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Editorial

The Editorial Board of IJREL is privileged to present a new volume. The content of the current issue was divided into three chapters. The first is devoted to distance and blended learning during the COVID-19 pandemic time. The second contains articles concerned with teaching methods using new technologies. The third concerns theoretical, practical and technological aspects of e-learning, including education for the acquisition of key competences.

The first part of the volume Chapter I: "Research on Distance, Online and Blended Learning in the COVID-19 time", devoted to distance, online and blended learning during the COVID-19 time contains five articles.

The first article in the volume is titled "Five Theses on (Dis)Comfort in the Educational Cultures of Digitality". The Author of the text – Theo Hug from Austria presents five theses of (dis)comfort connected with digitalization in education. A thorough discussion is presented on the following issues: language influence on educational planning, the role of assumptions of mathematization and computability of the world in optimizing educational processes, disorientation in the approach towards Artificial Intelligence and robotics, lack of focus on the common good in educational measurement procedures as well as on decisions concerning responsibility when humans co-work with machines.

Ana Cristina Matoso Bento Saraiva and Nuno Sotero Alves Silva from Portugal present a thorough discussion of strengths, weaknesses, opportunities and threats of online learning under COVID-19 pandemic conditions on the basis of the current literature review. The Authors discuss the issue from the perspective of various parties of the educational process like teachers, parents, students and their families. The picture that emerges from the data indicates time flexibility, reduced costs of teaching and learning, possibilities of connection and development of new platforms from one side and exhaustion and motivation decrease from the other. The text undoubtedly contains valuable insights helpful in designing online-learning systems in the future.

Attitudes of adult students towards distance learning during the time of pandemic are presented in the article by Violetta Rodek and Anna Orlińska. Data gathered during the survey conducted among postsecondary school students allowed them to answer the questions concerning such aspects of remote learning like students' satisfaction, motivation and involvement, their opinions on the effectiveness of distance learning as well as its negative and positive aspects.

Agnieszka Kubacka, Daniel Biały and Radosław Gołąb devoted their text to a very important topic of information security issues in the process of distance learning during the COVID-19 pandemic in higher education settings. The Authors present their research on the awareness of the threats connected with using the Internet among university teachers. The data presented focuses on the issues of safety connected with equipment, passwords, information exchange and security procedures.

The current IJREL volume closing text is an article by Marzena Wysocka-Narewska, titled: "Distance Learning in Polish Schools During the Coronavirus Lockdown: the Areas of Success and Failure Experienced by Polish Teachers of English as a FL". The survey research conducted with the participation of Polish secondary education foreign language teachers focused on answering questions concerning such characteristics of the online teaching-learning process during the pandemic, as the kind of mutual understanding and communication between the teacher and students, foreign language skills taught as well as difficulties and successes experienced by the respondents while conducting remote classes. The data indicating problems with teacher-student cooperation and covering teaching material allowed the Author to draw valuable practical conclusions for teacher education and work practice.

The second part of the volume, devoted to innovative methods and technology in education consists of two texts.

The methodology of online course construction for higher education students called "Flavours in Ead" is presented in the article by Maria Potes Barbas and Pedro Matos. The Authors formulated an answer to the question "How to build a robust, intuitive, and flexible course model for Higher Education students an E-learning format?" The text presents an action research connected with the evaluation of technological tools used in the programme made by students. Valuable guidelines to an e-course formulation were drawn from the data gathered, intended to construct an online course that is innovative, disruptive and inclusive.

Individual and collaborative online learning and the possibility of the compromise between the two is the topic of the article presented by Krzysztof Gurba. Values of both kinds of online learning are analysed and their impact on learning effectiveness is discussed. The Author presents the data from the survey indicating preference for an individual e-learning path, but simultanously a strong

preference for choosing learning individually or in a group. The article advocates the possibility of taking advantage both from an individual and collaborative path of learning.

Three articles were grouped in the third part of the volume titled: "Theoretical, Methodological and Practical Aspects and Psychological Determinants of ICT and E-Learning in Education".

The impact of remote teaching and learning conditions during the COVID-19 pandemic on the social and emotional well-being of teachers is the main topic of the research report presented by Irena Przyblylska from Poland. The analysis of survey data gathered among 998 teachers provides evidence for perceptions of a decrease in well-being and a higher number of negative emotions in the respondents during the pandemic. The data indicates workload, reduction of social contact, diminishing quality of relationships, and passive behaviour of students during classes as the main reasons for the decrease of well-being change in teachers. Valuable conclusions for remote teaching methodology are drawn.

The article "Higher Education Employees' Workplace Learning Within Three Schemes of International Mobility" by Marcin Rojek and Joanna Leek focuses on the mobility and learning of higher education employees. The text describes characteristics of higher education workers learning in the context of traditional, blended and virtual digital mobility. The survey was conducted with the participation of 103 employees of European universities. The respondents came from 17 countries. The results showed that short-term mobility is preferred by the participants. The data also provided evidence that higher education employees expected different kinds of benefits from the three mobility types which were analysed in the article and regarded interpersonal contact as more valuable than physical environment for effective learning.

In the article "Well-being in the E-school Environment: Selected Research Results" Agnieszka Buczak and Izabella Maria Łukasik from Poland present data gathered among 14–16 year old students by means of The Rosenberg's Self-Assessment Scale and the KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children. The Authors provided thorough evidence for the reliability and validity of the tools used in the study. Among other methods, component analysis and confirmatory component analysis were used, which enabled researchers to extract physical, mental and social health, learning conditions and interpersonal contacts and self-actualization as factors of well-being to be analysed. Students' physical well-being in the domain of remote learning proved to be related to gender. The results showed among others that in the conditions of learning remotely the general well-being is higher in older students in comparison to younger ones. Older students, however, reported their health and interpersonal relations and

self-actualization as lower than younger students. The results indicate the direction of adjustments needed in the online learning system to account for individual differences of participants.

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 Time of the COVID-19 Pandemic

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Five Theses on (Dis)Comfort in the Educational Cultures of Digitality

Abstract

In many current discussions, digitalization functions as a dazzling leitmotif not only for technological, social and cultural transformation processes in general, but also for current social reproduction problems and upheavals in the field of education in particular. On the one hand, there is a widespread uneasiness in educational cultures of digitality; on the other hand, the promises of the future in learning technology are also promoting tendencies of ease for some groups. Based on a broader perspective that goes beyond a Freudian understanding of discomfort in culture, this article puts forward five trenchant theses for discussion, all of which mark fault lines of (dis)comfort in the educational cultures of digitality.

K e y w o r d s: educational culture, digitalization, technological solutionism, rhetoric of digitalization, machine learning, robotics

1. Introduction

The digitalization of (almost) all areas of life has been the central starting point for countless everyday practical, economic, political and scientific considerations and initiatives for several years. The term ‘digitalization’ is comparatively rarely

restricted to technical processes in the narrower sense, which focuses on aspects of modeling, formalization and algorithmization for the purpose of creating, processing and storing digital representations. Very often, a very broad concept of digitalization is used, referring to all dynamics of change that can be directly or indirectly related to the spread and increasing use of digital technology systems. In recent times, the exploitation of increasing amounts of data, machine learning and systems based on artificial intelligence (AI) have become particularly significant. The vagueness of the term 'digitalization' plays a role, not least in highly endowed funding programs, insofar as the bulk of the funding is used for technological disciplines, market-oriented application research, engineering patterns of thought, and disposal-rationalistic approaches to problem solving. For disciplines that do not subordinate their problems and the basic orientations to this "paradogma" of digitalization, there remain – unless they are already being treated as discontinued models of the so-called Gutenberg galaxy – a few hopelessly inadequate funding pools and niches for a more or less precarious independent research.

The belief that non-technological problems can also be solved efficiently and sustainably with digital-technological means and methods goes hand in hand with a shift in the attribution of responsibilities: In "technological solutionism" (cf. Morozov, 2014; Nachtwey & Seidl, 2017), questions on the organization of the digital essentially mutate into problematic issues of applied computer science, whose mainstream corresponds unbrokenly with digital capitalism. Theoretical differentiations, as well as disciplinary and terminological demarcations are losing their importance. Differentiated definitions of the relationships between the dynamics of digitalization, mechanization, algorithmization, automation, datafication, medialization, mediatization, mathematization, economization, optimization, pedagogization or robotization are superfluous in solutionist discourse contexts.

Digitalization in the twenty-first century has also become, among other things, a pedagogization formula (Veith, 2003). Calls for the "digitalization of education" are currently being voiced from many sides, and they are certainly receiving attention in current educational policy programs. For example, while the strategy paper of the German Conference of Ministers of Education and Cultural Affairs (2016) avoids expressions such as "digital education" and "digital competencies," the Austrian "Master Plan for Digitalization" (BMBWF, 2018), with its focus on "basic digital education," aims to "gradually and, above all, comprehensively incorporate changes resulting from advancing digitalization into the Austrian education system" (ibid.). Both documents assume an instrumentalist concept of media, ignoring media-cultural contexts. In both documents, the purpose-oriented use of digital educational media, as well as instrumental and functional perspectives on curricular developments, instructional development, infrastructure topics,

continuing education and training, as well as learning management systems and service portals play a central role.

The heroic gesture that is expressed above all in the idea of a "master plan" may already give rise to unease. However, the focus on digitalization as a guiding formula for technological, social and cultural transformation processes in general and for current social reproduction problems in the field of education in particular gives rise to unease in many more respects. In the following, we will explore and reflect on some of the desiderata that follow from the hype about digitalization in education. These are presented for discussion in the form of five pointed theses.

2. Preliminary Considerations for an Expanded Understanding of (Dis)Comfort

In his work "Civilization and Its Discontents" from 1930, Sigmund Freud (1930/1997) considers essential areas of tension between drive and civilization, or culture. He explores the contradictions between the individual pursuit of liberty and happiness and cultural norms of denying urges, as well as various forms of libidinal development restricted by civilization. On the one hand, civilization offers safety and protection from the internal and external (disease, death) and from hostile relationships; on the other hand, it requires drive renunciation and a compulsion to work and contributes to the emergence of feelings of guilt, for instance when authoritarian demands are adopted. In this situation, there are limited possibilities to replace the pleasure principle for the reality principle, by influencing the internal and external sources of displeasure and thus partly avoiding the sentiment.

However, culture always remains a source of suffering, and its development inevitably leads to widespread discontent. Some recent works propose a discomfort *at* culture (e.g., Schneider & Sexl, 2015) or *with* culture (e.g., Müller, 2003). I am not aware that the use of these expressions has been conventionalized. Such a process could be developed along the following emphases: *in* culture in the sense of an abstracting perspective on inevitable constitutive contexts of reference (individuals/actants vs. society/culture) and affect-logic dynamics of discomfort; *at* culture in the sense of an abstracting perspective on individuals and their discontent over social problems and cultural developments; *with* culture in the sense of a reconstruction of individuals' discontent over specific cultural phenomena.

Among the institutions which can make growing into civilization possible, and occasionally quite (un)comfortable, for subsequent generations are also educational

institutions. In his contribution "Das Unbehagen in der Bildungskultur" (2010), Helmwart Hierdeis analyzes a number of areas of tension which are intensified by tendencies of privatization, economization and the technocratic regulation of the education system. Building on this contribution, I want to focus on a few current developments which foster discomfort in the educational cultures of digitality while for some groups and businesses they rather represent tendencies of ease.

The expression "educational cultures of digitality" refers to the educationally relevant subprograms of cultural programs (Schmidt, 2015, pp. 22–30) in historic-medial constellations in which mediality is significantly (co-)constituted by interlinked digital technologies, cooperation between human and non-human actors, and the interconnection of material and immaterial dimensions. These subprograms enable educational processes and related orientation efforts, the schematization of corresponding options on micro-, meso- and macrolevels, and the justification of models for en-/decoding and evaluating education results.

The application of the subprograms, like that of cultural programs as a whole, does not occur in a power-free space. Instead, competing claims of power and the dynamics of a "coexistence, cooperation and confrontation of processes of dissolution and constitution" (Stalder, 2016, p. 17) play a crucial role. Among the politically relevant guiding questions are the following: "Who in a society develops the power to define or even command over what categories and differentiations? Which reputation, which power and accordingly which sanctions are connected to such authorities? […] Which biases do certain areas of differentiation have and how changeable are they? […] Which coercive character do certain options develop? […]" (Schmidt, 2015, pp. 25–26). With a view to the "tectonics" of the dynamics of cultural programs, the conflicting tendencies of stabilization and change, and the upheavals in education and media cultures, it becomes clear that phenomena of (dis)comfort are far from evenly distributed in society. Some protagonists who have set themselves up quite "comfortably" in the current educational systems may feel discomfort considering the ongoing digitalization programs in the field of education. For others, the thought of education and culture may lead to associations like resistance to reform, unequal opportunity, outdated administrative structures, or the "glory and misery of a German interpretive model" (Bollenbeck, 1996), so they may see little cause for comfort in the face of the medial change and global challenges. Still others develop discontent at the idea of education-related expectations of normality in which robots, automatized scoring systems and the business models of the global education industry represent integral parts of public education.

No matter how comfort and discomfort relate to each other and how they are distributed socially in the entirety of the interlinked subprograms and with a view to individuals and social groups, it is never only about rational considerations, but

about complex, affect-logical dynamics (cf. Ciompi & Ender, 2011). Very emotional or affect-laden articulations, as well as such that are highly abstract, "purely" rational or intended to be free of purpose are part of these dynamics and thus of the (dis)comfort in culture. Interdependences between affective moods and cognitive patterns may be found both on individual and collective levels. The "affective-cognitive personal worlds (or 'mentalities,' 'ideologies') specific to personalities, groups or cultures, organized by certain lead affects and continuously validating and strengthening themselves" (Ciompi & Ender, 2011, p. 13) correspond to the different forms of (dis)comfort. To the degree that models of reality and cultural programs co-emerge and constitute a mutual interdependence, the specificity of these interdependences lies in "*how* the categories and differentiations of the model of reality are semantically put in relation, affectively assessed and morally connoted by the cultural program, so that they can serve as a precondition (orientation of meaning) for positings (distinctions that are made, actions in the broad sense)" (Schmidt, 2015, p. 24; italics in original).

In this expanded perspective, questions regarding the discomfort in culture do not only concern human libidinousness and the restriction of the gratification of sexual and aggressive drives through culture. They are also connected to existential problems and precarious situations, different degrees of individual or organizational learning ability, shifts in relational and power structures, and controversial allocations of responsibility and different moral assessments in media-cultural constellations.

3. Five Theses on (Dis)Comfort in the Educational Cultures of Digitality

This is the background against which the following five theses will be outlined, all of which mark fault lines of (dis)comfort in the educational cultures of digitality. Depending on social affiliation, political orientation and economic situation, they tend to function as sources of either comfort or discomfort.

Thesis 1: Casual ways of using terms and the smart rhetoric of digitalization are highly influential and widespread in the context of educational planning and the development of schools and universities

The rhetoric of ICT in the field of education is nothing new (cf. Haugsbakk & Nordkvelle, 2007; Haugsbakk, 2020). Since at least the educational promises

of the early e-learning developments, it has become clear that linguistic accuracy and theoretical differentiation are still relevant at best for small groups in academia, which to this day are habitually accused of being out of touch and overly theoretical – as if *any* media-pedagogical research, regardless of its orientation on pedagogy, educational science, media studies or communication studies, should focus on forms of applied research whose results can be brought to fruition in diverse everyday or work-related situations, without much effort for translating or concretizing them. Of course, the same holds true for those interdisciplinary orientations which also refer to concepts and models from computer science, psychology or sociology.

From "electronic learning" to "intelligent systems" and "machine learning" to "School 4.0" and "digital literacy," there is no shortage of abbreviated and metaphorical ways of expression which, on the one hand, attribute technical features to non-technical phenomena or, on the other, claim human-like "intelligences" and decision-making abilities for technical systems. There is certainly sporadic criticism of the superficial use of terms and of the different varieties of "web speak" or "tech speak" in education (cf. for example Dander, 2020, pp. 20–21; Niesyto, 2021, p. 3; Reichenbach, 2016; Selwyn, 2015). However, this criticism is not taken seriously, if it is noticed at all, by the protagonists at those junctures where the announcements of education-political digitalization programs or university plans to develop the digitalization of teaching can barely be distinguished from promotional content coming from the education industry. And in those areas where the casual use of terms and the smart rhetoric of digitalization are prerequisites for receiving grants and awards, they represent, at least for some groups, a source of comfort – regardless of whether this concerns the funding of applied research, for example on the MOOCification of education offers, or the development of school- or lesson-related apps.

As for MOOCs, there is a wide range of conceptions. In the most general sense, this means transforming a traditional or internet-based offer of lectures or seminars into a range of "open" online courses for large numbers of participants. The expression MOOC, an acronym for Massive Open Online Course, was coined by Dave Cormier in 2008. At the time, Stephen Downes and George Siemens taught a student-centered course on "Connectivism and Connective Knowledge" at the University of Manitoba in Canada, with around 25 participants on-site and over 2,200 students taking part in structured online discussions and meetings, as well as via blog posts. The connectivist orientations were subsequently indicated by the abbreviation cMOOCs (connectivist MOOCs). Depending on the intended type of Massive Open Online Course (MOOC) and the respective background – influenced by learning technology, media didactics, the education industry and commercial interests –, concepts and practices of MOOCification can take on

many forms today. Common abbreviations include xMOOCs (extended MOOCs), bMOOCs (blended MOOCs), mMOOCs (meta, mobile or mini MOOCs), qMOOCs (qualification MOOCs), tMOOCs (transfer MOOCs) and vMOOCs (vocational MOOCs).

As for an Austrian example of apps, see the award-winning "all-in-one school-app" from Young Enterprises Media GmbH (https://foxeducation.com/schoolfox/ and https://www.a1.net/marketplace-schoolfox), which is promoted by the Austrian Education Ministry (see https://www.bmbwf.gv.at/Themen/schule/beratung/corona/corona_fl/komlm.html) and was awarded a BigBrotherAward in 2016 (https://de.wikipedia.org/wiki/Big_Brother_Awards#2016_2, http://www.bigbrotherawards.at/2016/marketing_2.php, http://www.bigbrotherawards.at/2016/marketing_2.01.php).

Whenever concepts such as "digital competencies," "digital learning," "virtual literacy," "Learning 4.0," "on-demand learning" or "byte-sized learning" are mentioned, this does not only illustrate tendencies of "learnification" (Biesta, 2010) and shifts in regard to pedagogical responsibilities (Biesta, 2011, p. 190; Friesen, 2019). Likewise, these references do not simply represent reductions to technical dimensions and technological know-how, or a primacy of affirmative qualification in the service of economic interests and growth ideologies. Going beyond all of that, we are dealing with questions on the context-driven development of education and science at large and with nothing less than reflecting on and clarifying, firstly, interdependences of the educational and scientific system in relation to the societal subsystems of economy and politics in liberal democracies, and also spaces for autonomy in the public institutions of education and science.

Thesis 2: Operative fictions of optimizing processes of learning and education correspond with poorly reflected assumptions of mathematization and of the computability of the world

Notions of optimizing processes and methods to quantify the self and others are not inventions of the digital age. From choosing a lubricant for the first rotating fixed wheels to choosing efficient neural networks in machine-learning programs, narratives and leitmotifs of optimization have been diversified and developed. An end to these traditions is not in sight, on the contrary: Computer network technologies have made available processing capacities without which developments in structural sciences and their manifold technological applications would not have been possible.

The frictions between encultured medial constellations of the twentieth century and the emerging new socio-technical configurations of the twenty-first century also affect the key topics of education, especially growing up, learning and teaching. The "optimizing spirit" (Leineweber & Wunder, 2021) that pervades the

rhetoric of digitalization makes some people hope for a chance to overcome the "technological deficiency" (Luhmann & Schorr, 1982) and others worry in view of certain fuzzy ideas of applying rational measurement models to the data-driven management of learning and development processes. No matter if a narrow or broad concept of technology is taken as a starting point, or if referring to a technological deficiency is generally deemed to be out-of-place or misleading with respect to the postulates of human dignity and the development of autonomy: The increasingly refined and partly automated measuring methods open up widened scopes of calculating, monitoring, manipulating and controlling, up to re-educating entire population groups.

These enhanced and sometimes de-limited scopes at the interfaces of quantitative-empirical education research, education policy and education economy may prove of value in some regards as "operative fictions" (Schmidt, 2006, p. 4). On the other hand, in the course of becoming reality, the fantasies of optimization occasionally mutate into paradoxes of optimization (Wolf & Thiersch, 2021) – not least when the polymorphism of pedagogical "logics" is consistently interpreted and assessed in the light of machine-, market- or media logics and the self-similarity of the process dynamics does not come into view anymore. The tendencies towards rationalism of disposition are not linked to a particular rationality or version of rationalism. They concern all forms of rationalism, which characteristically tend to absolutize the determination of starting positions, assessment modalities, means, purpose, or procedures and authorities for the deliberate production of behaviors or specific circumstances (cf. Hug et al., 2007). To what an extent the algorithmic rationality opens up new scopes in this context cannot be answered at this point. The discussion of "generative realities" (Löffler, 2019) as calculated, predictable and controlled realities has only just begun.

