in learning.

Implementation of new forms of education has already become a fact in the present reality. People involved in these activities, namely, all the participants of the education process, such as students, teachers, learning adults, express their approval for this fact. The need to acquire knowledge is the reason for which e-learning will become more and more common.

Education of inmates should not differ from education provided in an open environment to similar age groups in the world. At the same time, it is important that the area of education opportunities should be as wide as possible. E-learning becomes an opportunity provided to convicts serving their imprisonment sentences at penitentiary institutions to enable their full participation in social life. Some examples of good practice indicate that the possibilities to use e-learning education forms in order to improve accessibility of education are exploited more and more frequently.

The current century has been driven by advanced innovation and entire globe has been affected by the world wide web and the Internet. At present, the online training has been increasingly available to the less favored groups. The technology has given rise to an impression that information is shared and disseminated, including academic data, online lectures, online interactions, exchange of knowl-

edge with the use of various tools and platforms applied by different users and organizations. Connected by these platforms, we all can actively contribute to innovation, creation and community enlargement in various ways that were previously unimaginable. As it has been already mentioned, education offered by these platforms to everyone fosters collaboration, disseminates arts, culture, science, education, supports government and economy in more than profitable ways. The present paper discusses Internet-mediated communication and quality education for everyone by utilizing knowledge resources to improve the quality of education and learning outcomes in general (Raut, 2020, p. 7).

One of the possibilities is using the Internet for education of convicts. At present, education by e-learning provides an opportunity of transferring knowledge or increasing the level of competences and skills. Considering convicts who are isolated in prison, education is one of the most important elements of penitentiary treatment. The development of the knowledge society and the need for life-long education come as the basic reasons for a necessity of developing methods which will allow people of different age, who are in a difficult situation, with limited or no access to traditional forms of learning, to participate in the process of education.

Extensive evidence shows that the availability of learning opportunities in penitentiary units drastically diminishes the probability of recidivism and it augments the likelihood of positive social re-integration. The effectiveness of these educational programs depends greatly on the methods of instruction offered (Amiri, Woodside, Soares, 2021, pp. 218–226). E-learning provides some new possibilities in this area.

We have to remember, that inmates are destabilized by the confined space and their daily schedules of the prison environment which do not correspond to the distances and rhythms of the outside world in any way. Although convicts do have access to different activities, they all take place in an artificially constructed space-time. Education is a right and, as such, it should not be justified economically or in terms of security and order (De Maeyer, 2019, pp. 811–832).

The article presents how e-learning can be applied to work with convicts, based on the example of several European countries. The topic discussed by the Author is connected with the fact that the use of new media in education at present has become a common solution applied also to educate inmates. The editorial requirements stated for the article do not let the Author provide a detailed analysis of the problem; however, it can attract attention to the discussed issues. Discussed in the article, social issues, family and individual interests, business and modern technological solutions are combined in one field. Considering the value and significance of education in prison for social readaptation, the Author of the article intends to carry out more in-depth research.

Literature remark

The starting point for this part comes with a statement that e-learning is a model of activities in which information technology is applied to support broadly understood education processes (Hyla, 2005, p. 338).

E-learning educationalists have been searching for knowledge related to the design of electronic environment which would be efficient in terms of learning and friendly to students in the current learning and teaching theories, such as behaviorism, cognitivism, constructivism, an education theory referred to as instruction design and psychological theories related to development of human emotions and motivation (Szczepaniak-Sobczyk, 2016, p. 111; Bednarek, Lubina 2008, pp. 31–39).

It can be assumed that e-learning has become a contemporary form of education and professional training. It creates a modern model of education which proves to be perfectly efficient for penitentiary institutions. It is education which is focused on autonomy and self-discipline of people who use digital platforms.

In the light of literature, e-learning offers a lot of benefits to various groups of people, such as teachers (or employers), who intend to offer good training to their employees with low cost and high quality. The development of e-learning has been based on one of the Internet purposes mainly, access to information. The potential determined by its advantages has dramatically increased the number of e-learning users, especially regarding an increase in qualification, changes of occupations or development of business entities. E-learning:

- improves education of teachers and learners, recipients of education services,
- contributes to a decrease in education costs,
- allows participants of the education process to become independent from timetables and other activities,
- reduces time spent in business trips and delegations,
- reduces boundaries and restrictions,
- positively affects business and economy because it makes it possible to optimise costs and to improve competitive advantage,
- allows people to manage educational materials and information efficiently, contributing to the implementation of knowledge management,
- clearly presents resources which are at the disposal of teams, organisations and individual staff members in the fields of skills and competences, which can be translated into efficient human resources management,
- simplifies understanding the economic value of training and professional development of humans,

- provides mechanisms of distance training and work by broadening and adding more flexibility to communication channels,
- strongly determines organisational culture; during the implementation of e-learning the most significant problem is the change in organisational culture (Dina, Onete, Albastroiu, 2018, p. 145–150; Hammad, Hariadi, Purnomo, Jabari, Kurniawan 2018, p. 48–50; Hyla, 2005, p. 29).

People who implement distance learning intuitively adjust their methods to the specific character of work forms, to recipients, to the characteristics of the delivered content and to their own sense of method efficiency (Bednarek, Lubina, 2008, p. 167).