Such tendencies can be found in the algorithm-based timing of learning technology and the AI-based production of specific qualification effects. They do not only run counter to the obstinacy of open-ended educational processes. They also contradict education-related uncertainty principles. Furthermore, they correspond with ideas that processes of learning and communication are predictable on the basis of calculations and formally schematized competency elements, without consistently considering the human capacities to differentiate between sense and nonsense, to spontaneously depart from rules in the action process, and to creatively connect *Phantasie und Kalkül* (Schneider, 1992). And what is more, a discomfort with the optimization discourses stems from these discourses' lack of reflection when it comes to the limits of mathematical languages (Frey, 1967), algorithmic rationality (Mersch, 2019), and the computability of the world (Pietsch et al., 2017).

Thesis 3: Misleading metaphors in the approach to AI and robotics contribute more to spreading disorientation and uncertainty than to elucidation

Ever since Haugeland (1985) coined the expression "Good Old-Fashioned AI" (GOFAI), several new approaches have been developed which are concerned with the automation of "intelligent" behavior and machine "learning." In contrast to the top-down programming for specific areas of application on the basis of stored facts and if-then statements, the more recent bottom-up approaches rely on the programming of neural networks and the "learning ability" of technical systems. The technological and commercial breakthroughs achieved with the symbolic AI in the 1980s using expert systems appear extremely modest in comparison with the breakthroughs of neural AI, which mainly operates on the methods of machine learning, deep learning and reinforcement learning. The same applies to "Good Old-Fashioned Robotics" (GOFR) and the developments of WABOT-1, the robot cars of the 1980s, Atlas by Boston Dynamics/Softbank, Sophia by Hanson Robotics, and the countless industrial applications on the basis of intelligent technologies and materials.

Some AI-based technologies, such as commercial language assistance and dialogue systems (for instance Google Assistant, Siri and Alexa) have become popular parts of everyday life in the affluent parts of the world, and depending on the geographical region, robots for cooking, mowing and vacuuming, as well as entertainment robots such as Aibo have been made available. The name for this development by Sony, whose first model ERS 110 was already offered more than twenty years ago, refers to the Japanese word for "partner," on the one hand, and the abbreviation for **A**rtificial **I**ntelligence ro**BO**t, on the other.

Furthermore, there are therapy robots such as Paro, nursing robots such as Terapio or sex robots like Roxxxy, all of which have become familiar sights. In education, the use of robots (cf. for example Lepuschitz et al., 2021) and learning bots – typically in the form of chatbot applications which are specifically programmed for processes of learning and teaching – as well as the application of learning analytics and different types of AI-based adaptive learning environments are currently being intensively tested and developed. These range from well-known flashcard systems to algorithm-based training apps to adaptive learning platforms and tutoring systems. Based on calibrated data models and granularly organized learning and teaching contents, they help shape and control the processes of learning and teaching in a personalized way by means of formative evaluations in regard to subgoals.

This process entails the articulation, explicitly and implicitly, of more or less far-reaching claims of supporting learning processes in an interactive, intelligent and individualized way, and corresponding promises for the future of learning technology.

These promises tie in with well-known machine dreams and historical discourses between the poles of human machines and mechanical humans (Wittig, 1997), which are revived time and again with reference to technological breakthroughs and achievements, as well as through metaphorical expressions. From the metaphorical use of basic terms like "intelligence," "learning," "knowledge" or "communication" to the description of robots as "friend," "study buddy," "coach" or "teaching assistant," countless metaphors are in use (see, for example, https://www.softbankrobotics.com/emea/en/pepper-and-nao-robots-education, https://www.eliasrobot.com/ and https://www.eliasrobot.com/post/elias-robot-for-distance-learning). These metaphors can, depending on the media-cultural context and the social situation of the recipients, raise hopes for increased education equality, flexible lifelong learning or overcoming certain Eurocentric concepts of education, or they tend to trigger fears given the idea of increasingly "smart" learning environments or the idea of AI applications and robots as "full-fledged" protagonists in society making autonomous decisions.

The multiple compatibility of the metaphorical expressions in regard to different application contexts and affirmative and critical discourses boosts not only the highly profitable business with AI applications, but also the spread of images of "digital integration" or inclusion and sociotechnical cohesion. In contrast to the hitherto "cold" machines, the focus is now on the empathic assistance and supervision of processes of learning and communication, as well as on assumptions of "mechanical" responsibility and capacity to act due to a human-like social, emotional and moral intelligence. Many of the individual metaphors can be combined in the metaphorical concept of "artificial companion" (Pfadenhauer, 2018). On the one hand, this opens up illuminating perspectives on fruitful interdependences between partially autonomous humans and machines and on the claim of uncomplicated relationships and pragmatic solutions for human needs which connect humanity, human dignity and versatile algorithmic functionality. On the other hand, the metaphorical concept also contributes to the concealment of perspectives. This concerns the *pars pro toto* character of the contexts of the description, the insufficiently complex approach to questions of responsibility and allocation of responsibility, the industrial and politico-economic interests in rich countries and not least, the "forgotten" experiential contexts which have more to do with artificial stupidity (Ennals, 2016; Falk, 2021) and artificial intimacy (Turkle, 2021) than with artificial intelligence. What is more, the metaphors used in AI and robotics contexts consistently "do something" on their own, so to speak, and are not simply of the conceptual or orienting kind which are processed cognitively, socio-culturally or physically. In this connection, Marianne van den Boomen (2014), following the concept of "material metaphor" (Hayles, 2002), refers to "transcoding metaphors"

which function as translation media between cultural and digital codes. Depending on the context in which they are used, they add considerably to (dis)comfort in the cultures of digitality, but barely to the elucidation of relevant functional contexts and development perspectives.

Thesis 4: In the educational measurement sector, orientations on the common good and sustainability play a minor role

Critical considerations on the commercialization and economization of education may figure significantly in academic discourses (cf. for example Lith, 1985; Reheis, 2004; Radtke, 2009), but not in processes of decision-making in educational policy. Since at least the 1990s, the increasing differentiation and dispersion of practices that quantify and assess "education" have gone hand in hand with an emerging measurement sector whose complexity can easily bear comparison to geodesy. This internationally connected measurement industry is prominently involved in establishing a changed educational setting and global educational governance. The priority held by an orientation on competency and output in the cooperation of education research, education policy and education practice (cf. Kemethofer et al., 2021) is just as conspicuous as the claims of improved quality, increased efficiency and enhanced employability and competitiveness, which are supposed to be "implemented" by means of standardized benchmarks, comparative assessment, new public management, appropriate laws and improved leeway for private enterprise.

To say nothing of the presumptuousness which characterizes some approaches to quantitative-empirical educational research with regard to qualitative-empirical and theoretically motivated studies in education, there is inadequate attention throughout on the limitations of the notably promoted quantification industry, the concurrent fictions of control, and the unintended results the standardization efforts have on micro-, meso- and macro-levels. The mainstream of the educational measurement sector shows a high appreciation for the processes of value creation made possible by digital technologies and the "digital climate change." Welfare orientations matter only secondarily if they come into view at all. The same is true for the elucidating potentials of the ecological paradigms of economy (cf. Common & Stagl, 2007) and critical sustainability research (cf. Blühdorn et al., 2020) for education research and education policy. The rhetoric of sustainability in education policy has been contrasting for decades with the educational policies of non-sustainability, and this has not changed in the digital age of accelerated development in media culture.

The digitalization initiatives in education go hand in hand with developments in the education industry, whose relevance is not consistently accounted for when

it comes to weighing up the cost and value of education (cf. for example Binder & Drerup, 2020). Even if it is inadequate to express across-the-board criticism of data-positivist tendencies in the sense of a "reactionary education-positivism" (Heydorn, 1980, p. 58) in digitalization when we consider available education resources, open source developments in the area of education and post-digital educational cultures of sharing, in recent years we have seen the emergence of globally connected development dynamics essentially characterized by an education-industrial complex (Münch, 2018) which – just like the global education industry as a whole (cf. Verger et al., 2016) – has been researched only rudimentarily. The varied efforts of the "education-industrial complex" (EIC; Picciano, 1994) to influence different education sectors in numerous countries coincide with a non-transparent data economy and a multitude of new business models in digital capitalism. Whenever "common good" and "sustainability" are mentioned in this context, we are dealing with greenwashing and subordinated orientation marks, but not with the overcoming of non-sustainable educational systems, knowledge economies or lifestyles. The question as to what an extent the coming into effect of the draft of a "general data use regulation" (European Commission, 2020a) facilitates sustainable solutions in European education systems, or whether it needs to be seen primarily in the context of policies of non-sustainability, has to remain unanswered.

Thesis 5: Open questions concerning the distribution of responsibility in co-evolutionary human-machine constellations belong to the set of crucial challenges for education research and education practice

In contrast to the open concept of cultural programs (Schmidt, 2015) mentioned at the beginning, some learning-technological positions regard culture as a set of algorithms which allows programming the behavior of everyone participating in the cultural processes (cf. Kulikov & Shirokova, 2021, p. 316): "This type of programming involves collecting and processing data in the same way that computing machines act. In addition, cultural programs work independently from people's intentions" (ibid.). Such techno-deterministic approaches clearly aim at overcoming humanistic traditions of subject-oriented human education (Wiersing, 2001). Then, the question *Should Robots Replace Teachers?* (Selwyn, 2019) is no longer a rhetorical question that prompts a differentiated discussion of human-machine-constellations.

On the other hand, and regardless of the many technological breakthroughs in some areas, no robot and no AI have so far exhibited the ability to universalize their own decisions in the Kantian sense. Neither would the intelligent systems known today pass the "Kant-Test" (Leschke, 2018, p. 93). The lack of normative fundamentals and the incapability for reason in automatized systems also represent

the core arguments made for digital humanism (Nida-Rümelin & Weidenfeld, 2018) and the *Wiener Manifest für Digitalen Humanismus* (Werthner et al., 2019). The recently published declaration of the United Nations (2021) on children's rights in digital environments is also based on similar arguments. The same counts for humane forms of developing human-centered digital technologies as, for example, the recently published declaration of the United Nations (2021) on children's rights in digital environments shows.

As far as issues of media education and media socialization are concerned, these approaches emphasize the goals of media empowerment and the ability to participate critically and reflexively (Boeckmann et al., 1992; Missomelius, 2021; Simanowski, 2018, pp. 198–199), as opposed to the prevalent demands to increasingly promote market-oriented "digital" competencies and technical skills.

However, this does not answer important questions of assigning responsibility in transversally connected media systems. To be sure, the need to develop ethical guidelines for using AI in the contexts of teaching and learning is addressed in the *Digital Education Action Plan 2021–2027* (European Commission 2020b, p. 16). Yet this plan does not outline *how* responsibility could or should be distributed in the pursued "partnerships between educators, the private sector, researchers, municipalities, and public authorities" (ibid., p. 8) in regard to the goal "to make high quality, accessible and inclusive digital education a reality for all" (ibid.).

In the current co-evolutionary human-machine constellations (Faßler, 2011; Lee, 2019), there emerge scopes for development, design and action which go beyond established forms of dialogic or collaborative co-creativity (cf. for example Cizek et al., 2019). There are largely no final answers to questions on how accountability is distributed in the cooperation of partly autonomous humans and machines, which rules and values are relevant, whose authority can hold accountable those who are involved, and which consequences are at stake. What is clear is that questions concerning the attribution of responsibility cannot be adequately answered within the framework of instrumental perspectives and the educational promises of technology (cf. Mansell, 2018). It is equally clear that, considering the co-creative rooms for maneuver and socio-technical processes, a number of scenarios and development perspectives are possible for the education system, and not only the path of innovation that is presented as the only option by the global education industry.

4. Conclusion

Nowadays, digitalization, datafication, AI applications and large data analyses give in many respects both cause for concern, especially as to tendencies of commodification, commercialization, trivialization and privatization, as well as cause for optimism regarding the co-creative advancement and innovative design of educational processes (cf. Beetham & Sharpe, 2020). Although the ICT rhetoric mentioned in the beginning misses the point when it comes to many pedagogical and didactic standards, differentiations in education theory and ideas of the primacy of pedagogy in education, it certainly has not missed out "at school" (Kabaum & Anders, 2020). There it plays a considerable role, not only directly due to digitalization programs in education and the COVID-19-induced development bursts in the global education industry (Williamson & Hogan, 2020), but also indirectly through the enculturation dynamics in the context of digital technologies, the medialization of 'lifeworlds' and not least through processes of "involuntary mediatization" (Adolf, 2014).

The pointed theses mark several fault lines of (dis)comfort in the educational cultures of digitality in an exemplary fashion. It would be possible to argue for additional fault lines: for example, along the various dynamics of physical, technological, social and cognitive mobility; at the interfaces of (post)democracy, technofeudalism and political media literacy; in regard to medial dynamics of inclusion and exclusion; in the context of the different types of massive open online courses (MOOCs); regarding diverse concepts of virtuality and their application in the field of education; or in view of pedagogical-practical applications of behavioral genetics (Kovas et al., 2016). Related arguments are discussed in the contributions of the edited volume on *The Digital Age and Its Discontents* (Stocchetti, 2020). In all cases it can be made evident that the respective fields of phenomena tend to function as sources of comfort or discomfort, depending on the social field and economic situation, pedagogical and political orientation, and media-cultural affiliation.

Thus, (dis)comfort remains ambivalent and inhomogeneously distributed: Some see (media) education and media pedagogy as a whole – or at least its critical and theoretically more ambitious variants – "at the end of their era" and take no significant issue with either "ed-tech speak" or with preferentially considering topics of learning, education, social participation or enculturation in historic-medial contexts to be part of the field of applied information science. Others indicate sources of discomfort in superficial or the biasedly stinted manners of discussing these topics, in the tendency of universities becoming more like universities of

applied science, in the consequences of power-politically cushioned interpretive authorities in the context of grant programs (Altenrath et al., 2020), and in the unilaterally resolved paradoxes of useless usefulness and useful uselessness (Hug et al., 2007).

When the resistance of the well-educated and the intrinsic value of educational processes that are conceived to be free of purpose do not have an effect anymore, there is not only a higher cost of education in the form of social, political and economic follow-up costs but also, decreasing chances for permanently successful processes of transformation.

There is no sound reason to invisibilize the contingency of the medial and digital transformation processes and instead focus on industrially prefabricated paths of innovation. The disciplines of the humanities, social studies and cultural studies can make significant contributions to the differentiated understanding of the manifold interconnections between analog and digital, and point out correspondingly diverse options for design and development. Such contributions concern not least the confluence of analog and digital dimensions as described, for example, in the context of post-digital practices (cf. Bishop et al., 2017; Cramer, 2015), the significance of a typology of "generative realities" (Löffler, 2019) and design theory (cf. Krippendorff, 2011) for educational research and theories of *Bildung* (cf. Siljander et al., 2012), creative linkages between imagination and calculation (cf. Schneider, 1996), as well as the conceptualizations and ethical deliberations regarding options for co-creation in the context of collective media practices that involve humans and non-human systems (cf. Cizek et al., 2019). As for examples and options for design and development beyond industrial or reductionist techno-bureaucratic perspectives, see Pachler et al. (2010), Kukulska-Hulme & Traxler (2020) and Hug (2021a).

As far as the design and development options in the educational system are concerned, there is a demand for educational research which does not remain fixated on German interpretive patterns and European zones of affluence, and which has a blind spot regarding neither media and mediality nor medial forms and digital technologies. Its research results can substantially contribute to a better understanding of the paradoxical constellations of (dis)comfort in the educational cultures of digitality, as well as to addressing successfully the best ways of dealing with them.

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Five Theses on (Dis)Comfort in the Educational Cultures of Digitality

Theo Hug

Tezy o (dys)komforcie w edukacyjnych kulturach cyfryzacji

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

Digitalizacja funkcjonuje w wielu aktualnych dyskusjach jako migotliwa formuła przewodnia nie tylko dla procesów transformacji technologicznej, społecznej i kulturowej w ogóle, ale także dla aktualnych problemów reprodukcji społecznej i przewrotów w sektorze edukacji w szczególności. Z jednej strony, w kulturach edukacyjnych panuje powszechny niepokój związany z cyfrowością; z drugiej strony, obietnice technologii uczenia się przyszłości również promują tendencje do komfortu dla niektórych grup. Opierając się na szerszej perspektywie, która wykracza poza freudowskie rozumienie dyskomfortu w kulturze, niniejszy artykuł stawia pięć tez do dyskusji, z których wszystkie wyznaczają linie błędu (dys)komfortu w edukacyjnych kulturach cyfrowości.

S ł o w a k l u c z o w e: kultura edukacyjna, cyfryzacja, technologiczny solicyzm, retoryka cyfryzacji, uczenie maszynowe, robotyka

Teo Хуг

Тезисы о (дис)комфорте в образовательных культурах цифровизации

А н н о т а ц и я

Во многих современных дискуссиях цифровизация выступает в качестве мерцающей направляющей формулы не только для процессов технологической, социальной и культурной трансформации в целом, но и для актуальных проблем социального воспроизводства и потрясений в образовании в частности. С одной стороны, страх перед цифровизацией широко распространен в образовательных культурах; с другой стороны, обещания будущего в области технологий обучения также способствуют успокаивающим тенденциям среди некоторых групп. Начиная с более широкой перспективы, выходящей за рамки фрейдистского понимания дискомфорта в культуре, статья представляет пять тезисов для обсуждения, каждый из которых обозначает линии разлома (дис)комфорта в образовательных культурах цифровизации.

К л ю ч е в ы е с л о в а: образовательная культура, цифровизация, технологическое решение, риторика цифровизации, машинное обучение, робототехника

Theo Hug

Tesis sobre la (in)comodidad en las culturas educativas de la digitalidad

R e s u m e n

En muchos de los debates actuales, la digitalización funciona como una brillante fórmula orientadora no sólo de los procesos de transformación tecnológica, social y cultural en general, sino también de los actuales problemas de reproducción social y de las convulsiones del sector educativo en particular. Por un lado, existe un malestar generalizado en las culturas educativas de la digitalidad; por otro lado, las promesas tecnológicas de aprendizaje del futuro también promueven tendencias de comodidad para algunos grupos. Partiendo de una perspectiva más amplia que va más allá de la comprensión freudiana del malestar en la cultura, este artículo propone cinco tesis puntuales para el debate, todas las cuales marcan líneas de (des)confort en las culturas educativas de la digitalidad.

P a l a b r a s c l a v e: cultura educativa, digitalización, solucionismo tecnológico, retórica de la digitalización, aprendizaje automático, robótica

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The COVID-19 Impact on Online Education – Opportunities and Challenges in a SWOT Analysis

Abstract

The outcomes of the COVID-19 pandemic are having an impact on all areas, with the educational sector being one of the most impacted sectors to be taken into account. The purpose of this article is to identify the main opportunities and challenges of online education as a result of the COVID-19 pandemic, through a selective bibliography providing advice on information sources, and databases. The research methodology was achieved by performing a systematic literature review of what exists on subject, in order to retrieve the main categories for a SWOT analysis, from the points of view of teachers, students and the parents themselves.

Finally, it attempts to cover the main contributors to the study domain. For each weakness and challenge, teachers and students can create an opportunity in online learning.

The authors also have seen that this type of education is providing a great environment for learning innovation and to face-to-face teaching.

K e y w o r d s: Online Education; COVID-19; SWOT; Opportunities; Challenges

Introduction

The impact of the COVID-19 pandemic on the lives of people is essentially translated into an increase of anxiety, an adoption of new habits and a loss of optimism. In education, we realize a significant change in the routines of students, teachers and parents (Kushni et al., 2020).

We can actually see an articulation between education and family, where the digital network is the platform that supports it due to school closures. So, they should all be prepared to face new challenges by adapting a new strategy according to learners.

On student´s perspective, we can see a reluctance in online learning as they do not feel that this type of education is suited to their needs (Almaiah, Al-Khasawneh & Althunibat, 2020).

Regarding the teacher's perspective, we understand a dedication in the exploration of new tools for education and instruction that would provide development in their teaching careers (Escobar & Morrison, 2020). Also, this pandemic has created the background to new developments on the sustainable progress of higher education in the case of the individual and collective actors, as the stakeholders in education (Sá & Serpa, 2020).

Essentially, we should distinguish in what ways this pandemic changed educational paradigms. As we have seen, resulting from the lockdowns, many educational institutions have had to change their learning methods as this process is to be conducted at home. So, a new online educational environment appeared, modifying the interaction between students and teachers.

The main subject of the article is the research engaged in a SWOT analysis of topmost opportunities and challenges of COVID-19 and bringing their impact on education, as the upsurge of distance learning commenced and has, at present, yet to abate. The non-academic debate on this matter is intense, but there is a gap in the theoretical analysis that the authors are attempting to fill by performing a systematic literature review of what exists on subject, with the main goal to partially fill a gap in the scientific body of knowledge on the subject.

Problem Statement

The impact of COVID-19 in education are not yet fully understood (eLearning Inside, 2021; Zhao & Watterston, 2021). Moreover, this article focuses on the re-

search of this impact which has not yet been developed and will be summarized in a SWOT analysis.

Many people are taking advantage of this unique opportunity to implement innovative changes in education (Bird & Bhardwaj, 2020). As we can see, although there is a lot of information about the opportunities and weaknesses of education in the face of COVID-19, there is a lack of selected research to get to the core of strategic issues.

The main research questions that this article addresses are to help us provide a better understanding of how we can provide a better understanding of:

1. the current challenges for education facing this pandemic (Piotrowski & King, 2020; Openo, 2020; Longhurst et al, 2020; Dias et al, 2020; Cheng, 2020; Almaiah et al, 2020);
2. which opportunities are provided by COVID-19 in education (Yang & Huang, 2020; Reis & Grady, 2020; Adedoyin & Soykan, 2020);
3. the major challenges that online education is facing (Smith, 2020; Resnick et al, 2020; Beech & Anseel, 2020);
4. and strengths that can provide opportunities by this condition (Sá & Serpa, 2020; Milovanovic et al, 2020; Hut et al, 2020; Brammer & Clark, 2020; Bodenheimer & Leidenberger, 2020; Bird & Bhardwaj, 2020; Alim et al, 2020).

An attempt is made to define what characteristics each author gives to the subject, selecting them by the questions described above, with the aim of developing and dividing the information with a SWOT analysis.

Finally, this article intends to divide and select the amount of information on this subject into more workable subdivisions, covering the research gap and providing a body of knowledge for the forthcoming research.

Research Methodology

In order to conceive a better understanding in the field of challenges and opportunities of COVID-19 in education, the authors conducted a systematic literature review (Rajendran et al., 2020; Kitchenham & Charters, 2007), followed the PRISMA framework (Preferred Reporting Items for Systematic reviews and Meta-Analyses), and selected databases (e.g. B-ON Collections (https://www.b-on.pt/en/collections/#Contents)).

Despite the fact that systematic reviews were developed within medical science as a way to synthesize research results in a transparent and reproducible

method, it could be defined as a research method. In fact, it includes the process to identify and critically evaluate relevant research, and to collect and analyze data from that research in order to identify all empirical evidence that matches predefined inclusion criteria to answer a specific research question or hypothesis (Snyder, 2019).

This research method intends to summarize the numerous researches on this study. It is supposed to establish a summary measure of the impact of the studies, based on the assumptions created by the findings (Hammersley, 2020).

The main goal of this review is to identify key frameworks, in theoretical and/or methodological terms, or to highlight the gaps in the literature or questions to be addressed, rather than to establish the answer to a specific research question (Hammersley, 2020). In some cases, a research question requires a more extensive data collection. In such instances, an integrative research can be useful when the aim of the review is not to cover all articles ever published about the subject, but to match up the different perspectives to create new theoretical models (Snyder, 2019).

Finally, this is a way to complete a body of knowledge, which uses a clear definition of methodology to identify, analyze and interpret all possible findings of a specific research question (Tranfield, Denyer and Smart, 2003). The main goal is to summarize and provide the background of the challenges, threats, strengths and opportunities of the impact of COVID-19 in online education.

Some steps need to be followed and action taken to ensure the review is accurate, precise, and trustworthy (Snyder, 2019).

A strict review must be systematic in a further methodological approach, explicit in explaining the procedures by which it was conducted, comprehensive in its scope of including all relevant material, and hence reproducible by others who would follow the same approach in reviewing the topic (Okoli and Schabram, 2010).

Hence, Okoli (2015) suggest an eight-step guide to conducting a systematic literature review; by (1) identify the purpose, (2) draft protocol and train the team (planning), (3) apply practical screen, (4) search for literature (selection), (5) extract data, (6) appraise quality (extraction), (7) synthesize studies, (8) write the review (execution); and we attempt to follow these guidelines, as described below:

The authors focused on keywords *Education; COVID-19; Opportunities; Challenge and Teaching.*

The chosen database was B-On[1], and limitations were used to the searched disciplines (since the main theme is education and COVID-19, it would make sense

[1] (the online knowledge library), that has full texts from over 16,750 scientific international publications from 16 publishers.

to bound the subject areas within the related themes as *Education*, *Information Technology*, *Social Sciences & Humanities*, *Social Work* and *Sociology*); to a time-span (as the coronavirus was identified in 2019 (WHO, 2020), the selected timeline in the research engine was from 2019 until the current date – 2021).

The articles searched by the authors were also only peer reviewed and with full text only, as we limited the search to academic journals.

The selection by the authors was made by only choosing the articles that were related to the pandemic COVID-19 and the ones that seem more relevant to the issue. This selection was also made after eliminating identical results.

Table 1
Search equations

Search Equation	Results	Selection
education *and* COVID-19	4.136	8
education *and* opportunities	18.270	8
education *and* challenges	23.300	10
education *and* teaching	70.919	6
COVID-19 *and* oopportunities	1.129	3
COVID-19 *and* challenges	2.312	2
COVID-19 *and* teaching	1.416	3
opportunities *and* challenges	9.609	2
opportunities *and* teaching	6.776	2
challenges *and* teaching	8.640	1
Totals	146.507	45

Note: Own elaboration.

As we can see, there are numerous articles referring to the research, which is why it is important to select and distinguish the articles from approaches.

As we could see from the research, some authors advocated the advantages of online learning (Resnick et al., 2020; Xie et al., 2020; Hut et al., 2020), from the perspective of students in online education (Kushni et al., 2020; Bayram, 2020; Brammer & Clark, 2020; Beech & Anseel, 2020; Xie et al., 2020; Reis & Grady, 2020).

The barriers to students with special needs (Smith, 2020) are an issue that deserves to be mentioned as it is a major challenge to online education.

The articles also focused on the perspective of educators to this pandemic and how they are dealing with the new ways of teaching. Some of the authors focused

on sports education (Hodges & Martin, 2020), chemistry (Huang, 2020; Aydemir & Ulusu, 2020), higher education (Molchanova et al., 2020; Kamsker et al., 2020; Piotrowski & King, 2020), management education (Beech & Anseel, 2020; Brammer & Clark, 2020) and doctoral research (Aydemir & Ulusu, 2020; Reis & Grady, 2020), to research the impact of these new ways.

Besides analyzing the challenges and the opportunities in virtual education (Escobar & Morrison, 2020; Molchanova et al., 2020; Adedoyin & Soykan, 2020), they researched how to improve the methods of distance learning (Yang & Huang, 2020; Milovanovic et al., 2020).

The sustainability in education in the face of the pandemic is viewed as an opportunity (Sa & Serpa, 2020; Milovanovic et al., 2020; Bodenheimer & Leidenberger, 2020), or a strategy of education (Zhao et al., 2020; Govender et al., 2020; Resnick et al., 2020), and as the measures and politics to fight against the COVID-19 pandemic in the institutions (Yang & Huang, 2020; Longhurst et al., 2020; Cheng, 2020; Govender et al., 2020; Hodges & Martin, 2020).

As far as the future of online education after COVID-19 is concerned, it is very important to know how the educational atmosphere is going to change, and what are the opportunities hidden behind the pandemic. This subject is explored in many articles, e.g.: (Dobrila, 2020; Piotrowski & King, 2020; Alsheikhidris, 2020; Dias et al., 2020; Openo, 2020; Crosby et al., 2020; Tseng & Chen, 2020; He et al., 2021).

To identify the threats and weaknesses in the subject, we selected the articles that pointed to all the external environmental factors of the subject, like:

- political factors – (Bird & Bharwaj, 2020; Longhurst et al., 2020);
- economic factors – (Beech & Anseel, 2020);
- social factors – (Bayram, 2020; Milovanovic et al., 2020; Tseng & Chen, 2020);
- technological factors – (Hodges et al., 2020; Resnick et al., 2020; Smith, 2020; Xie et al., 2020; He et al., 2021);
- environmental factors – (Adedoyin & Soykan, 2020; Alim et al., 2020);
- legal factors – (Cheng, 2020).

Strengths

The time of quarantine, if managed effectively, could be an advantage for all interested parties. For PhD students, for example, reading books, developing new experiments, analyzing and writing items from previous investigations, producing papers and expanding their scientific horizons can turn this pandemic into a chance to increase their career (Aydemir & Ulusu, 2020).

This period can be used to spend more time with their family, which, combined with their educational subject, is a strengthening university-school-family partnership (Hodges & Martin, 2020).

We can see some advantages in the use of online learning, like the flexibility of time and place on various platforms (Kushni et al., 2020), and the reduced cost of learning activities. This can lead to a significant innovation in the universities regarding the practices and schedules of academic control (Brammer & Clark, 2020).

Xie et al (2020) lists some of advantages of online education:

1) flexibility;
2) information accessibility;
3) global reach;
4) equity;
5) innovation;
6) efficiency.

So, online education has many strengths to take advantage of, especially if combined with face-to-face education. It is important to know how to capitalize on all the resources that this type of education can offer.

Weaknesses

As can be seen from previous texts, some disadvantages in online education reflect that many teachers were not yet familiarized with online learning, which implies that this kind of learning is not still in line with the student's expectations, and they do not agree that online learning is an effective effect of increasing their knowledge (Kushni et al., 2020).

As we can see in the survey by Kushni et al (2020), only 28,02% of students agree about how to continue using online learning from the aspects of feeling comfortable, being used continuously in future, feeling happy, creating enthusiasm and being motivated in learning.

Other surveys consider the distance education method in university as a hard and distressing process (31,37% of respondents), (Bayram, 2020).

In the results, both parts value that they could adjust to different environments, ambiguous situations, solve difficulties, learn from experience and have a positive perspective from the results of the COVID-19 quarantines (Escobar & Morrison, 2020).

Other weaknesses can be the trauma associated with the loss of social networks among students (Hodges & Martin, 2020), or the reduction of the quality of the student experience as consequence of online teaching (Beech & Anseel, 2020).

A loss of publication outcomes for academics was noticed, as a reduction of conferences and group meetings occurred because of the lockdowns associated with the pandemic (Beech & Anseel, 2020). This aspect could be seen as a lack of a sense of fitting in and connectedness due to the presence of distractions and to a lack of commitment (Xie et al., 2020).

This author also introduces some of the threats in online education:

1. network instability and technological constraints;
2. lack of a sense of belonging and connectedness;
3. presence of distractions;
4. lack of engagement.

There are some visible weaknesses referred to online education that could be transformed into opportunities to create new and different strategies of education.

Opportunities

This pandemic creates new opportunities and challenges, and researchers could embrace this by 1) providing models to adapt to the new changes, 2) reconsidering the process of the digital renovation of institutions, 3) creating news and more personalized online learning models, 4) adapting new models so they can reduce the workload on the instructors, 5) recreating the learning process (Adedoyin & Soykan, 2020).

This scenario also provided a chance to expand "traditional professional knowledge and skills developed in ITE programs", a new approach of teaching, and a way that teachers can optimize, develop, strengthen and complement the abilities of face-to-face planning (Escobar & Morrison, 2020) with technology. With this in mind, building a training system of information, which is a good opportunity to improve online education, and educators could provide accessibility to all students in an educational online environment. This approachability could be prepared by incorporating academic content in other alternatives like public television, radio and podcasts.

From a teacher's perspective, we can see an increase in the use of digital platforms, like interactive meeting tools – Zoom, Skype, Google Meet or Microsoft Teams. We could see that lecturers are continuing to support their teaching by using these online method tools, creating a reciprocally beneficial atmosphere to all stakeholders (Hodges & Martin, 2020). The fact of having to know how to deal with new tools and new IT (information technology) software that they have not been acquainted with before was a "learning opportunity", boosting them to get out of the comfort zone (Escobar & Morrison, 2020).

Regarding the students, a prospect to develop new online resources was highlighted by 71% of universities and 50% of academic collaboration (Longhurst et al., 2020).

The pandemic is a good opportunity to ensure that students with special needs have access to all educational opportunities during the pandemic, and that more consistent guidance to special educational services was provided (Smith, 2020).

Providing education concerning emergencies could be a good opportunity to face this pandemic and minimize the impact of disasters or situations like this in the future. This type of education (like disaster simulations, preparedness, seminars about the subject and training) could help to minimize the impact of a disaster and will help students comprehend the course of mitigation and recuperation.

Training and teaching people to deal with disasters is an opportunity to be considered as an effective guidance that can prevent from or reduce the consequences of some disasters, and people with knowledge can better protect themselves and others (Alim et al., 2020).

To researchers that understand the recurrence of the disaster, exploring the crisis implications, evaluating the impacts, highlighting the financial consequences of this pandemic and how they might be mitigated, and modelling the development of policy interventions are important aspects to ascertain its impact (Brammer & Clark, 2020).

To better protect and to promote the health of people, institutions should exploit this moment to increase education in public health with the aim to "improve our educational effectiveness and lead the charge in shaping future public health leaders" (Resnick et al., 2020).

Other opportunities as the 1) flexibility, 2) interactivity, 3) self-pacing and 4) engagement of the major stakeholders in education can create an innovative market for instructional release (Adedoyin & Soykan, 2020), and accelerate the globalization of higher education, including the improvement of online education into an education at a lower cost (Yang & Huang, 2020).

Threats

As we know, distance learning will not appear to be as effective as face-to-face learning.

One of the challenges of online learning during the COVID-19 pandemic is the ability to use technology to improve the quality of online learning, addressed to teachers and aimed at making turn learning media more interactive, (Kushni et al., 2020).

Other challenges that we can highlight is the lack of practice in online training, the unreadiness of teachers in the virtual education program and the absence of experts from both sides (Escobar & Morrison, 2020).

Adedoyin & Soykan (2020) appointed other factors related to 1) technology (where they explain that if online learning is totally related to technological equipment it can be a serious problem if the Internet, technological devices or the access does not work perfectly), 2) socio-economic factors (inequality of socio-economic status or poverty have an impact on the fact that a student can afford a good broadband connection or good technological equipment which implicates an additional challenge to other students/teachers), 3) human and pets' intrusions (any interruption by another human or pets during online education affects the learning process as well as for other students and/or teachers), 4) digital competence (knowledge and skills of how to deal with efficiency and competence with online devices is a challenge for online learning), 5) assessment and supervision (the fact that there is a lack of supervision and lack of assessment to measure learning activities that can directly disturb the learning process), 6) a too heavy workload (the loads of emails and the amount of irrelevant information causes unforeseen financial and time costs, as stress to the students), 7) compatibility (some disciplines like sports sciences, engineering and medical sciences incompatible with online learning, which creates a challenge to education in the face of this pandemic).

To combat this pandemic, some universities (as we can see the case of Tsinghua University, for example) apply measures to fight against the threat of COVID-19, like establishing a skeletal workforce, postponing the opening of the university, starting to operate with online teaching and learning and providing clear communication between students and teachers. These measures provided a reduced uncertainty for educational institutions, and they transformed the crisis into an opportunity to develop education (Yang & Huang, 2020).

On the other hand, 57% of universities highlight the time investment associated with the development of new resources to replace lectures and practical classes (Longhurst et al., 2020).

SWOT analysis

In order to synthesize, identify and prioritize the main strengths, weaknesses, opportunities and threats of online education and to offer an answer to problem questions, the authors developed a SWOT analysis to provide a body of knowledge focusing on a strategic planning process. This analysis is extremely useful for understanding the literature review, and creating a structure with the most crucial points that influence the improvement on this new type of education.

In the figure below, the authors present a SWOT analysis containing the strengths, weaknesses, opportunities and threats of online education as a consequence of the COVID-19 pandemic.

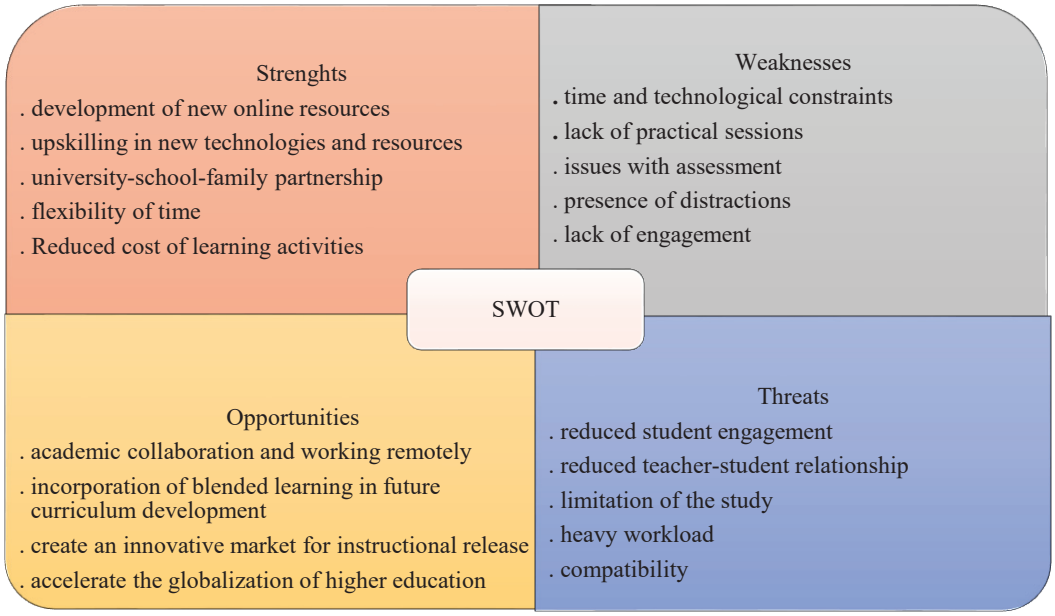

Figure 1. SWOT Analysis
N o t e: Own development.

The presented analysis was an outcome of the strengths, weaknesses, opportunities and threats presented above.

According to the literature review, the topmost strengths of online education are related to economic, temporal and social factors (like the reduced cost of learning activities, the flexibility of time spent and the partnership with university-school-family), and many of these opportunities are associated with technology and innovation (as we can see that to improve online learning, we have to deal with a better technology, and to create a new industry for this type of education, we need to create new strategies and new methods for innovation).

On the other hand, weaknesses are related to technological constraints (like opportunities, because there is a chance to improve), and to social factors (when we have to learn in our home, the environment where we live starts to increase in importance). The threats for online education, as can be seen from the literature review, are related to technological problems (a too heavy workload), social factors (reduced teacher-student relationship and reduced student engagement), and the compatibility of certain disciplines, certain courses or certain types of teaching (for example, disciplines of physics, sports and laboratorial experiments are very hard to conduct online. Some courses, like medicine and sports or certain types of teaching, like those methods associated with students with special needs have

become almost impossible to do behind a screen, or without the support of family members).

So, online education, as a part of reducing the cost of the delivery of educational services and operations, can provide the background for the creation and discovery of knowledge, sharing of ideas, combined learning and prompt innovation in research (Xie et al., 2020).

Conclusions

The COVID-19 pandemic and the resulting quarantine has changed the face of modern education, turning technologies into a more viable way of teaching. For that reason, there are some different viewpoints and some challenges to face.

Clearly, online education is a viable way for students to explore a greater set of information than they have in face-to-face classes.

The SWOT analysis reports useful issues regarding the amount of quality information about the team. This report identifies the most important points in the literature review, as well as the main opportunities, challenges, strengths and weaknesses provided by the body of existing knowledge.

The authors selected the data from articles regarding Education, COVID-19, Opportunities, Challenges, Teaching and Students, to conclude the main opportunities, challenges, strengths and weaknesses in the online learning environment as presented in the SWOT analysis.

From the perspective of PhD students, the time of the quarantine served to improve their scientific horizons. However, we could also see from the authors that there has been a decrease of academic publications and conferences.

Another issue that concerns the authors is the online teaching of students with special needs, as this type of education is exceedingly difficult without help.

Concerning several disciplines, some authors have shown that dealing with disasters could be a great warning to provide education during these types of emergencies.

Regarding the perspective of education, we saw two different points of view from different authors. The point of view of the students, defended the idea that online learning is a strengthening of the university-school-family partnership, an opportunity to increase their career, and that they have more time for themselves and their family.

On the other hand, this type of education is not in line with their expectations due to the teacher´s lack of competences in this new way of teaching, the problems

with technological devices (crucial in online learning), and the presence of disturbances while they are learning.

Many of them consider developing new online resources essential.

Teacher´s perspective is in agreement with university-school-family partnership as the flexibility of time provided by online education.

They also admit that they stepped out of their comfort zone, by increasing the use of technological equipment in their learning methods.

On the other hand, they agree with the students that there was a major challenge in dealing with the technological equipment, and that could affect the quality of online learning.

Through online teaching, they claim that it became quite difficult to supervise and monitor the students' progress.