Blended learning is a perfect solution in the conditions of prison isolation. Blended learning comes as a response to the demand for new solutions in the field of education activities. Blended learning combines elements which complement and interpenetrate each other. The concept of blended learning is based on the combination of traditional and distance learning. It offers learners a chance to eliminate limitations related to the time and place of learning. Furthermore, blended learning is dedicated to life-long learning which allows learners to continue their development and to use tools that provide possibilities of acquiring new skills, social competences and qualifications (Smulska, 2016, pp. 7–8).

The use of e-learning in the education of inmates on the example of selected countries

E-learning in the process of educating persons serving their sentences of imprisonment seems to be a very modern and effective method of work; however, considering specific conditions of convicts who are educated with the use of this method, it might also seem highly controversial. There is no doubt that using e-learning in education of convicts comes an opportunity for providing equal chances in education. It also provides education which can be adjusted to convicts' needs. It also seems that e-learning in education of convicts is inevitable, considering the vast advancement in technology, the necessity to prepare convicts for living outside prison, for finding their places on the open labour market and for continuing their life-long learning.

In some European countries, systemic solutions are applied in the field of e-learning for convicts; however, these solutions do not refer to all the regions and penitentiary units. E-learning initiatives in prisons are consistent with the

guidelines of the European Union which refer to inclusion and smart and sustainable growth (European Union, 2020, p. 8–13). In this sense, in European countries different solutions have been developed for the implementation of e-learning. There have been pilot projects and programs implemented in numerous countries. However, it cannot be assumed that all the applied solutions are known. E-learning is applied in education of convicts in such countries as Sweden, Norway, Poland, Finland and Germany. It may indicate dissemination and understanding of the value carried by this form of education for convicts. It can be expected that there will be further development in the discussed field. Furthermore, it is also possible to observe a specific community which has been already developed around the problems of knowledge management, education and training in prison in Europe.

The main barriers are related to security issues, access, maintenance of technological equipment and motivation of adults to participate in life-long learning activities. The potential of e-learning is related to an increase in learning opportunities, diversification of resources and potential for customization and collaborative work. Lockitt (2011, p. 8) points to the problems that determine the process of education and training in penitentiary institutions. The most important difficulties indicated by the aforementioned author concern, inter alia, such issues as:

- inefficient use of new technology,
- fear of technology and change,
- lack of effective leadership and decision making policies,
- widely understood problems with staff members e.g. their awareness of the potential offered by technology,
- short-term sentences of prisoners which do not allow them to complete education process,
- problems with the programs connected especially with continuation of education after leaving prison and possibilities of the curricula,
- insufficient interactive multimedia learning materials,
- limited access to technology,
- problems connected with the lack of interactive/continuous support (SKYPE/MSN etc.),
- negative public perception of the use of modern technologies in working with inmates,
- deficits of the inmates in terms of education and their too low motivation.

Due to the above-mentioned issues, e-learning will be an important contribution to promoting inclusion through the development of digital competences, understood as knowledge, attitude and an ability of an individual to properly use modern digital tools and an ability to identify, access, integrate, evaluate, analyze, summarize, create and to communicate with the use of digital resources.

The framework of the study does not allow the Author to present all the solutions used in the European countries which attempt or implement e-learning in penitentiary institutions. Therefore, the description has been limited to several selected countries, namely: Sweden, Norway, Poland, Finland and Germany. These countries have been selected because they appreciate and develop modern technologies in working with inmates, and at the same time, their experience in the use of e-learning in penitentiary work with inmates is different. In addition, compared to countries such as Norway or Sweden, other countries are somewhat repressive and apply stricter rules. The penitentiary systems of the Scandinavian countries, including Norway, are classified and perceived as the most humanitarian in the world. The system is based on the need for help, not punishment, and is considered to be the best in terms of social rehabilitation forms. Germany, on the other hand, is the country that started working on the implementation of e-learning very early, and it is worth emphasizing German experience in this area. Against this background, the situation in Poland looks interesting with some attempts to use e-learning, but it is still an underdeveloped area. At the same time, all the solutions applied in the above-mentioned countries face many problems, ranging from the aspects of applied technical solutions, through the coordination of cooperation with external entities and development of a coherent education structure, to limitations related to security issues. The existing problems imply questions about the effectiveness of penitentiary interactions implemented in this way, as well as pose challenges to the personnel of penitentiary units and the entire system. Portugal has interesting experience with the use of e-learning, but it is a vast material for another article planned for the future. These are solutions that are constantly being improved and modified. This scientific paper deals with the issues of e-learning in Sweden, Norway, Poland, Finland and Germany.

It is difficult to find any research studies in this area, so the available sources have been used. Studies of this kind are not conducted in Poland. The reality is changing and the use and implementation of e-learning is a complex and complicated process. It is difficult to capture its dynamics and at the same time to show changes. It is difficult to find empirical data and comparisons. It is also difficult to obtain any data on people who participate in education programs involving e-learning in prisons. Responding to the Author's request, the prison service authorities have replied that such data have not been collected. The studies prepared by the institutions of the European Union contribute the most. The European Union places emphasis on the right and access to education for everyone. The conditions and the reality in which the process of educating prisoners is changing are also undergoing numerous changes. At the same time, an intensive process of dynamic

development in modern technologies is taking place. Due to the specific character of prison conditions and all the related restrictions, it is undoubtedly difficult to implement all the available solutions. They must be adapted to the specificity of punishment, that is namely serving a sentence in isolation. It is also difficult to capture the changes that are taking place in the discussed field. Possibly, this is one of the reasons why the topic is rarely discussed in research.