Finally, it is up to the teachers to take advantage of the opportunities of this type of instruction, however, the family needs to provide the right environment for the student to learn.

Recommendations

As we established during the study, the collected information was very extensive, even without so much of technological advancement. Most of it was not applicable to smaller countries or developing countries. One of the possible recommendations is to adapt the study to specific locations and tools. It would be interesting to verify which are the threats and opportunities of education in each country in the face of the COVID-19 pandemic, as well as its evolution.

The university-school-family partnerships influences this topic greatly, so a more in-depth study on the subject would be recommended.

Limitations

As we could see, the amount of information was the background of this study. This theme contains such a load of content and articles that it was difficult to select the most suitable information. A limitation on this study was needed to fill the database to make the information fit within the framework of the article's opportunities, threats, strengths and challenges.

Regarding the systematic review, one of the limitations is the fact that the target is the definition of the key literature instead of the result of a detailed study (Hammersley, 2020).

Future research

It has become important to rethink education to face this pandemic. The strategies and tools we are learning to use can help transform our schools into flexible

hubs that use a variety of methods and strategies to meet the needs of all students (Bird & Bhardwaj, 2020).

The contribution of this study was to inform the right materials future researchers could work with if they wanted to specifically examine the opportunities, challenges, threats and strengths of this subject.

Having provided the right framework, it will be worthy to deepen the studies in question, and may, in a future research project, focus on topics such as sustainability, digital transformation, and the transformations that will occur as a result of the use of each of these interlinked aspects.

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The COVID-19 impact on online education – opportunities and challenges in a SWOT analysis

Ana Cristina Matoso Bento Saraiva, Nuno Sotero Alves Silva

Uwarunkowania oddziaływania COVID-19 na edukację online – szanse i wyzwania w analizie SWOT

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

Rezultaty pandemii COVID-19 warunkują oddziaływaniena wszystkie obszary, przy czym sektor edukacyjny jest jednym z najbardziej dotkniętych sektorów, które należy wziąć pod uwagę. Celem niniejszego artykułu jest zidentyfikowanie głównych możliwości i wyzwań edukacji online w wyniku pandemii COVID-19, poprzez selektywną bibliografię zawierającą wskazówki dotyczące źródeł informacji i baz danych. Metodologia badań została osiągnięta poprzez dokonanie systematycznego przeglądu literatury przedmiotu, w celu wyłonienia głównych kategorii do analizy SWOT, z punktu widzenia nauczycieli, uczniów i rodziców.

Wreszcie, próbuje się objąć główne czynniki przyczyniające się do dziedziny z badania tematu badawczego. Dla każdej słabości i wyzwania, nauczyciele i uczniowie mogą stworzyć szansę w nauczaniu online.

Autorzy zauważyli również, że ten rodzaj edukacji zapewnia doskonałe środowisko dla innowacji w nauczaniu i jest doskonałym uzupełnieniem nauczania twarzą w twarz.

S ł o w a k l u c z o w e: Edukacja online; COVID-19; SWOT; Szanse; Wyzwania

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Обусловливание воздействия COVID-19 на образование онлайн – возможности и проблемы в рамках анализа SWOT

Р е з ю м е

Результаты пандемии COVID-19 обусловливают воздействие на все сферы, при этом образовательный сектор является одним из наиболее пострадавших секторов, на которые следует обратить внимание. Цель данной статьи – определить основные возможности и проблемы онлайн-образования в результате пандемии COVID-19 с помощью выборочной библиографии, содержащей рекомендации по источникам информации и базам данных. Методология исследования была достигнута путем проведения систематического обзора литературы по теме, чтобы извлечь основные категории для SWOT-анализа с точки зрения преподавателей, студентов и родителей.

Наконец, в исследовании предпринята попытка охватить основные факторы, способствующие изучению темы исследования. Для каждой слабости и проблемы учителя и ученики могут создать возможность в онлайн-обучении.

Авторы также убедились в том, что этот вид образования создает прекрасную среду для инноваций в обучении и является отличным дополнением к очному обучению.

К л ю ч е в ы е с л о в а: Он-лайн образование; COVID-19; SWOT; Возможности; Вызовы

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COVID-19 impacto en la educación en línea – Oportunidades y desafíos en un análisis SWOT

S u m a r i o

Los resultados de la pandemia de COVID-19 están teniendo un impacto en todas las áreas, siendo el sector educativo uno de los más impactados a tener en cuenta. El propósito de este artículo es identificar las principales oportunidades y desafíos de la educación en línea como resultado de la pandemia de COVID-19, a través de una bibliografía selectiva que proporciona asesoramiento sobre fuentes de información, y bases de datos. La metodología de la investigación se logró realizando una revisión bibliográfica sistemática de lo que existe sobre el tema, para recuperar las principales categorías para un análisis DAFO, desde los puntos de vista de los profesores, los alumnos y los propios padres.

Finalmente, se intenta abarcar los principales contribuyentes al dominio con un estudio del tema de investigación. Para cada debilidad y desafío, los profesores y alumnos pueden crear una oportunidad en el aprendizaje en línea.

Los autores también han visto que este tipo de educación está proporcionando un gran entorno para la innovación en el aprendizaje y es un gran complemento a la enseñanza presencial.

P a l a b r a s c l a v e: Educación en línea; COVID-19; SWOT; Oportunidades; Retos

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Adult Students' Attitudes Towards Distance Learning During the SARS-Co-V-2 Virus Pandemic

Abstract

The article is a study report on distance learning during the SARS-Co-V-2 virus pandemic, conducted among postsecondary school students. The subject of the study was the opinions of postsecondary school students about distance learning. The research was diagnostic in nature, and the method of a diagnostic poll with survey technique was used. The author's survey was sent to 85 students of post-secondary schools in the Opole voivodship (Poland). As a result of the study, an average level of satisfaction, degree of motivation and involvement in self-learning by the respondents was determined, as well as an average evaluation of the level of effectiveness of learning conducted in that form. The respondents indicated both the positive and negative aspects of distance learning. The first group comprised mainly aspects related to saving time, money and the flexibility of this form of learning, while the other group included aspects of a social and health nature, related to shortcomings in self-study and evaluation of the learning process.

K e y w o r d s: distance learning, adult education, SARS-Co-V-2 virus pandemic

Introduction

Education is the key to personal development and the future of societies. The Constitution of the Republic of Poland guarantees everyone the right to education. The manner of exercising this right is specified in the Act (the Act of 14 December 2016 Education Law, Journal of Laws of 2020, items 910 and 1378 and of 2021, items 4, 619 and 762). The Sejm/national legislature decides on the organization of the education system, and it is the task of the government and local authorities to implement the provisions and enforce those provisions to fulfil the promise of compulsory education. At the same time, the legislature enables the executive branch to introduce temporary restrictions in traditional forms of education.

In cases justified by extraordinary circumstances that threaten the life or health of children and youth, the minister responsible for education and upbringing, by means of an ordinance, may temporarily limit or temporarily suspend the functioning of educational system units in the territory of the country or part of it. The suspension of schools' activity, which translates into the implementation of rights and obligations in the field of education, is transitional. Its duration is left to the discretion of the minister, and so is the decision to restore the normal functioning of schools. The outbreak of the pandemic triggered by the SARS-CoV-2 virus, which causes the COVID-19 disease, in March 2020 led to the closure of schools. Never before have we had such great confusion in the field of education as we do during the COVID-19 pandemic. Overnight, everyone involved in the education process: students, parents, teachers, school principals and educational authorities, found themselves in an unprecedented situation. Suddenly, it turned out that the process of institutional education, from educational institutions of various types, somehow moved to the virtual reality of the Internet. The "era" of distance learning, which, just a few weeks earlier, was only an option that teachers could use in the scope of their choice, have become and suddenly turned out to be a necessity and is now the dominant/only available method of conducting educational activities. Jacek Pyżalski rightly noticed that in the "new" conditions, distance learning became a kind of compulsion, which meant that regardless of the possibilities, competences and willingness, this solution must be used by everyone, not only by those who want to and can (Pyżalski, 2020, p. 2 and 9). Distance learning is a challenge for most students, but also for teachers, especially since not everyone feels sufficiently prepared for this form of education.

This article is part of the increasingly heated discussion about distance learning during the pandemic. The research on this topic seems to be a priority in the face of the change that has been and still is total.

The article consists of three integrally related parts: a methodological one, presenting the results of research aimed at identifying the opinions of students of postsecondary schools on distance learning and a conclusion in which the author shows the conclusions and postulates, formulated on the basis of the results obtained during the research.

Author's research methodology

The research presented in this article is a part of a broader comparative study covering different age groups in the Silesian, Opole and Lesser Poland Voivodeships. This article covers a strand concerning the opinions expressed by postsecondary school students on distance learning. It attempts to answer the main question: *What are the opinions of postsecondary school students on distance education?*, as well as the corresponding specific questions, such as:

1. *How satisfied do postsecondary students feel with distance learning?*
2. *What is the degree of motivation for distance learning in the respondents' self-assessment?*
3. *How do respondents assess their own level of involvement in distance learning?*
4. *What opinions do respondents have on the level of effectiveness of distance learning?*
5. *What are the positive and negative aspects of distance learning in the light of the opinions expressed by respondents?*

The research was quantitative and diagnostic in nature and was conducted in February and March 2021. The research used the survey method (Palka, 2006, p. 49), within which the author constructed the survey questionnaire, which consisted of two main parts. The first part included questions on the sense of satisfaction, motivation and involvement in the learning process and the effectiveness of learning in a distance form. The questions had the form of a five-point adjectival scale, where 1 meant very low, 2 – low, 3 – medium, 4 – high, 5 – a very high level of intensity of the given characteristic. In the second part of the survey, the author asked three open questions about the positive and negative aspects of distance learning, and respondents were asked to provide some data about themselves.

The survey was addressed to 85 people, who are students of four postsecondary schools: Vademecum Postsecondary School for Adults and Pascal Postsecondary Schools Complex in Nysa, Medical Schools Complex in Brzeg and Medical Schools Complex in Prudnik.

The respondents' group was mostly composed of women (89.4%), while men accounted for 10.6% of the examined population. Most of the respondents had a secondary education background (79%), whereas 21% of them had a university degree. The presented structure of the respondents' group results from the specificity of the Polish post-secondary education system. It is classified as secondary education and it may be conducted by central administration units, local government units, social, and religious organisations, associations and natural persons. The condition of admission to a post-secondary school is to have a secondary education (the *Matura*, i.e., the secondary school exit exam diploma, is not required).

Post-secondary schools allow persons with at least a secondary education background to obtain a diploma confirming their professional qualifications after passing the relevant examinations before district examination boards.

Education in post-secondary schools lasts from 1 to 2.5 years.

Post-secondary schools in Poland provide education in over twenty fields, and the most popular ones are economics, administration, medical, communal and IT services, e.g., a healthcare assistant, an occupational therapist, a dental assistant, a medical sterilisation technician, an administration technician, or an occupational health and safety technician.

Women account for the majority of post-secondary school students, which is also reflected in the examined population.

Education in a post-secondary school does not rule out professional activity, therefore the vast majority of the respondents' group were professionally active persons (66% of all respondents).

The majority of respondents live in urban areas and are in relationships (marriage or in a partnership) and have children (51% of the total surveyed population), mostly of school age.

Let us now proceed to present – by necessity in a synthetic manner – the results obtained in the research.

Opinions expressed by students of postsecondary schools on distance learning Presentation of research results

In the first part of the study, an attempt was made to determine the respondents' level of satisfaction with distance learning, their level of motivation to learn, their level of involvement in the learning process carried out online, as well as to find

out the respondents' opinions on the degree of effectiveness of distance learning. For this purpose, a survey questionnaire was used, which, as already mentioned, contained questions in the form of a five-point adjective scale. Using quantification methods, namely scoring, the essence of which is to subjectively assign an appropriate number of points to each category, the points (or scale grades) were added up separately for each question. A maximum of 5 points could be obtained for each question. Taking into account a different method of quantification: ordinal evaluation, point ranges were established for the three levels of the diagnosed variables: high from 4 to 5 points; medium – 3 points; low from 1 to 2 points. In order to compare the results, arithmetic averages were additionally calculated for each of the examined variables. First of all, Figure 1 presents the results of the research on the respondents' level of satisfaction with online learning, their declared level of motivation to learn in this form, their self-assessment of their involvement in the learning process and their evaluation of the effectiveness of distance education.

When analysing the data in Figure 1, we can see a similar distribution of results for all the compared variables. The surveyed group is dominated by a high and medium level of satisfaction with distance learning and positive opinions on the effectiveness of this type of education prevail. Moreover, the respondents assessed their involvement in learning, as well as motivation to learn on the same level, but in the latter case a slightly higher proportion of respondents who admitted that their motivation to distance learning is low was noted. However, it is difficult to assess whether the low level of motivation is related to the specifics of distance learning or whether it is a matter of motivation to learn in general. The results obtained in the second part of the questionnaire helped to illustrate this issue a little better. Before we move on to them, let us see the arithmetic averages for all the variables examined, which complete the picture of the results obtained in the study and reveal the central tendency occurring in them (Figure 2).

Taking into account the arithmetic averages for all diagnosed variables, it can be concluded that they reach similar values, falling within the range of 3.5 – 3.7. None of the values exceeded 4.0. Therefore, it can be considered a slightly higher than an average level of saturation of the diagnosed characteristics in the studied group.

The second part of the survey questionnaire contained open questions that allowed us to identify the respondents' opinions on distance learning. The obtained research material was categorised, distinguishing the main categories of positive and negative aspects of this form of education. Within the positive aspects, the respondents firstly appreciated saving time and money ("*you do not have to commute to classes", "you can save on tickets and fuel", "you do not have to waste time on make-up or hairstyle, special clothes and it is great"*), the possibility of a flexible time schedule, allowing the reconciliation of home, work and school

duties, as well as for the implementation of other objectives important to the respondents (*"it is amazing that you can listen to a lecture and cook at the same time, for example, or clean, take care of your children", "more than once I took part in classes while being at work, with normal education this would not be possible at all", "the good thing is that you can have the camera and microphone turned off, you can basically take part in classes anywhere, even at the hair salon"*). Research participants also pointed out the positive, from a didactic point of view, aspects of distance learning, mainly related to the implementation of the principle of accessibility (*"the possibility of using various presentations, applications helpful in learning the profession, printing out various materials", "in many classes we had convenient access to materials, learning was easier thanks to this")* and pleasure (*"during classes there was always a nice atmosphere", "usually it was nice during classes, there was no stressful atmosphere"*). In the opinion of some respondents, distance education resulted in an increase of their IT skills, e.g., they learned how to use the Teams application, which was associated with positive emotions and increased self-efficacy. An interesting theme appeared in the statements of a few respondents and concerned a specific kind of feeling of security associated with *"being behind the camera"*.

Among the negative aspects of distance learning were mostly those of a social nature, many respondents were disturbed by the lack of interpersonal contacts, both with the teacher and with other students in the group. In this category, there were statements indicating low mood, pessimistic thoughts, feelings of alienation and even hopelessness: *"…in the beginning it was even good, all this education at home, more opportunities, but in the long run a person lacks contact with another living person. A computer cannot replace that. Even the fact that you can dress nicely, put on make-up and feel special is important. And then… there's no telling, the cameras are turned off, everything is just shoddy…"*. This state was additionally exacerbated by isolation, which also affected other spheres of life, which is perhaps why some respondents said outright that such a situation, including distance learning, was not conducive to mental health. Unfortunately, a deterioration of physical health was also observed, which was mainly related to too much time spent in front of the computer (classes until late in the evening, additional online consultations, *"extending" the class time by the teacher – taking away the students' break"*, doing all the tasks, homework ordered by the teacher on the computer). The respondents complained about general fatigue, eye pain (deterioration of eyesight), back pain, headaches and even nausea when having to *"sit in front of the computer"* all day. Only in two cases there were references to ways of coping with these negative aspects in the form of incorporating special exercises for the lumbar spine or using glasses for working on the computer, which does not mean that other people did not take any remedial measures to improve

their well-being and health. Another issue, quite often appearing in the statements of the respondents, related to deficiencies in the competences necessary for the implementation of the self-learning process, mainly in the area of self-reliance (e.g., difficulties with searching for materials on one's own), responsibility for one's own learning or self-discipline, ability to plan learning, spreading tasks out *("suddenly everything has changed, I had to adapt to the technical requirements of various lecturers, there were many different forms of crediting practical classes, lectures – without[a] precise record of duties it was difficult for me to grasp this distance learning", "... there was a time when I got completely lost in everything, suddenly it turned out that I was away from home, and a colleague wrote to me that the classes had just started... [I had] spaced out...").* The students also had the impression of *"[a] lack of full involvement in learning"*, *"superficial learning"*, increased difficulties *"in gaining knowledge"*, which may reveal a deeper problem, related to deficiencies in deep learning skills, with the use of ineffective learning strategies. In addition, there were external factors interfering with the process of self- learning, with which the respondents had to cope, such as technical problems with the computer, access to the network (the Internet), or distractions: children, other household members, pets *("someone wanted something from me all the time, I could not have listened to the lectures in peace").* A separate issue, relatively rarely taken up by the respondents, was the assessment of the didactic aspects of distance learning (the use of the same teaching methods by teachers, difficulties in the implementation of practical classes, not very objective assessment of examinations, related to the low effectiveness of checking the knowledge of the students by the lecturers and *"the possibility of cheating on tests"*).

In the analysed research material concerning the negative aspects of distance learning, it is also possible to notice single statements that could not be classified to any category, these were most often short messages, given without any justification, nevertheless indicating a specific opinion of the respondents *("I prefer learning at school", "online learning is not effective", "it is tiring in the long run", "you do not use all the possibilities offered by school").*

At the end of this section, it is worth mentioning that the overall analysis of the research material (respondents' answers to the open questions included in the survey questionnaire) revealed a similar percentage of positive and negative opinions on distance learning, while the statements relating to the negative aspects were slightly broader, more developed and often included specific examples to justify the opinions expressed.

Discussion

The presented research was aimed at identifying the opinion of postsecondary school students on distance learning, conducted in a specific time of the pandemic, often in conditions of home isolation, thus limiting important aspects of human life. The research involved adults, mostly professionally active, but also people who consciously took the trouble to complete their education by deciding to start education at a postsecondary school. These factors are certainly important for the interpretation of the results obtained in the research.

The opinions of respondents are dominated by an average level of satisfaction with distance education, average assessments of its effectiveness, with an average level of their own involvement in the learning process and motivation to work (see Ana, Minghat, Purnawarman, Saripudin, Muktiarni, Dwiyanti, Mustiakim, 2020, pp. 15–26). Additional strengthening of this "middle" trend is the similar number of positive and negative aspects of distance learning distinguished by the respondents (9% and 51% of all obtained statements respectively).

As working adults, study participants appreciated the flexibility of distance learning to balance a wide range of responsibilities, including home and work. The pandemic has shown that working from home is possible, and often effective. In the age of the information society and having basic computer literacy and Internet skills, it can become natural. This trend is evident, among other things, in this year's surveys conducted among employees and employers, who expect to be able to work remotely to a greater extent than before: 75% of employees prefer a hybrid working model and 55% of employers say they will remain with remote work, as well as conduct the full recruitment process online (see http://hrlink.pl) When it comes to education, the issue seems a bit more complicated. The pandemic made us realise that e-learning plays a significant role in education. Offering many opportunities such as use of ready-made materials, interactive participation in classes, group problem solving or preparation of projects, asynchronous work (each participant uses the platform at any time) or synchronous work (each participant uses the platform from any place, but at the same – agreed – time people meet), implementation of the principle of individualisation (the system can monitor progress, select contents and work dynamics for each participant, depending on their progress or individual work rhythm).

In addition, a teacher can play similar roles in the process of distance learning as in the case of contact education – from being a person preparing and providing materials, monitoring and supporting the learning process, to a person acting as a mentor, group leader or discussion moderator.

The closing of schools and the transition to distance learning contributed to the development of new models of education, an increase in the IT competencies of students and teachers, which was also noted by the postsecondary school students who were surveyed.

However, on the other hand, it has revealed a number of shortcomings of the type of education implemented exclusively remotely and the various difficulties of a technical, organisational and/or personal nature with which students, their parents and teachers coped. The consequences of permanent distance learning were felt mostly in the sphere of social development. Social contacts in the virtual world turned out to be insufficient, not very satisfying and in the long run not very successful in meeting the needs of belonging to a community of learners. The situation was of course exacerbated by the compulsion to isolate oneself or to limit social contacts to a minimum in other aspects of life.

Conclusions

The results obtained in the research seem to confirm the belief that distance/online learning will not replace the school, but may, however, become a valuable complement. It seems that only such a complementary option could meet the expectations of all educational entities and have a positive impact on the quality of education and human development. This aspect has been noticed, among others, in the report *"Digital Competences and Distance Learning in the European Union"*. (https://www.parp.gov.pl/storage/publications/pdf/Edukacjacyfrowa_2020-09-22.pdf).