A model of e-learning in prison applied in Sweden seems to be an exceptional one on the European scale but, in fact, it mainly refers to distance learning with the use of a central ICT network and the possibilities it offers. In 2000, the prison and probation administration has recognized a need for a new start of the structures and provisions with respect to adult education in penitentiary institutions. These transformations were completed at the end of 2007. Together with external experts, a solution was developed, step by step installing organizational and technical structures for distance learning. They covered all Sweden and made courses on various subjects and levels convenient to all prisoners. All the solutions were developed with the use of the national funds. The new solutions also included the fact that all teachers became members of the prison staff. At each penitentiary unit a Learning Center was established (Hammerschick, 2016, p. 18–20).

The prison system offers education compliant with the general educational system, including grades and certifications. At each Learning Center, there are fully qualified special subject teachers employed. All courses are available at all penitentiary units and to all prisoners respectively. This is possible by using different learning modes. Teachers work with learners both on premises and with the use of distance education. The process of training is provided according to the individual prisoners' needs. Inmates study at their own pace, they can start at any time of the year and they all have their own individual personal study plans. Teachers and learners keep in touch by phone and by computer. All lessons and distance learning are carried out at the Learning Centers at the particular penitentiary units. There are also computer workstations for the distance learning provided. The Swedish model of education in prison is based on the individual approach to the needs of every student. In fact, it can be concluded that it is a rather blended learning solution. In this approach teachers are available via virtual classrooms, tutoring and counselling locally. In this model various materials are provided by teachers. In the future, it is however expected that learning software will be increasingly used (Hammerschick, 2016, pp. 18–20).

Norway traditionally tries to involve prisoners in participation in the process of education and training. At present, about thirty percent of all prisoners do their schoolwork. The task which is implemented by Norwegian penitentiary system requires efforts made to introduce and to widen the use of e-learning in prisons.

The use of digital tools is an integrated part of the competence aim in the Norwegian course curriculum. There have been some regional projects trying to benefit from e-learning, applying it for training dedicated to chiefs. So far, the initiatives in this respect have been all covered by the national funds, although Norway has also participated in the European project cooperation "PIPELINE". In recent years, the most important aim of the program mentioned above has been to implement a uniform national e-learning structure in all Norwegian penitentiary units. E-learning has been used at low security prisons for some years. For this purpose, a learning platform is used. It is supplied by an external structure via the open Internet. Inmates who are provided with an access to this platform can actually use the content of the entire Internet. The platform offers various learning materials and allows users to continue attending regular schools outside. Most convicts in the Norwegian penitentiary system are however placed in prisons of high security. Hence, this situation contributed to the fact that the prison authorities had focused their efforts on the development of an e-learning solution that could be also used there. Therefore, in close collaboration between the correctional services and education authorities, a central server structure was installed in 2009. The most important feature of this system is a domain controller which lets supervisors control all the Internet access and traffic. The new network that serves all prisons in Norway is called IFI. It means Internet for Inmates. Another specific feature of this model is the fact that it particularly uses learning materials supplied in the open Internet. Such a solution does not mean that prisoners have got an open access to all the websites. The purpose of this national e-learning solution is to let inmates gain access to all the Internet sections relevant to their education. E-learning takes place in classrooms with computer workstations. The range of courses for which e-learning is applied can be very broad, including any topics, determined by the contents which can be found on the websites on the Internet, which have been categorized or opened individually against submitted applications. It cannot be concluded that there are some standardized concepts and a range related directly to the possibilities and ways of using e-learning. These issues depend on individual tutors employed by external school institutions. There are no direct links between education and training schools in prison and other external structures and actors. However, school institutions are oriented towards supporting prisoners in continuing their training after their release from prison (Hammerschick, 2016, pp. 13–15).

Norway has been a partner country in PIPELINE – Partnerships in Prison Education: Learning in Networked Environments. The project has been developed to help to improve prison education in Europe by making ICT available to learners and teachers in correctional education. It has also sought to reduce the likelihood of

recidivism by bridging the gap between life inside and outside of prison. PIPELINE targets both male and female inmates, as well as prison educators (Microsoft Word – Case Study Norway.doc (epea.org). Norway has also participated in the Project to Accelerate the Development of Distance Learning Environments (P.A.D.D.L.E). The above-mentioned program has been set out to analyze the use and methods of distance and e-learning in the collaborating countries, and whether these can widen the range of education and training available to prisoners. In Norway, the project Learning Infrastructure for Correctional Services – European Transfer (LICOS) has been also implemented. It aims to develop a European e-learning framework for prison education considering pedagogical, organizational, political and technical approaches as well as strong security requirements. Norway has also been a partner in the Virtual European Prison School. The most important task of the program is to increase the participation of convicts in the lifelong learning process. The point is to guarantee reintegration with the society after being released. The program aims at meeting the identified needs in the provision of education and training in penitentiary facilities and to provide strategic policy statements (Monteiro, Barros, Leite, 2015, p. 1038–1046).

Prisoners staying in Norwegian penitentiary units have worse education than the average population. The process of education in prison is to be the same as education provided outside. The rehabilitation effect of education must result in employment gained by prisoners, and thus ensure their successful return to society. Education is also seen as one of the most important ways to master life after leaving the penitentiary unit. It is also a significant factor to prevent crime (Tønseth, Bergsland 2021, p. 1–13).