It considers introducing the following solutions to the education sector that have worked best in the times of pandemic and isolation:

1. ***Conducting final or certification examinations and examinations confirming qualifications online***, which, however, may raise some doubts in the light of the respondents' statements pointing to less reliable ways of evaluating students' achievements and widespread „cheating" in exams (perhaps improving the methods of verifying knowledge could somehow solve this problem);
2. ***Adapting to the new time model***, which provides the student with a greater autonomy and the ability to independently make decisions when he/she will learn. In the context of the results obtained in the research (see also: Rodek, 2020, pp. 107–122), it seems that certain difficulties may arise in this respect, related to insufficient self-discipline, independence and responsibility for one's own learning process, which manifested themselves even in the group of adults who consciously undertake the toil of education and are internally motivated to learn.

In addition, there are also the problems with the organization of the learning process, distribution of tasks over time and ineffective learning strategies signalled by the respondents (see Rodek, 2019, pp. 112–120). Teachers should be aware of these difficulties and be prepared to help those in need. There is also a need for greater care to develop students' competences within self-learning;

3. ***Familiarizing teachers with digital technologies***, which seems to be a valuable postulate. Teachers should be able to try out different digital learning solutions and to understand how they can be used to support students' learning (see, for example, Moorhouse, Wong, 2021).

The above deliberations can be supplemented with recommendations regarding:

- **the introduction of systemic solutions in the field of digital hygiene of students, parents and teachers** as a permanent and necessary element of digital education of the information society. These solutions could support responsible use of new technologies, foster development, and eliminate the negative consequences caused by the inappropriate use of digital devices, not only during distance learning, but also outside it.
  This education should cover all stages of learning and should be appropriate to the age and experience of the students (see Adams, Chuah, Sumintono, Mohamed, 2021, pp. 1–16). It is worth noting that the surveyed adults, despite their life experience and maturity, identified health problems related to the implementation of distance learning, perhaps additionally reinforced by the need to perform professional duties also online. The feeling of helplessness in the face of this negative state of affairs and poorly exposed remedial measures taken to protect and improve one's health, revealed in the research may cause anxiety;
- **respecting the principle of novelty, i.e., diversifying classes through the use of various teaching methods, forms of work and teaching aids.** In this way, a student will not experience boredom during classes, will be more interested in the contents of the education, and his/her motivation to learn will increase.
  This principle, resulting from the psychological regularities of learning, is important in every age group. The surveyed postsecondary school students also noticed that most of the methods used by teachers are informative and visual, and the classes are not very exciting, which in some way could have conditioned the feeling of the average level of satisfaction with distance learning by them experienced, as well as their motivation to learn.
  In this aspect, another proposal to introduce a system for assessing the level of media, information and digital competences of teachers and students using standardized tools, based on the latest scientific knowledge, may be justified (see Ptaszek, Stunża, Pyżalski, Dębski, Bigaj, 2020, pp. 183–186).

The research presented in the article certainly does not exhaust the discussed issues. They were conducted among students of postsecondary schools, and the selection of the trial was deliberate. Therefore, the obtained results cannot be generalized to the entire study population. However, it seems that they provide a certain picture of the condition of distance learning in the situation of the coronavirus pandemic and its reception by adults who have consciously made the effort to supplement their education. Additionally, they also indicate the urgent need to search for conditions and circumstances of complementarity of two realities: the real and the virtual.

Translated by: *Andrzej Puc*

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Violetta Rodek, Anna Orlińska

Dorośli uczniowie wobec edukacji zdalnej w dobie pandemii wirusa SARS-Co-V-2

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

Artykuł jest doniesieniem z badań na temat nauki w formie zdalnej – w czasie pandemii wirusa SARS-Co-V-2 przeprowadzonych wśród słuchaczy szkół policealnych. Przedmiotem badań były opinie słuchaczy szkół policealnych na temat edukacji zdalnej. Badania miały charakter diagnostyczny, zastosowano w nich metodę sondażu diagnostycznego z techniką ankiety. Autorski kwestionariusz ankiety został skierowany do 85 słuchaczy szkół policealnych w województwie opolskim. W wyniku przeprowadzonych badań ustalono średni poziom poczucia satysfakcji, stopnia motywacji i zaangażowania w naukę własną respondentów oraz przeciętne oceny poziomu efektywności nauki prowadzonej w tej formie. Badani wskazali zarówno pozytywne jak i negatywne aspekty nauki zdalnej. W pierwszej grupie znalazły się głównie aspekty, związane z oszczędnością czasu, pieniędzy, elastycznością tej formy kształcenia, natomiast w drugiej – aspekty natury społecznej, zdrowotnej, związanej z niedostatkami w zakresie samokształcenia i ewaluacji procesu kształcenia.

S ł o w a k l u c z o w e: edukacja zdalna, edukacja dorosłych, pandemia wirusa SARS-Co-V-2

Adult students' attitudes towards distance learning during the SARS-Co-V-2 virus pandemic

Виолетта Родек, Анна Орлиньска

Дистанционное обучение взрослых обучающихся во время пандемии вируса SARS-Co-V-2

Аннотация

Статья представляет собой рапорт об исследовании дистанционного обучения во время пандемии вируса SARS-Co-V-2, проведенном среди студентов высших учебных заведений. Предметом исследования стало мнение студентов высших учебных курсов о дистанционном обучении. Исследование имели диагностический характер, был использован метод диагностического опроса с методикой обследования. Авторский опрос был проведён среди 85 учащихся высших учебных заведений Опольского воеводства (Польша). В результате исследования был определен средний уровень удовлетворенности, степень мотивации и вовлеченности респондентов в самообучение, а также средняя оценка уровня эффективности обучения, проводимого в этой форме. Респонденты указали как положительные, так и отрицательные стороны дистанционного обучения. Первая группа включала в себя в основном аспекты, связанные с экономией времени, денег и гибкости этой формы обучения, в то время как другая группа включала аспекты социального и медицинского характера, связанные с недостатками в самообучениях и оценке процесса обучения.

Ключевые слова: дистанционное обучение, образование взрослых, пандемия вируса SARS-Co-V-2

Violetta Rodek, Anna Orlińska

Estudiantes adultos hacia el aprendizaje a distancia durante la pandemia del virus SARS-Co-V-2

Resumen

El artículo es un informe de estudio sobre el aprendizaje a distancia durante la pandemia del virus SARS-Co-V-2, realizado entre estudiantes de escuelas postsecundarias. El tema del estudio fueron las opiniones de los estudiantes de escuelas postsecundarias sobre el aprendizaje a distancia. La investigación fue de naturaleza diagnóstica, y se utilizó el método de una encuesta diagnóstica con técnica de encuesta. La encuesta del autor se envió a 85 estudiantes de escuelas postsecundarias del voivodato de Opolskie (Polonia). Como resultado del estudio, se determinó un nivel promedio de satisfacción, grado de motivación e implicación en el autoaprendizaje por parte de los encuestados, así como una evaluación media del nivel de efectividad del aprendizaje realizado en esa forma. Los encuestados indicaron los aspectos positivos y negativos de la enseñanza a distancia. El primer grupo comprendía principalmente aspectos relacionados con el ahorro de tiempo, dinero y la flexibilidad de esta forma de aprendizaje, mientras que el otro grupo incluía aspectos de carácter social y sanitario, relacionados con deficiencias en el autoestudio y evaluación del proceso de aprendizaje.

Palabras clave: aprendizaje a distancia, educación de adultos, pandemia del virus SARS-Co-V-2

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Perception of Information Security in the Process of Distance Learning During the COVID-19 Pandemic on the Example of University Teachers' Experiences

Abstract

The COVID-19 pandemic has greatly affected every area of our lives. One of them was education, which had to undergo a huge transformation in a very short time. Overnight, the computer replaced the blackboard and became the only tool of communication between a student and a teacher. Teachers had to completely change the tools used in the teaching process and enter a completely new and, for many of them completely unknown, working environment. Online learning has replaced traditional teaching. A computer with Internet access has become a basic work tool for people who have so far used it mainly for recreational purposes. Teachers were thrown in at the deep end, for most of themit was the first time they had encountered platforms for remote communication.

As the workspace has changed, learners and teachers have begun to move much more frequently into the world of the Internet, which harbors many dangers of which quite a few people were previously unaware. For this reason, the authors decided to investigate the problem of information security in e-learning. This paper

attempts to collect the experiences and assess the awareness of university teachers about information security threats while teaching during the COVID-19 pandemic. The research results presented in this paper showed that the level of awareness of the risks, that may affect academic teachers in the distance learning process, is very low. Additionally, no appropriate procedures for safe distance learning have been developed. The communication security area was practically completely overlooked during the COVID-19 educational revolution.

K e y w o r d s: distance learning, Covid-19 pandemic, distance learning security, information safety, Internet threats

The COVID-19 pandemic has greatly affected the way of work in many areas of life, including education. According to "2020 Cost of a Data Breach Report" by Ponemon Institute for IBM, 54% of organizations required remote work during this period. In the case of education, it can be assumed that during periods of full closure, it took place exclusively in a remote form, which in many cases was dictated by decisions of local or national authorities. This meant that university teachers had to change not only their working methods, but also their basic tools. The reality of lecture theatres was completely transferred to the virtual world. Distance learning became, in the vast majority of cases, the only way to continue the learning process. The computer with Internet access replaced the worn-out blackboard and for many academic teachers it was a real revolution – entering a completely new, previously unknown working environment. An environment full of dangers, including threats related to the security of communication. This paper is an attempt to find an answer as to whether the aforementioned threats have been noticed and whether any measures have been taken to eliminate them or minimise their effects.

1. Information stored on the e-learning platform and its security

The need to work remotely means that information systems no longer perform only support functions of work, but are an integral, very important part of it. Consequently, the information processed in them is an asset that must be protected. E-learning platforms are systems that store information of a different nature. These are teaching materials, exam tests that are for students who are qualified to read them. Threats to online courses include distribution of materials without

the authors' knowledge, unauthorized modification of posted content, and further distribution as original materials (Scerbakov et al., 2019).

Another type of information is data on individual achievements. In addition, it is also personal information such as first name, last name, album number, PESEL, year and major of study and login information (Wozniak-Zapór, 2016). Yet another type of threat relates to the security of stored information and privacy. It can be, for example, the possibility of substitution of submitted works, confirmation of the real identity, independence of works performed by students (Jakieła, & Wójcik, 2018).

As you can see from the examples cited, this is information that should not be shared with unauthorized people, and its disclosure can cause a lot of damage. Information protection is also required by law, including the General Data Protection Regulation, the Classified Information Protection Act, the Copyright and Related Rights Act, and finally the ISO 27000 "family of standards". Guaranteeing data security is the responsibility of both the system administrator and the users. It is the latter who are the weakest link in the security system.

1.1 What is information security

Information systems security is the protection against unauthorized access to information or modification of information. Protection should cover storage, processing and transmission. Information security consists of 3 elements (the so-called information triad):

– confidentiality, which means that the information is accessible only to those authorised to receive it;
– integrity, which means that any unauthorised modification of the information is not allowed;
– availability, which means that the information can be accessed under any circumstances that are allowed by the information security policy (Liderman, 2017). Maintaining the confidentiality, integrity and availability of information contribute to information security (PN ISO 27002).

1.2 Information security threats

A user working remotely, and in fact every user of the Internet network encounters many threats on a daily basis, which may have different sources of origin and cause different effects, but regardless of this, each of them may shake one of the listed pillars of security, and thus lead to the collapse of the entire system (Stawowski, 1998). Unpreparedness and misinformation of users, their unawareness of cyber threats, as well as failure to use existing security measures make systems vulnerable to attacks, and the data stored in them ceases to be safe. (Liderman, 2012).

Threats that are encountered most often are: phishing, ransomware, malware. They are characterized by a high level of complexity and intentionality on the part of the attackers (Pipkin, 2002).

Phishing is an online identity theft in which an attacker uses fake emails and fake websites to get naïve customers to reveal sensitive information such as bank account information, website login details and similar sensitive information. Generally, phishing is a relatively new online crime. The ease of cloning a legitimate bank website to convince unsuspecting users makes phishing difficult to detect and restrict. (Amiri & Akanbi, 2015; McGahagan et al., 2021).

Ransomware is a form of malware that locks files or a user's device and then demands an anonymous online payment to restore access. Hackers create this type of software to extort money through blackmail. The way ransomware works makes it extremely harmful. Other types of malware destroy or steal data, but do not close the path to recovery. With ransomware, on the other hand, if the attacked person does not have a backup of the data to recover it, he/she has to pay the ransom. Sometimes the company pays the ransom and the hacker does not hand over the decryption key anyway (Beaman et al., 2021; Wiener, 2019; Yuste, & Pastrana, 2021).

Malware, a short form for malicious software, describes any type of program/application that is designed to damage or steal data. This type of software includes all kinds of viruses, trojans, spyware or ransomware, adware, etc. The definition of malware, should not be considered solely as one type of software. It is a group of different programs with different functions that have one specific purpose. Malware is usually created by groups of black-hat hackers or programmers whose goal is to make money. Adware, on the other hand, is unwanted software used to display advertisements on your screen, most often in a web browser window. Earning can involve either reselling the software to other users, companies, agencies or trading it on the Dark Web. Profiteering may also consist in constructing the kind of software that enforces, e.g., payments by blocking the user and access to his/her data or by tracking transmitted data, e.g., card numbers and access data to payment systems (Beaman et al., 2021; Formosa et al., 2021; Ring et al., 2021; Skoudis, & Zeltser, 2004).

Phishing and hacking attacks using stolen data account for 51% of all successful data breach attacks, according to data released by Verizon in its Data Breach Investigations Report (2020). It should also be noted that, according to the report, the percentage of incidents involving ransomware threats has increased significantly – from 48% in 2019 to 80% in 2020. Successful attacks usually involve the installation of tracking software, theft of application data, theft of stored data, and an attempt to scan a computer network.

This influenced the authors to carry out a study on the awareness of threats the academic teachers of Carpathian Lesser Poland universities are exposed to on the Internet.

2. Analysis of test results

Seventy academics participated in the survey, conducted during the 2020/2021 academic year, during which distance learning was the only form of teaching for 7 months. Among the respondents, 44 were less than 50 years old, while 26 were older. 25 respondents taught in the engineering or technical sciences, 31 in the humanities or health sciences, and 14 in the agricultural or social sciences. Of those surveyed, 15 declared that they teach subjects thematically related to Computer Science (e.g., Information Technology or classes in Computer Science). Among the information security knowledge areas examined were:

– safe use of equipment,
– use of passwords,
– knowledge of information security threats,
– knowledge of security procedures

2. 1 Methods and tools of communication between academic teachers and students

The field of education, in comparison to other analyzed industries, is distinguished by a relatively low level of malware infections through e-mail boxes. It can be concluded that a peculiar anomaly may result from the use of unmonitored, i.e. private, e-mail boxes in this area. The conducted research seems to confirm this thesis because 41% of the respondents indicated that while conducting remote classes they happened to use a private email box for communication with pupils or students (Figure 1).

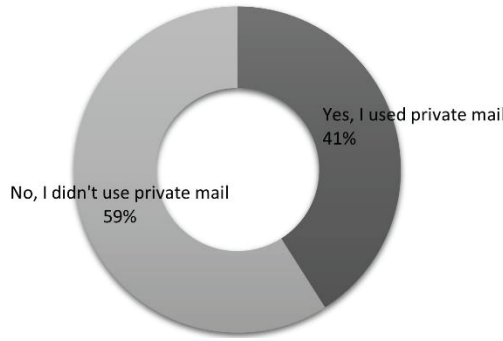


Figure 1. Using a private email inbox to communicate with students during distance learning.
S o u r c e: Own work

Additionally, most respondents, 84%, indicated that they use private computer equipment for distance learning. Only 16% use company-owned, purpose-built equipment (Figure 2).

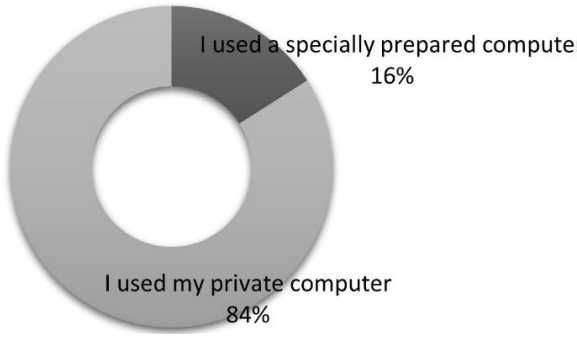


Figure 2. The type of equipment used during distance learning.
S o u r c e: Own work

Putting these two elements together, it should be pointed out that the boundary between private and business contexts is very blurred. This can lead to a situation where disclosure of access data or loss of control over a private email inbox and private computer will have serious consequences also in the business area related to distance learning.

Additionally, 23% of the respondents admitted that they happened to open an email attachment posted by a student which they had doubts about. Considering that most of the attacks happen through email attachments, this is a major information security threat. It also indicates the possibility of carrying out an effective attack, and the implementation of such an attack on even just one of the employees may have significant consequences for the entire unit. Situations like this should not happen at all, and certainly not with this intensity.

The above results may suggest that the level of awareness of the risks associated with remote working and distance learning among academic staff is very low. With stolen data accounting for 51% of all successful data breach attacks and ransomware accounting for 80% of all incidents, it seems reasonable to examine the level of awareness of these threats.

2.2 Password usage and backups

An important element that protects our data includes passwords. It is known that creating and remembering many different passwords is a huge problem. Poor password practices often lead to information security incidents. The threats here are both weak passwords and using the same password for multiple accounts or applications (Bentkowski, 2021).

The survey results showed that more than 25% of respondents indicated that they happened to use the same access password to both applications and e-learning services (company e-mail box, Zoom, MS Teams, USOS, e-learning platform, etc.) and applications and services used privately (e-mail box, access to the bank, social networking sites, auction sites, etc.). This leads to the situation where, for one in four people, revealing the access password to applications or services used privately can allow attackers to take full control in a business area. This can have serious consequences not only for the individual but also for the institution. A hijacked email box can be a source of further malware distribution or can be used for a social engineering attack.

Two-factor verification (2FA) is now becoming a standard in common applications such as social networking sites, not to mention applications or banking systems. The use of such solutions significantly reduces the risk of a successful attack, but only 33% of the respondents declared that they use them on network services that require logging in (Figure 3).

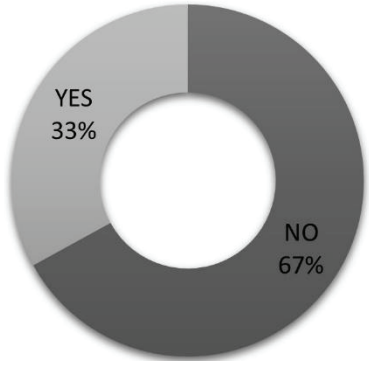


Figure 3. Use of 2FA verification.
Source: Own work

When using a single user authentication mechanism, which is most often a password, the elements such as the complexity of the password, how often it is changed, and how it is stored are crucial.

The survey suggested several passwords of varying complexity and as many as 87% identified the highest complexity passwords as the most secure. The question of the frequency of changing passwords is much worse, because in this case as many as 71% of the respondents indicated that they change their access passwords to applications used for distance learning less than once a year. In this group as many as 39% are people who declare that they do not change their access password at all (Figure 4).

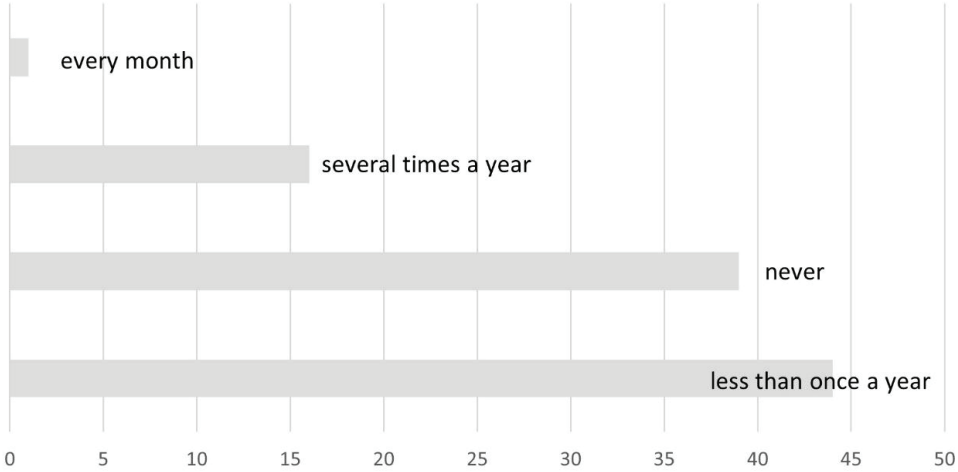


Figure 4. Frequency of access password changes to services and applications that support distance learning.
S o u r c e: Own work

The way in which access passwords are stored also has a significant impact on the level of user data security. Most respondents, 43%, declare that they remember their access passwords. The remainder save passwords in a traditional notebook (33%), an electronic notebook or smartphone (12%), and a password manager (12%) (Figure 5).