In Poland, the Prison Service has been making attempts at the implementation of e-learning for over a decade, using modern technological solutions. Using education platforms in the Internet has allowed convicts to attend training sessions and to complete courses without leaving their penitentiary units. In Poland, there are not any separate legal regulations referring to e-learning dedicated to prisoners. Education provided at penitentiary units takes place in accordance with the education law, in the same way as at all public schools. Each penitentiary unit is independently responsible for providing convicts with an access to this form of education.

Working with the e-learning system takes a dual path and it is dedicated to two different groups: prisoners and prison staff members. E-learning at penitentiary units in Poland was started in 2009. At two detention centers located in the capital city of Poland a pilot project, *The Checkered Notebook*, was initiated. In 2010, e-learning was implemented at penitentiary units in other regions: totally 35 penitentiary units in Poland.

In 2011, units from other regions joined the e-learning program. Ultimately, over 35 penitentiary units throughout Poland implemented e-learning, including units based in Gdańsk, Koszalin, Szczecin, Wrocław, Olsztyn, Bydgoszcz.

In the years 2012–2014, e-learning for inmates was carried out as part of cooperation between OISW in Warsaw and the University of Euro-regional Economy named after Alcide de Gasperi in Józefów, and since 2015, thanks to cooperation with the Stanisław Konarski in Warsaw, the Secondary School for Adults No. 3 and the Institute of Continuing Education have been run in the capital city.

Education was provided via an Internet education platform developed by external entities – schools which run education courses. Each penitentiary unit participating in the project provided a room located at its premises. The room had to be equipped with computer workstations suitable for education. Courses took place systematically, in accordance with the course schedules sent to the penitentiary units by the schools. Apart from the courses implemented via the platform, convicts solved tests and passed their examinations. In the first phases of the project, during the classes, a project coordinator from the school, or a teacher, was present in the room. Learners were given logins and passwords necessary to use the platform and to access some particular modules, as planned for a particular school year. Documents sent by the schools provided a formal basis for learners to uphold their education at different levels and in different structures of education. Convicts passed their secondary school final examinations under the general regulations, in front of the commission, at their penitentiary units.

Frequently, e-learning was as an alternative for people with short-time sentences who wished to continue their education in prison but they could not start their courses at a prison school because they were going to leave the penitentiary unit very soon (Trela, 2016).

Penitentiary units where prisoners benefited from distance learning, met all the criteria required at schools for adults. The implemented curricula were the same, prison schools used the same certificate and course record templates as schools outside prison. Convicts improved their knowledge, using the most advanced tools (Szlęzak-Kawa, 2011 pp. 10–11; Krakowska, 2011, p. 14).

At present, due to security reasons the typical form of e-learning is not used at penitentiary units. School activities carried out with the development of methods and techniques of distance learning consist in preparing teaching materials which are delivered to students to their living spaces and in organizing individual support for students by their teachers.

Changes in the Finnish criminal justice system occurred 70 years ago. Now this country invests a lot of money in new technological solutions, the aim of which

is to offer inmates the possibilities to rejoin the society. Education for convicts in Finland must be compliant with the general education system. Education dedicated to prisoners is implemented by external education institutions. In prison, it is possible to use e-learning. All penitentiary units are equipped with computers which are available to prisoners, however, without any access to the Internet. Prisoners have possibilities to learn how to use a computer, word processing and calculations. Some penitentiary units offer ICT training but also in this case prisoners are not allowed to access the Internet. Prisoners who study at universities can get some e-mails and printable educational resources from their tutors. At seven open-regime penitentiary units a project has been initiated in which the access to the Internet has been provided to prisoners under supervision to prepare them for being released from prison and for further studies. The project has been positively received by the prison staff members (Hammerschick, 2016, p. 10; Puolakka 2021).

Digital communication and learning in Finnish prisons were based on the belief that prison life should be as close to life outside the prison as possible. Access to the Internet is vital in the process of being prepared for life, considering such areas as Internet banking, video calling and education. It is also tested in various ways in penitentiary institutions throughout the country. An example is the prison in Turku, where inmates can use laptops and computers in libraries. They can also access previously approved websites. A lot of those websites are of educational nature. One of the courses that can be used by inmates is an artificial intelligence course prepared by the University of Helsinki (Prisoner Learning Alliance, 2020).

In Germany, the first projects on e-learning in prison were carried out as early as in the 1990s. In fact, it seems that Germany is one of the most active countries in this area. The solutions and forms of the applied activities are not the same all over the country. A major section of the e-learning framework which currently exists in Germany is based on solutions developed within projects funded by the EQUAL-program like Elis, Babe, Zubilis and Member. Obviously, e-learning structures, supplies and further solutions developed in and for German prisons have to be largely financed by the means provided by the federal states. It can be assumed that e-learning via CBTs is used locally in the majority of German prisons. At this point, however, the attention is focused on network solutions. All the federal states involved share and take advantage of the central e-learning structure improved within the Elis project. The prisons which have been connected to the system offer learning software packages for many different courses. These programs cover a wide selection of topics, from basic education and social skills to ICT-topics and vocational training courses as well as advanced studies (Hammerschick, 2016, p. 10–12).