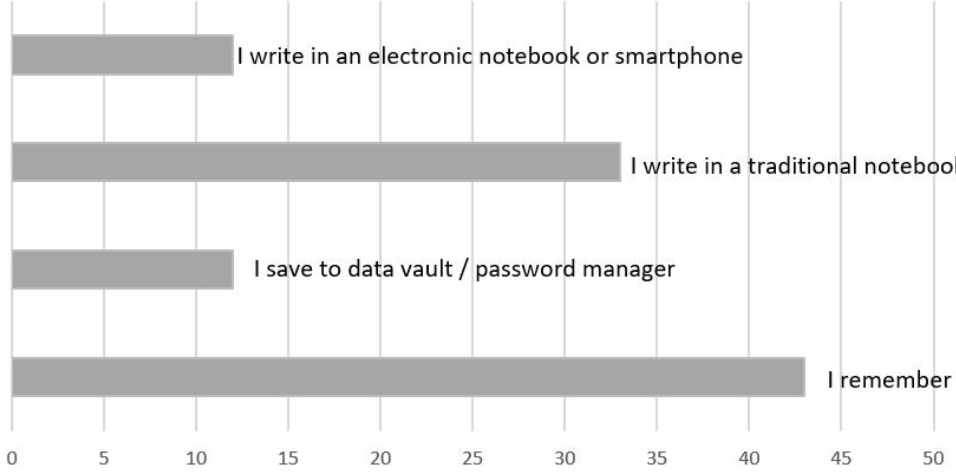


Figure 5. Ways to store passwords.
S o u r c e: Own work

Another important issue when processing data in an organization is how to protect it from unauthorized access and destruction or loss. As shown above, most lecturers use private computers during distance learning, but as shown in Figure 6, only 24% use encoding mechanisms to secure data processed on laptops or storage media such as portable drives.

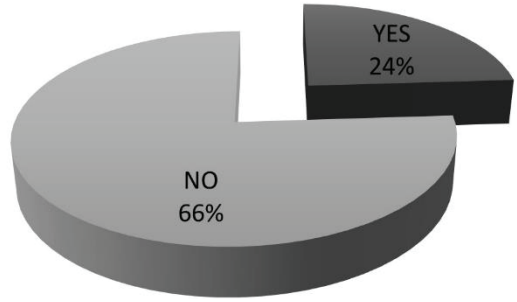


Figure 6. Use of encoding mechanisms.
S o u r c e: Own work

The area of data protection against data loss due to theft of a computer or a failure preventing the restoration of processed data also looks bad. Among the respondents as many as 47% indicated that they back up their processed data once a year or less frequently, with 1/3 declaring that they do not make such a copy at all. The frequency of backups is shown in the graph in Figure 7.

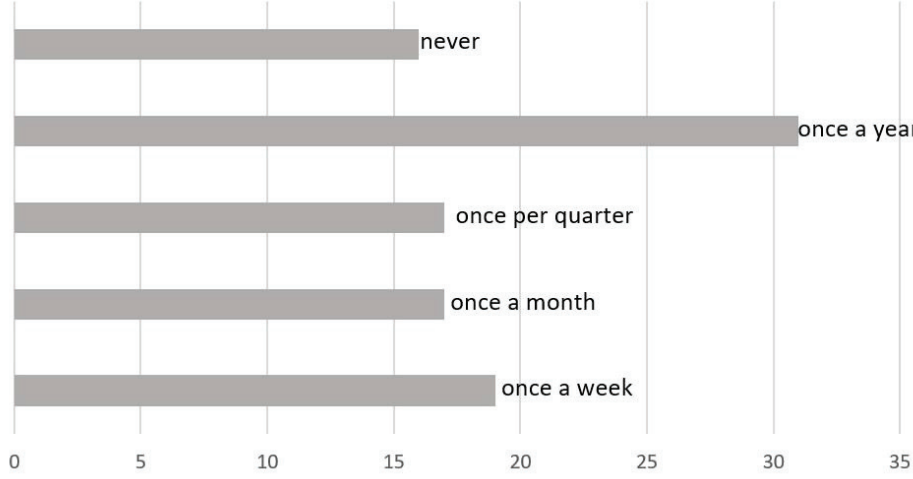


Figure 7. Backup.
S o u r c e: Own work

2. 3 Survey on knowledge of information security risks

Respondents were asked about the meaning of terms related to the threats we currently face. In the surveyed group as many as 52% of respondents admitted that they do not know the meaning of the term ransomware, 45% do not know what malware is, and 39% do not know what phishing is (Figure 8).

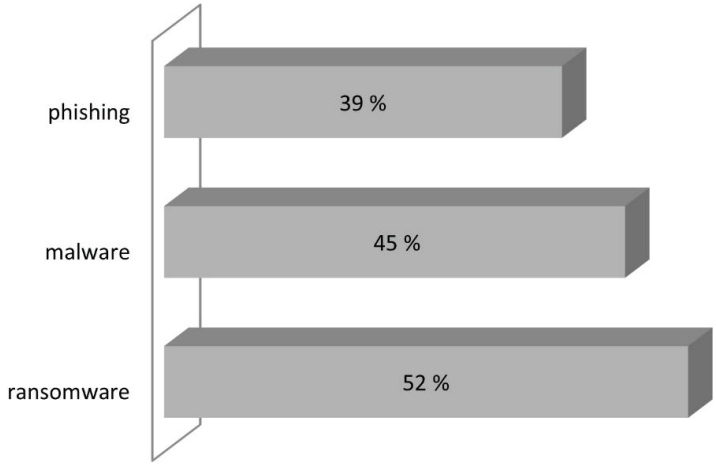


Figure 8. Percentage of respondents who do not know the meaning of the terms phishing, malware and ransomware.
S o u r c e: Own work

Figure 9 shows the percentage of people who say they have never encountered the above-mentioned threats.

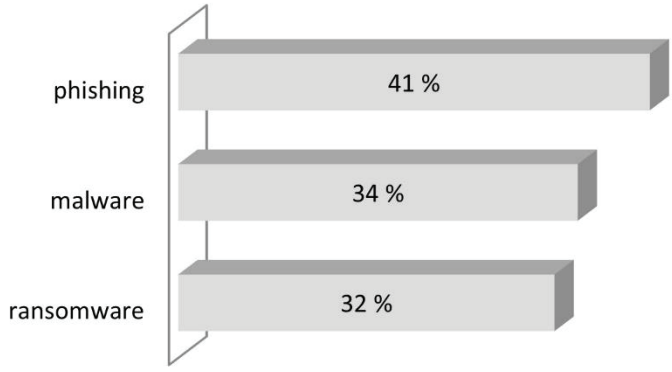
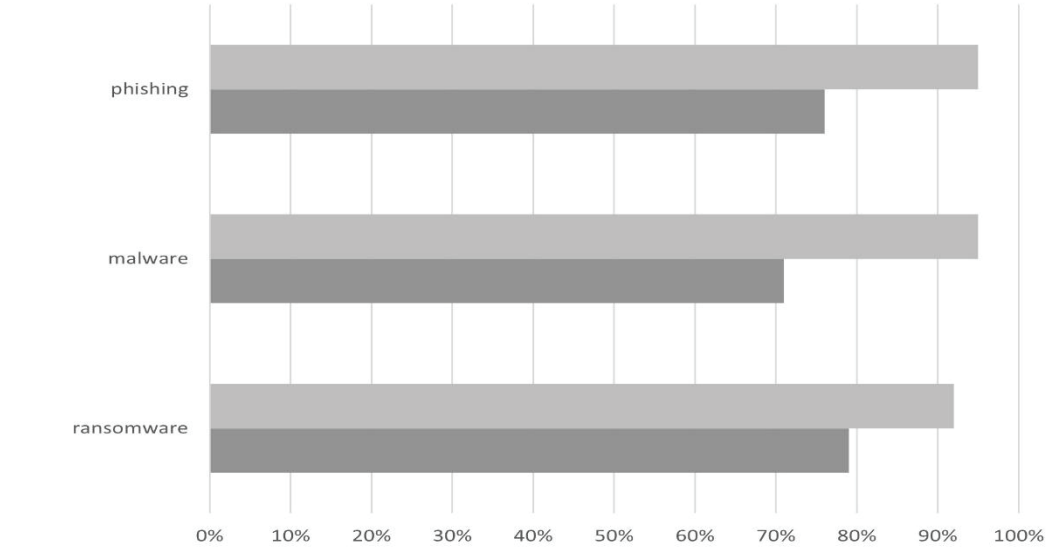


Figure 9. Percentage of respondents who have never encountered the terms phishing, malware and ransomware.
S o u r c e: Own work

Considering prevalence of these threats in the form of recorded incidents and successful attacks, it is highly unlikely that such a large percentage of respondents have never encountered them. Between September 9 and 16, 2021 alone, Internet users reported 12 different attacks belonging to the discussed threats (Giza, 2021). The presented results may suggest that the surveyed people, despite being confronted with the threats, did not take note of it - they were not able to notice and identify it.

When it comes to the awareness of the threats associated with distance learning, a noticeable difference emerges among different age groups. As many as 92% of respondents aged 50 and older said they were unfamiliar with the term ransomware or had never encountered the threat. In the under 50 group, this percentage was 79%. The disproportion is even greater for malware and phishing threats, as shown in Figure 10.



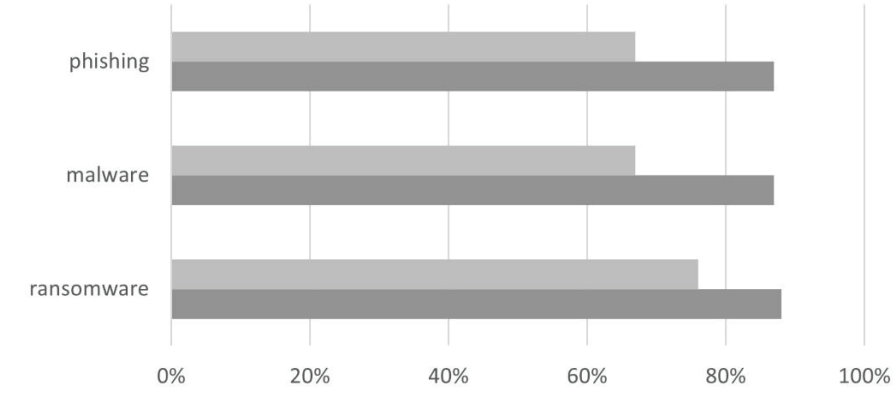
	ransomware	malware	phishing
over 50 years	92%	95%	95%
under 50 years old	79%	71%	76%

Figure 10. Percentage of respondents who have never encountered the terms phishing, malware and ransomware or are not familiar with these terms by age group.

S o u r c e: Own work

A similar disproportion can be observed when comparing the collected research results in terms of the subject matter of the classes. Teachers teaching non-

technical subjects are much more likely to declare that they do not know the terms describing the most popular threats or claim that they have never come across them. The described relationship is presented in the graph in Figure 11.



	ransomware	malware	phishing
non-technical	76%	67%	67%
technical	88%	87%	87%

Figure 11. Percentage of respondents who have never encountered the terms phishing, malware, and ransomware or are unfamiliar with these terms by type of subjects pursued.
S o u r c e: Own work

Low awareness of threats among users of any system is a major threat to its security. According to Kaspersky, more than 80% of all security breaches are caused by human's mistake. The risk of such a mistake can be minimized by using appropriate solutions on the hardware side, software side or implemented procedures on how data is processed during distance learning. Cisco is one of many that have additional security features that can be applied to cloud-based electronic boxes. Considering the fact that 84% of the surveyed use private computers to conduct classes remotely, and 41% declared that they happen to use private e-mail boxes to communicate with students, any actions taken by administrators responsible for maintaining security will not translate into a significant improvement in its level. As such, much of the environment used in the distance learning process remains beyond the control of security administrators.

2. 4 Knowledge of security procedures

Implementing and strictly enforcing procedures or instructions for secure remote working e. g. password policy is one element used to reduce the risk of

exposure to cyber-attack (NCSC, 2021). In the surveyed group, 64% of the academic staff indicated that a consistent policy or instruction for remote instruction is implemented in the unit for which they deliver remote instruction. This means that more than 1/3 of the respondents are conduct remote work based on their security knowledge, experience and level of awareness (Figure 12).

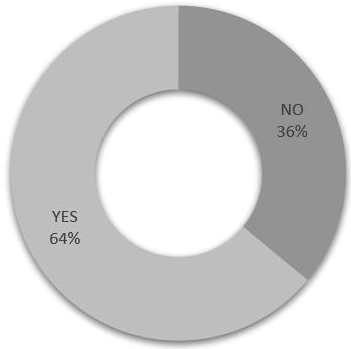


Figure 12. Implementing a remote classroom policy or instruction.
S o u r c e: Own work

Additionally, 66% of respondents declared that they do not know the procedure to be followed in the case of a security breach of data processed in remote work, and another 16% indicated that they know that such a procedure does not exist. This means that only 18% of the surveyed academics are knowledgeable about how to report a security incident in the process of their remote work (Figure 13).

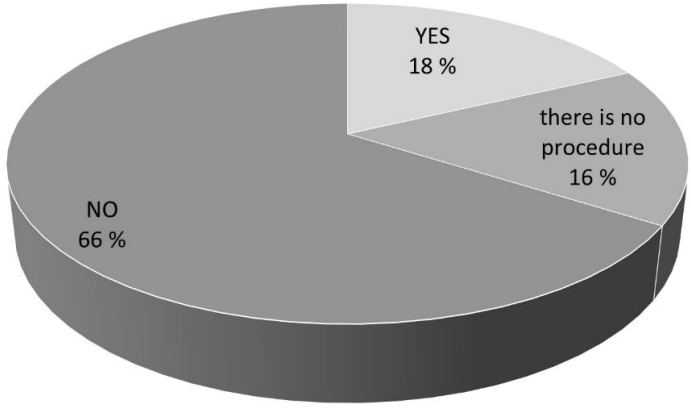


Figure 13. Knowledge of the procedure for dealing with security breaches of data processed while working remotely.
S o u r c e: Own work

Lack of awareness of threats and appropriate procedures implemented in the organization, in itself, is a serious breach in the communication and data security system, but the key seems to be the behavior of system users. Even the unconscious and unforced application of good practices in daily work can significantly reduce the risk of a serious data security breach.

Discussion

The success of e-learning requires facing all the challenges related to the implementation of distance learning technical solutions, especially the challenges related to maintaining information security.

Undermining security pillars such as the availability, integrity and confidentiality of data processed in remote education systems exposes e-learning environments to the dangers of cyber attacks. A very important element increasing the level of security is maintaining the highest possible awareness of threats among their users, as well as implementing methods to counteract these threats. The research shows that improving the security of remote education systems can be achieved by introducing technical and organizational solutions that force users to increase their awareness of cyber threats (Beaman et al., 2021). Raising awareness will allow students to benefit from effective learning in a safe environment, and universities, as solution providers, will be sure that all data processed in the system is resistant to cyber attacks.

Conclusions

Summarizing the data presented above, it should be noted that the level of awareness about ICT security threats among academic teachers conducting distance learning classes and the practices used during this type of work are significantly below current standards. To a large extent, this situation can be attributed to the very sudden change in the form of teaching caused by the emergence of the COVID-19 pandemic and to decisions made by the authorities at local and national levels. This can be evidenced by the fact that universities have failed to secure dedicated computer equipment for lecturers to use while teaching at a distance.

Additionally, institutions or organizations providing distance learning do not have procedures for conducting such classes or the implemented procedures are only symbolic, and their existence does not influence the improvement of the broadly understood information and communication security. The study revealed a complete lack of supervision by the university concerning the safety of conducting the distance learning process.

If distance learning is going to be such a widely used tool in the educational process, it is necessary to undertake actions in the field of security in many areas with a particular focus on raising the awareness of academic teachers in the field of security threats, violations, incident reporting and implementation of procedures and good practices related to working on the Internet.

Remote work with students, in terms of ICT security, does not differ strongly from the way of working in other industries, so in most cases there is no need to create a completely new procedural or technical solutions, but the implementation and adaptation of already used practices.

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Agnieszka Kubacka, Daniel Biały, Radosław Gołąb

Postrzeganie bezpieczeństwa informacji w procesie kształcenia na odległość podczas pandemii COVID-19 na przykładzie doświadczeń nauczycieli akademickich

Streszczenie

Pandemia COVID-19 w znacznym stopniu wpłynęła na każdy obszar naszego życia. Jednym z nich była edukacja, która w bardzo krótkim czasie musiała przejść ogromną transformację. Z dnia na dzień komputer zastąpił tablicę i stał się jedynym narzędziem komunikacji między uczniem a nauczycielem. Nauczyciele musieli całkowicie zmienić narzędzia wykorzystywane w procesie nauczania i wejść w zupełnie nowe, dla wielu z nich zupełnie nieznane środowisko pracy. Nauka online zastąpiła tradycyjne nauczanie. Komputer z dostępem do Internetu stał się podstawowym narzędziem pracy dla osób, które dotychczas wykorzystywały go głównie w celach rekreacyjnych. Nauczyciele zostali rzuceni na głęboką wodę, po raz pierwszy zetknęli się z platformami do zdalnej komunikacji. Wraz ze zmianą przestrzeni roboczej uczniowie i nauczyciele zaczęli coraz

częściej przenosić się w świat Internetu, który kryje w sobie wiele niebezpieczeństw, z których wiele osób wcześniej nie było świadomych. Z tego powodu autorzy postanowili przyjrzeć się problemowi bezpieczeństwa informacji podczas e-learningu. Wyniki badań zaprezentowane w niniejszej pracy sugerują, że poziom świadomości zagrożeń, jakie mogą spotkać nauczyciele akademiccy w procesie zdalnego nauczania, jest bardzo niski. Dodatkowo nie istnieją odpowiednie procedury dotyczące bezpiecznej pracy w sieci. Problem bezpieczeństwa komunikacji został praktycznie całkowicie pominięty w czasie rewolucji w procesie nauczania jaka wydarzyła się w czasie COVID-19. W niniejszym artykule podjęto próbę zebrania doświadczeń i oceny świadomości nauczycieli akademickich na temat zagrożeń bezpieczeństwa informacji podczas nauczania podczas pandemii COVID-19.

S ł o w a k l u c z o w e: uczenie się na odległość, pandemia Covid-19, bezpieczeństwo uczenia się na odległość, bezpieczeństwo informacji, zagrożenia internetowe

Агнешка Кубацка, Даниэль Бялы, Радослав Голомб

Восприятие информационной безопасности в процессе дистанционного обучения во время пандемии COVID-19 на примере опыта преподавателей вузов

А н н о т а ц и я

Пандемия COVID-19 сильно повлияла на все сферы нашей жизни. Одним из них было образование, которое за очень короткое время должно было претерпеть огромные преобразования. В одночасье компьютер заменил доску и стал единственным средством общения между учеником и учителем. Учителям пришлось полностью изменить инструменты, используемые в процессе обучения, и войти в совершенно новую, для многих из них совершенно неизвестную рабочую среду. Онлайн-обучение пришло на смену традиционному обучению. Компьютер с доступом в Интернет стал основным рабочим инструментом для людей, которые до сих пор использовали его в основном в развлекательных целях. Учителя были брошены в крайность, они впервые столкнулись с платформами для удаленного общения. Поскольку рабочее пространство изменилось, учащиеся и учителя стали гораздо чаще переходить в мир Интернета, который таит в себе множество опасностей, о которых многие люди раньше не подозревали. По этой причине авторы решили разобраться в проблеме информационной безопасности во время электронного обучения. Результаты исследования, представленные в этой статье, показывают, что уровень осведомленности об угрозах, с которыми могут столкнуться академические учителя в процессе дистанционного обучения, очень низок. Кроме того, нет надлежащих процедур для безопасной работы в сети. Проблема безопасности связи была практически полностью обойдена во время революции в обучении, произошедшей во время COVID-19. В этой статье делается попытка собрать опыт и оценить осведомленность академических учителей о рисках информационной безопасности во время обучения во время пандемии COVID-19.