German Adult Education Association (DVV) provides a flexible and long-proven supplement and an extension for web-based basic prison education. This website was launched in 2004 and since then it has been expanded and further developed. The online portal www.ich-will-lernen.de has been available to inmates and tutors in correctional facilities as an attractive and modern way of training from 2007. It offers a wide range of software features, including attractive graphics and various original exercises. In addition to the actual learning areas, entertainment is also offered, such as games, various reading texts and daily news which are regularly updated (Eichen, 2016, p. 71–80).

E-learning is mostly used as an additional source within courses. There are not any generally valid or acknowledged standards but, as a rule, e-learning is used in the context of blended learning, taking advantage of various materials and instructions. E-learning without any assistance and other sources is not used. As a rule, e-learning is carried out in classes equipped with computers that are connected to the server in groups of 6 to 12 learners. Apart from instructions, tutoring and supervision, teachers are also expected to contribute to organizational security. Tutors working at penitentiary institutions are prison staff members, staff members of external educational institutions as well as school staff members. Some prisoners may also study. In such a case, distance learning is carried out mainly via online communication. Generally, the access granted does not provide an open access to the Internet but convicts can still communicate with other students via the platform of the university (Hammerschick, 2016, pp. 10–12).

To sum up, the Swedish model of e-learning in prison seems to be an exceptional one on the European scale but, in fact, it is based on relatively simple solutions. In Norway, the penitentiary system makes efforts to introduce and to widen the use of e-learning in prisons. The use of digital tools is an integrated part of the competence aim in the Norwegian course curriculum. In Poland, the Prison Service has been implementing e-learning for over a decade, using modern technological solutions and the situation in this area is still changing. Prisoners in Finland may use e-learning and they can learn how to use new technologies and to study without any control of their teachers. In this country the situation is going towards bigger openness in access to e-learning for convicts. In Germany, the activities aimed to implement e-learning in prisons were arranged as early as in the 1990s. Germany is one of the most active countries in this respect, but the activities are not the same all over this country and they are still undergoing changes and development.

Over the years, the European Union has strengthened measures that address the need of finding answers to the challenges posed by the information society, which in turn underscores the importance of the focus on innovation of adult education,

especially for those who have found themselves in the situation of social exclusion (Moreira, Monteiro, Machado, 2017, pp. 37–51). It also refers to prisoners.

It has also changed the attitude to prison as a penitentiary unit. In recent years prison has tended to be seen as a place not of punishment but a place of isolation from the society for people who broke the law. The aim of prison isolation is correcting such people, that is namely: preparing them for their reintegration into society as responsible individuals who will avoid recidivism (Oikonomou, Malamos, Lisitsa, Liakos, Kolokotronis, 2020, pp. 250–255).

Teaching people sentenced to prison isolation is not an easy task (Becker-Pestka, 2017, pp. 123–135; Becker-Pestka, 2019, pp. 98–105). Using e-learning may come as a greater challenge. It involves numerous problems and obstacles which must be overcome. Security is one of the main problems. So far, there have not been any cases of major security abuse reported; however, it is necessary to be aware of the fact that perfect security cannot be provided in any sector of the prison system.

E-learning does not seem to be a good solution for prison education, considering the security aspect, which is the priority in working with prisoners and in tasks implemented by the penitentiary system. Application of e-learning in prison education is the main concern of the participants of the education process and of the particular penitentiary units where prison education has been implemented in that form. The participants – prisoners make comments referring to the quality of their classes and to the lack of real contact with their tutors.

On the other hand, it should be emphasized that introduction of electronic means of mass communication has resulted in a breakthrough in knowledge and information transfer. Dynamic development of technologies has resulted in constant replacement of simple teaching aids with modern solutions. They have been constantly improved to provide optimization of educational activities and processes. Taking place in education, digital revolution provides new opportunities. Education must face challenges and threats which are related to computerization and automation. Digital media and dynamic development of technologies provide possibilities to develop and to improve the concept of education. Hence, people are forced to adjust to the new reality and to acquire skills allowing them to process the reality and information about it. It has to be mentioned that technology information has been increased dramatically over the last years and it has contributed to the growth in technology delivered instruction as an important learning and teaching method.

At present, new media come as an important factor in the process of learning community formation. Education – especially education of adults – is very often based on various forms of distance learning. Having become a component

of modern social communication, it considerably determines education processes also in the penitentiary system.

Validation

E-learning is a modern form of education and professional development which creates modern culture of education that has already proved to work out perfectly in the prison system. This is education oriented towards digital platform users' independent work. It is focused on users' self-discipline. Modern technologies come as a chance for people who have been digitally and socially excluded. IT tools contribute to a decrease in negative consequences of social isolation and they provide access to knowledge to those who cannot participate in the process of education outside the place where they are. For convicts, it is motivation to change for better and it is also a significant factor which prevents recidivism.

Education of convicts should implement aims defined for adult education. It is a value in itself, regardless of the aims of correctional activities. Education of convicts limits negative results of imprisonment, such as depersonalization, institutionalization and desocialization. In many ways, it may seem normal in an abnormal situation of imprisonment through the focus on prisoners' potential and through encouragement given them to participate in significant activities which bring permanent results. Education in prison can be perceived as efficient social rehabilitation, as an activity which connects prisoners with the society living outside and as an activity which allows them to improve self-esteem, to assess their values, aims and priorities in life. By acquiring necessary personal, social and technical skills, convicts acquire tools that allow them to return permanently and efficiently to the society as contributing citizens, family members and employees (Vryonides, 2016, pp. 69–70).