К л ю ч е в ы е с л о в а: дистанционное обучение, пандемия Covid-19, безопасность дистанционного обучения, информационная безопасность, интернет-угрозы

Agnieszka Kubacka, Daniel Biały, Radosław Gołąb

Percepción de la seguridad de la información en el proceso de educación a distancia durante la pandemia COVID-19 sobre el ejemplo de las experiencias de los docentes universitarios

Resumen

La pandemia de COVID-19 ha tenido un gran impacto en todas las áreas de nuestras vidas. Uno de ellos fue la educación, que tuvo que sufrir una gran transformación en muy poco tiempo. De la noche a la mañana, la computadora reemplazó a la pizarra y se convirtió en la única herramienta de comunicación entre el alumno y el maestro. Los profesores tuvieron que cambiar por completo las herramientas utilizadas en el proceso de enseñanza y entrar en un entorno laboral completamente nuevo y completamente desconocido para muchos de ellos. El aprendizaje en línea ha reemplazado a la enseñanza tradicional. Un ordenador con acceso a Internet se ha convertido en la herramienta básica de trabajo de las personas que lo han utilizado anteriormente principalmente con fines recreativos. Los profesores fueron arrojados al abismo, se encontraron por primera vez con plataformas de comunicación remota. A medida que cambiaba el espacio de trabajo, los estudiantes y profesores comenzaron a moverse cada vez más hacia el mundo de Internet, que encierra muchos peligros, muchos de los cuales antes desconocían. Por este motivo, los autores decidieron analizar el problema de la seguridad de la información durante el e-learning. Los resultados de la investigación presentados en este artículo sugieren que el nivel de conciencia de las amenazas que pueden encontrar los profesores académicos en el proceso de aprendizaje a distancia es muy bajo. Además, no existen procedimientos específicos para el funcionamiento seguro de la red. El problema de la seguridad de las comunicaciones se pasó por alto prácticamente por completo durante la revolución de la enseñanza que se produjo durante el COVID-19. Este artículo intenta recopilar experiencias y evaluar la conciencia de los profesores académicos sobre las amenazas a la seguridad de la información mientras enseñan durante la pandemia de COVID-19.

Palabras clave: aprendizaje a distancia, pandemia de Covid-19, seguridad en el aprendizaje a distancia, seguridad de la información, amenazas de Internet

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Distance Learning in Polish Schools During the Coronavirus Lockdown: the Areas of Success and Failure Experienced by Polish Teachers of English as a FL

Abstract

Based on Roblyer & Edwards (2000: 192), distance learning means "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance." The instructional delivery includes an instructor who is physically located in a different place from the learner, as well as possibly providing instruction at disparate times. More specifically, the instructor controls the instructional sequencing and pacing and all learners participate in the same learning activities. The aim of the paper is to show the advantages and disadvantages of distance schooling during the Covid-19 lockdown, the emphasis being placed upon among others, the teacher – student relationship, the equipment conditions required for running an English lesson and working online, as well as some "food for thought" in the form of necessary changes and modifications to be introduced, which have been suggested by the sample in question. The respondents constitute 9 teachers from secondary schools, who have replied to an online questionnaire investigating the situation in Polish schools, concerning distance education, specifically teaching a FL. Apart from presenting the current state of affairs, some suggestions for the future are remarked upon.

K e y w o r d s: distance learning, areas of success and failure, solutions to problems

Distance learning

Following Roblyer & Edwards (2000: 192), distance learning is "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance". The instructional delivery includes an instructor who is physically located in a different place from the learner, as well as possibly providing instruction at disparate times. To be more specific, the instructor controls the instructional sequencing and pacing and all learners participate in the same learning activities.

Types of distance learning

Synchronous and asynchronous types of distance learning are the most basic and frequent in use (Taplin et al.2013). A synchronous online learning is based upon the cooperative participation of students in learning activities and requires them to be present at a given time. The tools used in this process involve online chats, videoconferences, live webcasting, application sharing, whiteboard, polling and virtual classrooms, as they enable participants and instructors to ask and answer questions in real-time. An asynchronous type of learning, on the other hand, is time independent (Young 2011). It allows students to create their own learning schedule and due to its flexibility is considered to be more student-centred. The teacher/student interaction is executed in different forms: virtual office hours, e-mails or "check-in" online conversations once a week or month. There is a whole range of tools used in asynchronous online learning: reading materials in PDF files, pre-recorded lectures, presentations, Google Drive for coordinated group projects, educational games, audio tapes and video (Taplin et al. 2013). A huge advantage is that students can always revise those materials in the case of uncertainty or any problematic issues.

Some more specific types include:

- Computer Managed Learning
- Computer Assisted Instruction
- Fixed E-learning
- Adaptive E-learning
- Linear E-learning
- Interactive Online learning

– Individual Online Learning
– Collaborative Online Learning

In CML, the main role of the computer is record-keeping without any direct instruction to the learner (Asterhan &Schwarz 2011). It helps the teacher by means of taking over the responsibility of evaluating the students' response sheets, the gathering and sharing of information about each student, finding the resource options available for every individual student to learn a topic, monitoring the process of learning, and directing it. Computer Assisted Instruction (CAI), also sometimes referred to as computer-assisted learning (CAL), is another type of e-learning which uses computers together with traditional teaching. Computer-assisted training methods use a combination of multimedia such as text, graphics, sound, and video in order to enhance learning. The primary value of CAI is interactivity which allows students to become active learners instead of passive learners, by utilizing various methods such as quizzes and other computer-assisted teaching and testing mechanisms.

Following Graham (2006), the main characteristic of fixed e-learning is that it does not utilize the valuable real-time data gained from student inputs. The assumption is that analyzing each student individually through their data and making changes to the materials according to this data leads to better learning outcomes for all students. Examples of a fixed e-learning situation include lectures uploaded on sites like *YouTube*. Even though you can watch them any time you want, you are still restricted to whatever the teacher is describing in a particular lecture, and you have to follow along. Although it makes the actual *teaching* part easier for instructors because they just need to prepare one lesson at a time, this form severely disadvantages students who have different needs and would fare much better with a more adaptive system.

Accordingly, as Bonk & Zhang (2006) insist, adaptive e-learning is an innovative type making it possible for a teacher to adapt and redesign learning materials for each individual learner. Taking a number of parameters such as student performance, goals, abilities, skills, and characteristics into consideration, adaptive e-learning tools allow education to become more individualized and student-centered.

Linear e-learning, based on Lehman & Conceição (2011), relies on pedagogical strategies concerning program-centeredness. More specifically, it means that no two-way communication between teachers and students is allowed, and sending training materials to students through television and radio programs are classic examples of being in contact with each other. The situation changes drastically in the case of interactive online learning, allowing senders to become receivers and vice versa, effectively enabling a two-way communication channel between the parties involved. From the messages sent and received, the teachers and students

can influence their teaching and learning methods. For this reason, this mode of e-learning is considerably more popular, as it guarantees teachers and students a good rapport and the possibility to communicate more freely with each other.

Individual e-learning, as Young (2011) claims, follows an individualized learning plan constituting a user-specific learning program or strategy that resembles a mapped academic plan, reflecting each learner's unique set of strengths, weaknesses, goals, needs, abilities, preferences, and interests. This type of learning is not ideal for developing communicational skills and teamwork abilities in students, as it largely focuses on students learning independently, without communication with other students.

Therefore, a more interesting and beneficial approach is that of collaboration and cooperation blended together. Harasim (2012) views collaborative online education as a learning model where students are stimulated and guided into working together in order to construct knowledge in an innovative way and look for the conceptual knowledge necessary for the solution of a given problem. In most cases, it consists only in providing digital content, online self-assessment tests, or the simple exchange of information, there is hardly any online tutoring or collaborative activities (which are an integral part of the instructional design) involving intensive online interactions. Simply put, collaborative online learning provokes students' activeness and involvement while the online tutor plays a key role, not only as part of the community, but also as a link between the learning community and knowledge about the particular subject.

Organization of distance learning

The implementation of remote teaching is a form of pedagogical innovation (Rozporządzenie Ministerstwa Edukacji, 2002 [Ordinance of the Ministry of Education, 2002]) containing modern solutions with regard to the curriculum, organization or methodology aimed at increasing the creativity and entrepreneurship of students (Ustawa z dnia 14 grudnia 2016 r. Prawo oświatowe, 2016 [Act of 14 December 2016. Educational Law]).

Wedeł-Domaradzka and Raczyńska (2013) list a number of implementation principles concerning distance learning. Among them, the following recommendations addressed to teachers can be distinguished:

- Distance learning requires a transformation and adaptation of the existing resources and methods to the new learning environment as well as a change in one's own habits.

- Education changes the activity of both the teacher and the student. The teacher should be more motivated and focus on encouraging pupils.
- In the educational process, the use of diverse media is desirable because of the need to diversify resources. They are selected according to the educational situation and type of the audience.
- The teacher's competencies that are important in distance education include those related to technical and IT matters, instructive, content-related, legal and moral ("netiquette") ones and those related to self-development.

As can be seen, the requirements of remote education translate into a considerable organizational effort, starting with the implementation of procedures and many logistical activities to teacher's readiness (including above all the ability to use information and communication technologies and learning resources), and learner support in the form of necessary equipment and the Internet, to name a few.

Organization of distance learning in Poland

In order to minimize the negative effects of the pandemic situation, a form of distance teaching was implemented in Polish schools on 25 March 2020 (Rozporządzenie Ministerstwa Edukacji, 2020 [Ordinance of the Ministry of Education, 2020]). The responsibilities of the head of the school were defined, involving teachers, students and their parents. Among others, the head of the institution was obliged to organize distance learning for students. Additionally, what was regulated, as Godawa (2020) enumerates, involved the weekly content of teaching taking into account:

a) placing an equal burden of work on each pupil on particular days of the week
b) the diversity of classes on each day;
c) pupils' different mental and physical abilities to make intensive mental effort during the day;
d) the need to alternate teaching with and without the use of screen monitors; and
e) limitations related to the specificity of remote classes (Rozporządzenie Ministerstwa Edukacji, 2020, § 1, s. 3 [Ordinance of the Ministry of Education, 2020, § 1, p. 3]).

In addition to the guidelines on how to start and develop distance learning, the instruction includes a list of e-tools and e-materials to be used in remote work with learners. Apart from the guidelines for the organisers of the process of education, the regulations contain information and recommendations addressed to learners and their parents saying that "in the current situation, learning at home is a neces-

sity. However, it must be borne in mind that this special time should be devoted not only to learning but also to developing the child's passions and interests, as well as resting and strengthening family relationships" (Ministry of Education, 2020: 16). A diversity of tasks and the importance of the objectives placed distance learning among one of the most important undertakings that Polish society, especially schools and families, were to face.

The advantages and disadvantages of the Covid-19 distance learning in Poland have already been of interest to many researchers. The latest studies by Godawa (2020) and Nalaskowski (2021) brought to light diverse descriptions of chaos in schools and various social inequalities being observed among the learners. Less attention was paid to the stabilization period, including areas of adaptation to the unusual situation.

Methodology of own research

The present study has been structured in a more detailed way to investigate both the exact scope of the difficulties, type of obstacles as well as the conditions experienced and coped with apparent ease by the teaching staff during the first lockdown period in Polish schools.

The sample description

The subjects constituted 9 teachers affiliated with three secondary schools in Będzin (Poland), namely I, II and III LO.

Table 1
Sample description

Category	T1	T2	T3	T4	T5	T6	T7	T8	T9
Gender	F	F	F	F	F	F	F	F	F
Age	29	33	33	49	56	31	38	38	41
Education & subject taugh	English MA	English MA	English MA	English MA	English MA	English MA	English MA	English (MA)	English MA

Teaching experience	5	10	11	25	30	7	15	14	15
Type of on-line teaching	S	S	S	S	S	S	S	S	S

As seen from the table, the teachers invited to take part in the study are all female, between 29 and 56 years old. They have the necessary qualifications to teach English (MA), and teaching experience ranging from 5 to 30 years. Currently, all of them are engaged in a synchronous online teaching.

The tool

In order to collect the information evaluating online teaching in the schools under investigation, the online questionnaire was prepared and distributed among teachers. It consisted of a background section (gender, age, education, teaching experience, type of online teaching conducted and command of English), and the main part divided into three sub-sections (teacher-student rapport, type of material taught, and (non)problematic issues). The first of them involved general behavior and student actions typical of a lesson, such as:

– Netiquette,
– Punctuality.
– Active participation in the lesson: being prepared for the lesson, having homework done,
– Answers given and questions asked to the teacher,
– Volunteering to do a task, and
– Following teacher instructions.

The second list of entries consisted of both language skills and language subsystems, namely:

– Pronunciation,
– Reading,
– Writing,
– Listening,
– Speaking,
– Grammar, and
– Vocabulary

Both parts were organized with the use of a 5-point frequency scale, and, additionally, a blank space was left for comments.

Finally, the third sub-section, which was open-ended in form, investigated the most and least problematic issues, as well as situations described as a feeling of success. Here, the subjects were asked to enumerate three in each category, and justify their choice.

The study results

Teacher 1 – has been teaching English for 5 years, and is fairly satisfied with her language quality. Her online teaching is synchronous and involves only third grade students. Despite the fact that these are the last school year classes, she faces a lot of difficulties. First and foremost, she complains about students' lack of punctuality, both with reference to lesson and break time, which is a daily routine and almost epidemic in nature. Secondly, the teacher observes lack of homework assignments very frequently, and students 'unwillingness to interact with her during lessons. The material covered, as she reports, is well-balanced, and does not cause any problems. The final section portrayed the students' negligence as a major weakness, and the material coverage as a successful achievement in the current situation.

Teacher 2 – has been working as an English teacher for 10 years, and assesses her command of English in a positive way. The biggest problems she mentions in her online teaching (done synchronously) relate to students' passivity in the classes. They neither answer nor ask any questions, and, even worse, do not follow the teacher's instructions. When it comes to the scope of the language taught, the teacher makes an attempt to cover all the necessary materials including both language skills and subsystems irrespective of the group age, though with a dose of an unenthusiastic attitude on the part of the students.

Teacher 3 – has been an English teacher for 11 years now, very much satisfied with her language proficiency. The classes she teaches on a regular basis range from first to third graders which suffer from a lot of problems in the pandemic situation. The biggest challenge for the teacher is to engage students into the 45 minutes of an online synchronous lesson, and, even harder, to encourage them to speak. As she writes in the questionnaire, the learners remain silent regardless of the lesson phase, topics covered, and extra materials offered. As practicing pronunciation and speaking is almost impossible, the teacher, trying to overcome difficulties, has made an incentive to carry out a written project in each of the

class, and, thanks to that, she can "see the light at the end of the tunnel, and hope of the way out of this crisis".

Teacher 4 – has been teaching English for 25 years and feels comfortable whenever using the language. Despite her long professional experience, she complains about the synchronous online education in many respects. What she has major difficulty in includes the whole process of instruction, starting from the application use, material distribution and classroom management. The students themselves seem to pose too many problems for the teacher. The most troublesome situations are very unwilling and succinct replies on the part of the students, lack of student volunteers, and a vast majority of late comers. When asked about the syllabus coverage, she admits doing just the bare minimum. Partly because, as she says, "there are still TEAMS operating difficulties, and partly due to the students' lack of interest or even their indifference".

Teacher 5 – is most experienced of all teachers included in the study as her teaching experience is 30 years. At the same time, she is very much confident about her English, which may be the result of her professional status and teaching career, including areas of success such as language Olympian students. She seems to be very positive about online teaching and, as she points out in the questionnaire, that she cannot think of either troublesome or passive students, and denies that any other examples of misbehavior exist. As far as the language introduced, practiced and produced in the lesson is concerned, everything is well-balanced to cater for the learners' needs, which translates into their ease in expression, and many volunteers on many occasions during the lesson. Simply put, each class the teacher "enters into" (she teaches 9 classes at school), is considered non-problematic and there is no room for failure whatsoever.

Teacher 6 – has been working as an English teacher for 7 years, and considers herself very enthusiastic about teaching. As eager to teach all her classes as she is, she still experiences a multitude of problems, ranging from disciplining students in the classroom to a broadly-understood evaluation. These have become even more a pain in the neck since the beginning of the pandemic situation and remote teaching. Once online teaching was introduced, the teacher complained about a bit too monotonous lessons caused largely by the too slow pace. Conversely, she is fairly satisfied with the lesson content, notably language being provided to the students in line with sufficient practice and production.

Teachers 7, 8 and 9 are grouped and described here together as their questionnaire data overlapped to a great extent. The first thing they share is their teaching experience, i.e., 15, 14 and 15 respectively. The second one includes a very positive attitude towards their English skills, and online classes. Such an optimistic point of view translates into successful lessons conducted synchronously with the first, second and third graders (each of the teachers in question). The teachers neither

complain about any forms of learners' misbehavior nor the structure/ content of the lessons. On the contrary, they enumerate a few characteristic features and/or conditions of a positive teacher-student rapport during online instruction:

– If you are always on time, even those late comers try to be punctual.
– If you do not hurry up students, they become volunteers.
– If you do not punish students for lack of homework, they do it eagerly.
– If you practice all language skills, students believe it is possible.
– If you have Internet connection problems, do not panic, / take it easy/ try to make fun of it.
– If your students have Internet connection problems, try to help them, using telephone/messenger communication instead.
– If your students do not want to show up, do not force them.
– If you or your students have family members around/ in the background, do not feel sorry / ashamed of/ and just continue sharing attention.

The above-mentioned statements seem to constitute a set of golden rules guaranteeing a successful organization and realization of teaching goals. No drawbacks or inconveniences were experienced by these teachers whatsoever.

Summary of the results

Based on the findings that emerged in the study, both areas of failure and success in distance education can be distinguished. The most frequent ones include the following:

Table 2
Areas of failure and success

FAILURE	SUCCESS
T1. STUDENT BEHAVIOUR	T1. MATERIAL COVERED
T2. STUDENT BEHAVIOUR	T2. MATERIAL COVERED
T3. SPEAKING PRACTICE	T3. WRITTEN PRACTICE
T4. APPLICATION USE, SYLLABUS COVERAGE, STUDENT BEHAVIOUR	T4. ----------
T5. ----------	T5. ……
T6. CLASSROOM MANAGEMENT, EVALUATION	T6. MATERIAL COVERED
T7. ----------	T7. EVERYTHING
T8. ……..	T8. EVERYTHING
T9. ……..	T9. EVERYTHING

Generally speaking, 6 out of 9 respondents have expressed both their ideas for improvement and/or change (failure section), as well as the ones that do not require either intervention or interference as such (success section). The remaining three teachers show a complacent attitude towards the process of distance education, claiming that "everything is a success."

Concluding remarks

Based on the data collected, a few conclusions can be drawn:

Firstly, the respondents' attitude towards distance learning was not dependent on their age, education and/or professional experience. It was rather influenced by some managerial and soft skills that are synonymous with appropriate contextual, interpersonal and behavioural competences. More specifically, as we read in Rao (2010), they are the skills and abilities that are essential to communicate with superiors, peers, subordinates, clients and vendors. These are the skills related to both verbal and non-verbal language for effective and efficient communication.

Secondly, the areas of failure and success seem to appear with similar frequency, though the former being wider in scope than the latter. Accordingly, most failures are reported to be associated with the lack of teacher-student cooperation, and problems with covering the material. Successful situations, on the other hand, reflect teachers' satisfaction with the process of imparting information.

Thirdly, some solutions to teachers' problems might be offered. These can be divided into two stages, namely, the teacher training period, and the teaching proper/career phase.

Implications and solutions to problems

As far as the first stage is concerned, it is advisable to incorporate the subject/course of soft skills into the teaching programme, or, if proven to be impossible, at least a few activities promoting skill development. Following Rao (2010), we can teach the skills in question by means of:

– teaching empathy

  Here, a good idea will be situations/exercises asking the students *what would you do if…*,

– dejargonising language
  This step consists in preparing a series of activities requiring the students to use the exact language expression or a list of them in a conversation, and
– using a sense of humor
  The teachers are advised to use stories, ask students to finish, to begin or to create stories on their own.

Another suggestion during teacher training could be that put forward by Jedliński (2008) who proposes a soft skill training consisting in role playing. This could be best done by means of videotaping, allowing the students to replay and recognize who's who, change and strive for the desired behaviour. Apart from observations, it could also serve as a source of feedback teachers give to soften students' reactions whenever necessary, not only to increase their role, but also the role of soft skills in language learning.

When it comes to the second stage, it would be of great importance if teachers could make use of the previously-mentioned exercises and introduce them into their own classrooms. Some other solutions to the problems highlighted by the sample of the study might range from the courses currently offered by many institutions (e.g., the course devoted to distance learning https://www.ntg.pl/szkolenia/szkolenia-biurowe/ms-office-on-line/655-o365-ms-teams-praca-w-szkole-kurs-dlanauczycieli), IT support offered by schools (in the form of the IT staff available to teachers at the time of their working hours, to information/experience sharing forums (e.g., Facebook groups).