Experience related to education of inmates indicates that prisoners who study are more motivated because they can foresee a more attractive future for themselves, if they have an academic diploma. Despite this fact, however, their expectations are not very high, because they acknowledge that their rehabilitation will be difficult due to the stigma of being ex-prisoners. The practice also shows that the education process has many weaknesses and limitations mostly due to the lack of facilities, educational and technological resources and support from teachers (Moreira, Monteiro, Machado, 2017, pp. 37–51).

Cooperation of specialists in the field of advanced technologies, business (who might find it as an interesting professional challenge) and people responsible for

the process of preparing prisoners to live in freedom, seems to be well-grounded. Undoubtedly, teachers, correctional officers and prisoners themselves are important partners in this sector because they can indicate some particular needs and problems and they can inspire others to develop and to apply new, more advanced technological tools. The editorial requirements of this paper do not allow the Author to present more in-depth observations on that problem. However, it is obvious that scientific research in this field should be continued in cooperation with the above-mentioned partners and solutions should be adjusted to the needs of prisoners, the labour market, capabilities of penitentiary units, according to technological advancement.

The way e-learning is used at prisons differs considerably and is largely dependent on trainers. Mostly it can be assumed that e-learning is used as an additional source within courses. There are no generally valid or acknowledged standards, but as a rule e-learning is used in the context of blended learning, taking advantage of diverse materials and instructions. Just e-learning – without any assistance and other sources – is not used. As a rule, e-learning is carried out in classes equipped with computers that are connected to server groups.

Implementation of e-learning for convicts is a complicated process but it provides them with an opportunity to acquire education and to fill in any education gaps they may have, regardless of the length of the imprisonment sentences they have to serve. In the field of IT, it is possible to assume that along with the development of e-learning at penitentiary units, the demand for IT services will also increase. People who are familiar with the specificity of distance learning and who know how to function in the prison reality will be needed. Such activities foster both development of e-learning and international cooperation. Hence, considering social and economic conditions, they should be developed in the future.

The world has become smaller and borderless, in such a way that interaction and exchange are inevitable and they are part of daily life. In line with the global development of the various sectors of society, digital technologies must also be incorporated into the educational process in prisons in order to promote changes and transformations in its product and process (Moreira, Reis-Monteiro, Machado, 2017, pp. 39–47).

The data presented in the article are collected in Table 1. Strengths and weaknesses of e-learning in education of convicts have been indicated because they show positive and negative features of the solutions that have been applied. They indicate the advantages and specific features typical of e-learning dedicated to inmates in the described countries. They highlight issues that can be changed in the current system and positive aspects of the solutions. They synthesize and organize the collected material in a transparent manner. They also come as its graphic complement.

Table 1
Evaluation of e-learning solutions in Sweden, Norway, Poland, Finland and Germany

Country	Strengths of the solutions	Weaknesses of the solutions
1	2	3
Sweden	The courses are available to all prisoners; The model of e-learning system is compliant with the general educational system; Constant contact between teachers and convicts is provided; The system takes the individual approach to the needs of every convict into account.	Uses relatively simple solutions; it is more like a blended learning system.
Norway	The model is based on close cooperation between the penitentiary institution and education authorities; The developed model allows inmates to access all websites related to their education; The model is still developing The range of courses for which e-learning is applied can be very wide; The model lets prisoners continue education after they leave prisons.	It is impossible to include all the prisoners in the system – e-learning has been used only at low security prisons; most of convicts in the Norwegian penitentiary system serve their sentences in high security prisons; The model uses only learning materials provided in the open Internet; The collaboration between educational institutions and penitentiary units for inmates does not exist
Poland	Penitentiary units where prisoners benefit from distance learning meet all the criteria required at schools for adults; E-learning solutions are dedicated to both prisoners and prison staff members; The implemented curricula are the same, prison schools use the same certificate and course record templates as schools outside prison; Convicts may improve their knowledge using advanced tools.	The typical form of e-learning is not used in penitentiary units; There is no adequate base and human and material resources to implement e-learning in the classic form; There are not any clear rules and safety procedures which allow using e-learning in prisons.
Finland	All penitentiary units are equipped with computers which are available to prisoners; The solutions let equip inmates with the most important computer and online skills.	The access to the Internet is not allowed to all prisoners; It is based on simple solutions.

1	2	3
Germany	A high advanced system has been developing since the early 1990s; The system is refining and changing.	The system is not the same all over this country; E-learning without any materials is not used.

S o u r c e: Author's own study based on the studies of specialist literature

The author of the text has conducted research on the professional activation of inmates. One of the component of the career activation is education. Optimization of prison education is the factor that can significantly affect the more effective acquisition of knowledge, acquisition of qualifications necessary to enter the labor market, fulfilment of the growing requirements stated by employers and the continuation of a coherent process of social readaptation of convicts.

New technologies provide learners with vast possibilities. E-learning allows inmates to take advantage of distance and flexible learning methods which are often applied simultaneously with traditional learning in a form of combined courses. E-learning exploits possibilities provided by the Internet for the requirements of knowledge dissemination. At present, in the conditions of a dynamic technological progress, e-learning is not any longer an experiment, slowly becoming a fact well-approved by all the participants of education processes.

E-learning in education of convicts comes as an opportunity for providing equal chances in education. It also provides education which can be adjusted to convicts' needs. It also seems that e-learning in education of convicts is inevitable, considering the vast advancement in technology, the necessity to prepare convicts for living outside prison, for finding their places on the open labor market and for continuing their life-long learning.

Conclusions

- E-learning is a way of teaching with the use of computers and the Internet. It allows inmates to learn and to complete different types of courses and training without leaving their penitentiary units. Inmates may decide when and how often they study. E -learning reduces costs of social exclusion of convicts and offers them a chance to feel more self-conscious.
- The benefits of using e-learning in education of convicts include, first of all, saving time and individualizing the education process. E -learning is a very flexible model of teaching which helps to eliminate territorial and learning bar-

riers and boundaries. New technologies allow prisoners to gain and to develop appropriate skills and competences and they help to promote education in prison. Using e-learning in prisons prevents the phenomenon of digital exclusion. Currently, e-learning helps to limit the expansion of the Coronavirus by keeping prisoners and teachers in their spaces while maintaining the teaching process. The weakness of using e-learning in teaching convicts refers first of all to the security aspect. Ensuring the safety and isolation is the most important task of the penitentiary system. Except for this aspect, the problems also involve high costs related to the implementation of the remote learning system, temporary or permanent problems with the Internet connection, problems with motivation and self-discipline of inmates, limitation of interpersonal contacts in the times of the Coronavirus pandemic which is at the same time an advantage. The ideal solution would be to use blended-learning.

- There are some differences in advancement and implementation of e-learning in education of prisoners in individual countries, however the common thing is that in all of the discussed countries the value and potential of e-learning in the education of convicts are perceived. The activities undertaken indicate a high awareness of the importance of using this tool in educating prisoners and preventing their digital exclusion. In some European countries, systemic solutions are applied in the field of e-learning for convicts; however, these solutions do not refer to all the regions and penitentiary units. There are pilot projects and programs implemented in numerous countries. In all of the countries prison e-learning systems still indicate many weaknesses and limitations that need many changes. Specialists still look for new and best solutions in this area. It is necessary to thoroughly change educational systems in cooperation with new technologies. The digital world has not only become a fact. It also requires a lot of information and interaction. Some countries have developed systemic solutions in this area from which a lot of knowledge can be derived. This allows inmates to avoid standing out from the society based on knowledge and to follow the development of technology as far as possible in the conditions of prison isolation. It is impossible without the systemic support of various entities and institutions and without understanding of the essence of e-learning and its development in the process of educating inmates. Using e-learning in education of convicts is still a challenge for penitentiary systems. In addition to technical issues, there are problems related to the effectiveness of the education process, and thus didactic effectiveness, as well as security issues, which are particularly important in the case of penitentiary systems.
- Using e-learning in education of convicts is also a challenge for universities educating future staff of penitentiary units, IT and business specialists. The point is that these people should be prepared to implement new technologies

in specific conditions that are found in prisons, in mutual cooperation. It also seems necessary to refer to the already existing solutions in other countries and to adapt them to the existing realities. In a digital society, using e-learning in a penitentiary system will have to be a natural process in all countries and it should be widely supported due to many benefits it can bring.

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Daria Becker-Pestka

E-learning dla skazanych
Doświadczenia ze Szwecji, Norwegii, Polski, Finlandii i Niemiec

S t r e s z c z e n i e

W poniższym artykule przedstawiono dyskusję na temat wykorzystania e-learningu w edukacji skazanych. Temat poruszany przez Autorkę wiąże się z faktem, że wykorzystanie nowych mediów w edukacji stało się obecnie powszechnym rozwiązaniem stosowanym także w edukacji osadzonych. E-learning to aktualna forma edukacji i szkolenia zawodowego. Zapewnia doskonalenie współczesnej aktywności w edukacji stosowanej w zakładach penitencjarnych do kształcenia skazanych. E-learning umożliwia osadzonym zdobywanie wykształcenia oraz aktualizowanie różnic edukacyjnych. Jako metoda edukacji wymaga autonomii i samodyscypliny użytkowników podczas pracy z wykorzystaniem platform cyfrowych. Edukacja musi odpowiadać na różne potrzeby wyrażane przez rozwijające się społeczeństwo wiedzy. Dotyczy to głównie edukacji osób zagrożonych wykluczeniem społecznym, m.in. skazanych. Wiąże się to z potrzebą rozwiązywania problemów, które dotyczą m.in. zwiększania możliwości mediów w zakresie generowania, przetwarzania i tworzenia informacji. Celem tekstu jest opis wykorzystania e-learningu w uczeniu się osób osadzonych na przykładzie wybranych państw europejskich takich jak Szwecja, Norwegia, Polska, Finlandia czy Niemcy. Kraje te zostały wybrane, ponieważ doceniają nowoczesne technologie w pracy penitencjarnej. Zmieniają i rozwijają rozwiązania. Doświadczenia w wykorzystaniu e-learningu w pracy penitencjarnej z osadzonymi w Szwecji, Norwegii, Polsce, Finlandii i Niemczech są różne. Celem jest również pokazanie, jak nowoczesna technologia może być wykorzystana w pracy ze skazanymi. E-learning staje się narzędziem przeciwdziałającym wykluczeniu. Rozwój technologii pozwala na wspieranie osadzonych i kadry jednostek penitencjarnych w prowadzonym procesie działań korekcyjnych. Technologie dają szansę na powrót bądź rozpoczęcie pracy, kontynuowanie nauki, zaspokojenie potrzeb rodziny, aktywne życie zgodnie z zasadami życia społecznego po opuszczeniu jednostki. E-learning stwarza realną szansę na zdobycie kwalifikacji osobom pozostającym w warunkach izolacji. Łączą się w jednym obszarze kwestie społeczne, interesy rodziny, jednostki, biznes i nowoczesne rozwiązania technologiczne. Spójne i skuteczne działania są wyzwaniem dla ich realizatorów i społeczeństwa, ale także wspierają proces resocjalizacji.

S ł o w a k l u c z o w e: edukacja, osadzeni, e-learning, nowoczesne technologie, readaptacja społeczna

E-learning for prisoners Experience from Sweden, Norway, Poland, Finland and Germany

Дарья Беккер-Пестка

Электронное обучение заключенных. Опыт Швеции, Норвегии, Польши, Финляндии и Германии

Аннотация

В статье представлено обсуждение использования электронного обучения в обучении осужденных. Обсуждаемая автором тема связана с тем, что использование новых медиа в образовании в настоящее время стало распространенным решением, применимым и к обучению заключенных. Электронное обучение является современной формой образования и профессиональной подготовки. Он обеспечивает повышение современной культуры в образовании, применяемом в пенитенциарных учреждениях для образования осужденных. Электронное обучение помогает и позволяет заключенным получать образование и актуализировать различия в образовании. Как метод обучения он требует от пользователей автономии и самодисциплины при работе с использованием цифровых платформ. Образование должно отвечать различным потребностям, выраженным развивающимся обществом знаний. В основном это касается образования людей, которым грозит социальная изоляция, т.е. осужденных. Это связано с необходимостью рассмотрения и решения проблем, связанных с такими вопросами, как расширение возможностей СМИ в области генерирования, обработки и создания информации. Цель текста – описать использование электронного обучения в обучении заключенных на примере нескольких избранных европейских стран, таких как Швеция, Норвегия**,** Польша, Финляндия и Германия. Эти страны были выбраны потому, что они ценят современные технологии в пенитенциарной работе. Они меняют и развивают решения. Цель также состоит в том, чтобы показать, как можно использовать современные технологии в работе с осужденными. Электронное обучение становится инструментом противодействия изоляции. Развитие технологий позволяет поддерживать заключенных и сотрудников подразделений в процессе проведения исправительных мероприятий. Технологии дают возможность вернуться или начать работать, продолжить образование, удовлетворить потребности семьи, жить активной жизнью в соответствии с принципами социальной жизни после выхода из личности. Электронное обучение предлагает реальный шанс для людей, которые находятся в изоляции, получить квалификацию. Социальные вопросы, интересы семьи, личности, бизнеса и современные технологические решения объединены в одном пространстве. Согласованные и эффективные действия являются вызовом для их исполнителей и общества, но также поддерживают процесс реабилитации.

Ключевые слова: образование, заключенные, электронное обучение, современные технологии, социальная реадаптация.

Daria Becker-Pestka

E-learning para presos. Experiencias de Suecia, Noruega, Polonia, Finlandia y Alemania

R e s u m e n

En el siguiente artículo se presenta una discusión sobre el uso del e-learning en la educación de los convictos. El tema tratado por el autor está relacionado con el hecho de que el uso de los nuevos medios en la educación en la actualidad se ha convertido en una solución común aplicada también para educar a los reclusos. El e-learning es una forma actual de educación y formación profesional. Provee mejoramiento de la cultura contemporánea en la educación aplicada en las instituciones penitenciarias para formar a los condenados. El e-learning ayuda y permite a los reclusos obtener educación y actualizar las diferencias educativas. Como método de educación, requiere autonomía y autodisciplina de los usuarios en el trabajo con el uso de plataformas digitales. La educación debe responder a las diferentes necesidades expresadas por la sociedad del conocimiento en evolución. Se refiere principalmente a la educación de personas en riesgo de exclusión social, p.e. convictos Se relaciona con la necesidad de atender y resolver problemas que atañen a temas tales como incrementar las posibilidades de los medios en el área de generación, procesamiento y creación de información. El objetivo del texto es describir el uso del e-learning en el aprendizaje de personas encarceladas siguiendo el ejemplo de varios países europeos seleccionados, como Suecia, Noruega, Polonia, Finlandia y Alemania. Estos países fueron seleccionados porque aprecian las tecnologías modernas en el trabajo penitenciario. Cambian y desarrollan las soluciones. Las experiencias en el uso del e-learning en el trabajo penitenciario con reclusos en Suecia, Noruega, Polonia, Finlandia y Alemania son diferentes. El e-learning se está convirtiendo en una herramienta para contrarrestar la exclusión. El desarrollo de la tecnología permite apoyar a los internos y al personal de la unidad en el proceso de acciones correctivas. Las tecnologías brindan la oportunidad de regresar o comenzar a trabajar, continuar la educación, satisfacer las necesidades de la familia y vivir una vida activa de acuerdo con los principios de la vida social después de dejar al individuo. El aprendizaje electrónico ofrece una oportunidad real para que las personas que están aisladas obtengan calificaciones. Los temas sociales, los intereses de la familia, los individuos, los negocios y las soluciones tecnológicas modernas se unen en un área. Las acciones coherentes y eficaces son un desafío para sus ejecutores y la sociedad, pero también apoyan el proceso de rehabilitación.

P a l a b r a s c l a v e: educación, presos, e-learning, tecnologías modernas, readaptación social

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