And, last but not least, it is always worth remembering that: *"Success is not final; failure is not fatal: It is the courage to continue that counts." (Winston Churchil).*

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Marzena Wysocka-Narewska

Nauka na odległość w polskich szkołach w okresie lockdownu: sukcesy i porażki w doświadczeniach nauczycieli języka angielskiego jako obcego

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

Celem podjętych badań kwestionariuszowych jest rozeznanie w sytuacji, w jakiej znaleźli się nauczyciele pracujący w polskich szkołach w okresie lockdownu. Chodzi o nauczycieli języka angielskiego jako obcego pracujących z młodzieżą licealną i szeroko rozumianą naukę na odległość. W badaniu wzięło udział 9 nauczycieli z trzech szkół (I, II i III LO w Będzinie). Zakres pytań, na które odpowiedzieli za pośrednictwem ankiety dotyczył dwu obszarów – organizacji i zarządzania klasą oraz realizacji materiału językowego podczas lekcji online. Ankietowani, oprócz swych sukcesów przedstawili również trudności w pracy, z którymi borykają się na co dzień. W celu zaradzenia problemom nauczycieli Autorka prezentuje kilka z możliwych rozwiązań, takich jak rozwój osobowy (poprzez np. umiejętności miękkie), udział w kursach obsługi aplikacji internetowej, z której korzystają czy dyskusje na forach.

S ł o w a k l u c z o w e: nauka na odległość, sukcesy i porażki, propozycje rozwiązania problemów

Мажена Высоцка-Нарэвска

Дистанционное обучение в польских школах в период локдауна: успехи и неудачи в опыте преподавателей английского языка как иностранного

Аннотация

Целью проведенного анкетного исследования является определение положения учителей, работающих в польских школах в период локдауна. Речь идет об учителях английского языка как иностранного, работающих со старшеклассниками, и о широко понимаемом дистанционном обучении. В исследовании приняли участие девять учителей из трех школ (Средняя школа I, II и III в Бендзине). Диапазон вопросов, на которые они ответили в ходе опроса, касался двух областей - организации и управления классом, а также использования языковых материалов во время онлайн-уроков. Респонденты, помимо своих успехов, также рассказали о трудностях на работе, с которыми они борются ежедневно. Чтобы справиться с проблемами учителей, автор предлагает несколько возможных решений, таких как личностное развитие (например, с помощью soft skills), участие в курсах по использованию интернет-приложения, которое они применяют, или обсуждения на форумах.

Ключевые слова: дистанционное обучение, успехи и неудачи, предложения по решению проблем.

Marzena Wysocka-Narewska

El aprendizaje a distancia en las escuelas polacas durante el período de bloqueo: éxitos y fracasos en la experiencia de los profesores de inglés como lengua extranjera

Resumen

El objetivo de la investigación del cuestionario realizada es identificar la situación de los profesores que trabajan en las escuelas polacas durante el período de cierre. Se trata de profesores de inglés como lengua extranjera que trabajan con estudiantes de secundaria y de un aprendizaje a distancia ampliamente comprendido. Nueve profesores de tres escuelas (High School I, II y III en Będzin) participaron en el estudio. La gama de preguntas que respondieron a través de la encuesta se refería a dos áreas: la organización y gestión del aula, y la implementación de material lingüístico durante las lecciones en línea. Los encuestados, además de sus éxitos, también presentaron las dificultades en el trabajo con las que luchan a diario. Para abordar los problemas de los docentes, el autor presenta varias posibles soluciones, como el desarrollo personal (a través, por ejemplo, de las habilidades blandas), la participación en cursos sobre el uso de la aplicación de Internet que utilizan o las discusiones en foros.

Palabras clave: aprendizaje a distancia, éxitos y fracasos, sugerencias para la resolución de problemas.

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"Flavours in Ead" an Innovative Concept and Approach for an Intuitive and Effective E-learning Course

Abstract

E-learning has changed significantly since the pandemic. In the early months of 2020, our whole educational framework suffered from several side effects that needed to be corrected to ensure an effective and alternative way of teaching. Therefore, new methods and methodologies needed to be outlined to address the students' learning needs. Regarding Higher Education, students and teachers were used to a more traditional way of teaching, yet strategies had to be implemented to maintain teaching in a higher level of performance. Thus, a methodology called "Flavours in EaD" was developed. This strategy comprised several actions and steps on how to build a robust, intuitive, and flexible E-learning course in the COVID-19 Pandemic time. What will be presented and analysed in this work as a way of disseminating the research and methodological process related to the "Flavours in Ead" strategy is based on the thought process involving the preparation, verification, development and implementation phase.

K e y w o r d s: E-learning, COVID-19, Innovative digital teaching, Learning methodologies

Introduction

The COVID-19 pandemic has brought numerous challenges to education on a global scale. It is estimated that during the peak pandemic crisis period, 1.5 billion students, which consists of 89.4% total of enrolled learners, (UNESCO, 2021) experienced various challenges with regard to their learning. From disruptions to the transition from face-to-face lessons to a digital format, were just a few examples of changes that this new context raised that needed to be properly addressed. This situation also occurred on a large scale in Higher Education. Despite being a more autonomous learning context, where students have more advanced transversal competences, it was a challenge that also needed to be tackled. This sector had to "reinvent" itself in a short space of time by applying an initial methodology of "emergency online education" (Marinoni, Van't Land & Jensen, 2020) ensuring a way for students to maintain their teaching activities and remain active in the development of academic projects according to the different curricular units of each course.

Another important aspect to take into consideration is the digital factor that this paradigm shift has initiated, called a "digital revolution" (Strielkowski, 2020). This concept meant that Higher Education had already foreseen that this kind of challenges could arise and, in order to ensure flexible teaching, the transition to fully digital or online formats was foreseen. Still on this aspect, this transition to digital, which is a mandatory need given the pandemic context, gave rise to an innovative aspect based on the learning behavior of the students who were inserted in this context. This involves the autonomous learning phenomenon, in which students adopted a self-regulated learning (SRL) method, in which students are active and responsible for their own learning process as well as being knowledgeable, self-aware, and able to select their own approach to learning (Gonzalez, De La Rubia, Hincz, Comas-Lopez, Subirats, Fort, & Sacha, 2020). Finally, it is important to highlight the efforts, measures and strategies that have been implemented by different frameworks, governments, and organizations as effective solutions to support this transition from face-to-face education to digital education. These are some of the axes that guided and delimited this study and, consequently, led to an understanding of the steps to be implemented in the development of a robust, intuitive, and flexible online learning environment for higher education students.

Research area

The research problem that this study addresses begins with the period of the pandemic crisis, specifically with regard to Higher Education and all the changes that had to be made to ensure a good learning system for students. This context resulted in a paradigm shift for face-to-face teaching, specifically, in the strategies implemented to ensure an effective transition to a fully digital teaching regime. Thus, this study seeks to understand which strategies and methodologies are to be used in the construction of courses mediated entirely through the digital medium. In order to do so, the following research question was applied:

How to build a robust, intuitive, and flexible course model for Higher Education students in an E-learning format?

Research Focus

The focus of the research is on two central aspects. The first is related to the changes in the educational sector, more specifically, in Higher Education, due to the emergence of the COVID-19 pandemic and the need to move from face-to-face teaching to a fully digitally mediated education. The second fundamental aspect involves the design and analysis of innovative online teaching strategies, namely E-learning and how it should be developed and structured in order to ensure a robust, intuitive and flexible teaching-learning context. However, this study is not an exclusive phenomenon and is part of an evolving framework where several components are equally important to analyse and understand. In fact, these components determine the level of effectiveness of the digital media used, as they are verified through the digital, pedagogical, and social component to the extent that it is important to know how these parameters fit and, respectively, evaluate each other in the framework of online teaching strategies. An online teaching strategy, specifically, mediated by E-learning platforms refers to a more autonomous and self-critical position of the students. In this way, it is important to establish tools that monitor the progress and learning curve of the students. These can be applied separately from the E-learning system used (e.g., Moodle) or integrated directly into the platform through initial or intermediate evaluation methods.

Methodology of Research

The Design Science Research methodology was adopted since the idea was to analyze different component models and initiatives that help solving the defined Problem of Research question: *"How to build a robust, intuitive, and flexible course model for Higher Education students in E-learning format?".* Using this methodology, traditional solutions will be broached for each problem identified and based on them; alternative new models and concepts will be found. This methodology also allows the use of both qualitative and quantitative methods and techniques. The Design Science Research comprehends three different phases. The first phase is related to the understanding of the problem in a broad perspective, so a mixture between some literature review and in-depth qualitative research, by means of working with our focus group – higher education students, made these techniques an effective strategy to understand deeply the context, needs, requirements and expectations of all the involved actors on the development of a robust, flexible, and intuitive E-learning course model. The second phase is related to the design of the possible solutions, so it again used some literature review and benchmarking research techniques to investigate and compare best practices and initiatives that can meet the defined problem, as well possible indicators, and metrics of results. All the findings put together a set of pinpoints which allowed the research project team on using a Participatory Design approach, facilitating the ability to design and iterate the E-learning model's architecture, with the methods, practices, resources, technologies, and communication & engagement processes to be proposed to be part of the model. The third phase was related to the evaluation of the solution by other subjects. Besides the directly involved participants, which in this case were the students as focus group, this study also included a small group of E-learning experts in order to introduce a broader concept of quality concerning the teaching-learning scenarios that digital learning encompasses. Therefore, in the first stage, the usage of an Expert Panel served as a way of evaluating and refining the various elements that composed the model and validated the more suitable KPIs. Applying at least three rounds of the Delphi Method Technique, the goal of this phase was to achieve an expert consensus about the adequacy and comprehensiveness of the proposed E-learning model and its indicators. In the second stage, after the iterative evaluation by the experts, we applied the developed model in a small study case to evaluate and measure its effectiveness towards the students and teachers. The Knowledge Management approaches, as After-Action Review and Lessons Learned Sessions were also used to share experiences and to register and preserve the knowledge gained.

General Background of Research

Besides the Design Science Research methodology used in the different steps of this project it is important to mention that this study was also integrated in an Action-Research frame of mind, which allowed for a broader engagement in the study and its Problem of Research as well as several areas of influence present in it. Firstly, because it was found useful to apply an exploratory research design methodology since it is one of the most appropriate methods to tackle the diversity of intricacies that online learning brings to the Higher Education learning system, especially in the wake of the COVID-19 pandemic. Exploratory studies are a valuable means of asking questions to establish baseline information that could be later used as a launch pad for further research (Ali, 2020). This more comprehensive approach of an exploratory research design methodology allows a more comprehensive space for comparative analyses, meta-analyses and a systematic follow-up of initial results that may change over the time of the study or investigation. This flexibility is particularly important given that this study is part of a totally innovative and digital project where needs are constantly changing and altering. In addition to the technical challenges, there are also those of a more social and pedagogical nature that require an equally adequate follow-up. As such, the use of dynamic methods and methodologies permeable to change becomes an added value for the execution of this type of project.

Sample of Research

The research sample is composed of a set of subjects who, directly or indirectly, contributed to the implementation of this project. Thus, we defined students as the most active and participatory focus group in this study, since they were the intervening users or, in this case, the "*trysumers*" of the innovative E-learning course model developed as a robust, flexible, and intuitive online teaching strategy. However, in addition to this more deterministic focus group, other subjects were considered important for project evaluation and monitoring, especially, regarding the quality of the model and the pedagogical and methodological guides developed for the implementation of the E-learning model. For this purpose, the integration of a small group of experts, with the role of evaluators and consultants, became an adequate process in the management of this project.

Instrument and Procedures

The instruments and procedures that accompany this type of study are always one of the most fundamental aspects for the success of any project of an innovative and digital nature. In order to build a robust, flexible and intuitive E-learning model in a Higher Education context, it was necessary to define a dynamic and comprehensive structure, specifically, one that encompassed a set of diverse parameters and aimed at compressing the technological, social, and pedagogical components of the students and teachers involved in the model. Furthermore, it was important that this structure included, as a basis, a multi-level vision eliminating some reductive input. As such, the model was used that was inspired by transversal competences and that included a strong digital component (Calvani, Cartelli, Fini, & Ranieri, 2008):

- **Multidimensional** – the model should imply an adapted integration by the student and the teacher, relating the spectrum of skills, knowledge, cognitive, relational, creative and socio-cultural processes of each individual.
- **Complex** – the e-learning model cannot be based only on individual tests; some aspects that link more to the acquisition of social and technical skills of students should be addressed in different ways taking into account the student's background and way of learning.
- **Interconnected** – the model cannot depend only on key competences which overlap with the transversal competences acquired or developed by the students. It must be diverse and comprehensive.
- **Sensitive to the participants' socio-cultural context** – the model cannot adopt only a standard or single format of digital learning delivery. This should not be limiting but rather permeable to change and adaptability. Because the concept of learning changes for each student and varies according to the student's level in relation to the course contents.

These were some of the instruments and procedures implemented throughout the study in order to guarantee a viable and tangible structure for the development of the E-learning model and its integration in digital teaching in Higher Education contexts.

Data Analysis

The analysis of data of a more quantitative nature, even if including a qualitative aspect, was included in this study through the implementation of an evaluation

questionnaire. Thus, from the main focus group project, one hundred students were selected as a representative sample. It should be noted that among these students there were two different study cycles, Licentiate's Degree and Vocational Technical Higher Courses respectively. The questionnaire applied was based on a simple Likert Scale, designating a frequency interval from 1 to 5, where **1-Never**, **2-Rarely**, **3-Sometimes**, **4-Often,** and **5-Always**. In order to ensure an adequate and pertinent evaluation of the developed E-learning model, five parameters were defined as diagnostic criteria to be chosen by the students. These parameters were based only on the digital component that the E-learning model integrated, namely: i) progress bar; ii) educational videos; iii) quizzes; iv) immersive ecosystems; v) digital assessment. These were considered the most important elements of the model in the sense that they encompass the various phases of student interaction and learning when inserted in an online teaching context.

Table 1
Summary of the results about the most useful tools in the E-learning mode

	Never	Rarely	Sometimes	Often	Always
Progress Bar	0	43	34	13	10
Educational videos	0	4	7	33	56
Quizzes	0	37	32	17	14
Immersive ecosystems	0	7	9	40	44
Digital Assessment	0	13	18	36	33

S o u r c e s: Own work

After collecting and analyzing the data from the 100 students surveyed, we found out that:

a) No student indicated "Never" as a choice for the evaluation of the parameters, which, in a first observation, leads us to believe that the tools used in the E-learning model showed usefulness for the students.
b) Of the 100 students surveyed, 43% indicated that they rarely used the "progress bar" as one of the tools in their work and classes. There was only 10% use of this parameter by the students which translates into a little used and less useful component for the students' learning path.
c) Of the 100 surveyed students, 56% demonstrate the importance that "Educational videos" have in their online teaching pathway, being particularly useful learning tools in the E-learning model.
d) Of the 100 students surveyed, 69% indicate that they use the "Quizzes" component only "Rarely" or "Sometimes" leading to a negligible use in the students' online learning process.

e) Of the 100 students surveyed, 84% indicate the use of "Immersive Ecosystems" as one of the best practices for E-learning teaching models. These are intuitive and interactive tools for the students' learning process. The most verifiable data were "Often" and "Always".
f) Of the 100 students surveyed, 69% stated that they use the "Digital Assessment" component often and even always as a way of monitoring and evaluating their progress in online learning pathways.

By way of a brief conclusion, we can see that this model of E-learning developed in a Higher Education context presents a considerable level of success. This is because the students have shown the ability, from the different technological components used, to highlight the most appropriate and beneficial ones for their online learning process. Furthermore, this data helps to confirm the position that a fully digitally mediated teaching format can be viable and competitive for students. It even results in higher levels of performance from them when they are involved in different activities that integrate digital interaction.

Results of Research

The results of this study and its project are varied in nature. Initially, there was data analysis on the effectiveness and evaluation of the developed E-learning model. The importance of understanding whether the digital components used were found to be useful, relevant, intuitive, and appropriate to the different learning profiles of the students followed. Next, this study enabled the search, study, and critical analysis on a varied set of hypotheses that needed a direct answer. In this case, it included the most appropriate and rapid solution to the research question that led to this project: How to build a robust, intuitive, and flexible course model for Higher Education students in the E-learning format?

Now, following this logic it was necessary to establish a conceptual framework for the main answers acquired, which included:

a) **The preparation of a model or course in E-learning** that must be able to implement a teaching provided with physical separation between the participants in the educational process in which the interaction is supported by online teams of academic and technological support; the curricular design allows access without limit of time and place to the contents and contexts; and the pedagogical model is designed in virtual environments.
b) **The empowerment of human resources** with the application of a specialized teaching staff with proven pedagogical training in Distance Education; special-

ized technicians in computer science, web design, LMS and new technologies; specialized technicians in the design of curricular units in e-learning or blended learning modality; multidisciplinary teams to support the construction of original resources and the implementation of curricular units in LMS.

c) **The implementation of technological means and materials** such as Technological infrastructures and systems; LMS; Integrated academic data management systems; Digital documentation centers providing free access to digital libraries and multimedia resource centers; Research centers in methodologies and technologies applied to online education for experimentation and development of innovative solutions both in the pedagogical and technological fields.
d) **The creation of a pedagogical model and curricular design** that encompasses the modular conception of contents, methodologies and activities aiming at the flexibility of adequate access to the curricular plan and collaborative processes.
e) **The structuring of a curricular plan** that values personalized learning paths and with the preferential option for optional units.
f) **The definition of a formative and summative assessment model** (face-to-face or virtual) focused on the student's personalized evaluation.
g) **The flexibility of a curricular development** in which the teaching methodologies applied are those recommended in the Institution's Virtual Pedagogical Model. Teaching is student-centered, favoring two different but complementary ways of working: an individual and collaborative one.

These were some of the points to consider in the results of this study. In order to implement a robust, intuitive and flexible model in E-learning it is important to ensure a set of mechanisms that facilitate and streamline the process. It is not just a question of transitioning or maintaining educational services in an online format, but rather of developing and implementing a multi-level model in which it is verified that online teaching is a solution that is often practical and that, at times of a sudden change, becomes viable as an educational strategy.

Conclusions

A pedagogical strategy based on innovative axes such as online teaching is a challenge present in the information society which intersects with other priority points that also mark presence in this transition from face-to-face teaching to a fully technology-mediated teaching. The truth is that, after this study, one of the initial conclusions that we can observe is the fact that Higher Education Institutions must prepare, develop and, in most cases, adopt a robust digital teaching strategy.

However, it has to be borne in mind that other obstacles may arise raising the need to continue to ensure the entire educational offer of an Educational Institution even if in an alternative format. Another aspect to be highlighted from this study, as a conclusion, is that these types of projects continue to be an evolving concern. That is why , we cannot only base ourselves on the development of practical, innovative, and digital solutions, supported by more or less complete E-learning systems, but also on the understanding of the critical factors that lead to the use of this type of an alternative in education. As such, we relate the identification of these critical factors as a priority, specifically, those that affect the usage of an e-learning system and should be taken by universities into the future plans, namely: (1) technological factors, (2) e-learning system quality factors, (3) cultural aspects, (4) self-efficacy factors and (5) trust factors (Almaiah, Al-Khasawneh & Althunibat, 2020).

Another important conclusion to gain from this study is the multi-level factor that the E-learning model built had to assume. This has become one of the most impactful factors for the success of this type of E-learning model and the development of this study. Besides this, we cannot neglect the importance of maintaining this type of strategies in the post-pandemic period as an experience of innovation for the pedagogical conceptual framework.

Regarding the answer to the research question: How to build a robust, intuitive, and flexible course model for Higher Education students in E-learning format?, we were able to understand that the methodology to be adopted involves implementing multi-dimensional instruments and processes, interconnected and sensitive to the students' socio-cultural context in order to guarantee a high comprehensiveness and accessibility of the model. As for the technological component, with regard to the tools and resources to be used in E-learning models, we identify as priorities and most useful the (i) educational videos, (ii) immersive ecosystems and the (iii) digital assessment of students. Finally, regarding the conceptual framework that should accompany the construction of this E-learning model for Higher Education contexts, it should guarantee the following parameters: a) The preparation of a model or course in E-learning; b) The empowerment of human resources; c) The implementation of technological means and materials; d) The creation of a pedagogical model and curricular design; e) The structuring of a curricular plan; f) The definition of a formative and summative assessment model; g) The flexibility of a curricular development. In short, E-learning seems to be the forthcoming trend, and can be considered a way of learning best suited for everyone (Radha, Mahalakshmi, Kumar, & Saravanakumar, 2020).

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Maria Potes Barbas, Pedro Matos

„Flavours in Ead" innowacyjna koncepcja i podejście do intuicyjnego i efektywnego kursu E-learningowego

Streszczenie

W ciągu ostatnich kilku lat e-learning przeszedł wielki zwrot. W szczególności, od momentu uderzenia pandemii, w pierwszych miesiącach 2020 roku, nasze całe ramy edukacyjne ucierpiały z powodu kilku skutków ubocznych, które musiały zostać skorygowane, aby zapewnić skuteczny i alternatywny sposób nauczania. W związku z tym należało nakreślić nowe metody i metodologie,

aby zaspokoić potrzeby uczniów w zakresie uczenia się. Jeśli chodzi o szkolnictwo wyższe, studenci i nauczyciele byli przyzwyczajeni do bardziej tradycyjnego sposobu nauczania, jednak należało wdrożyć strategie, aby utrzymać nauczanie na wyższym poziomie. W związku z tym opracowano metodologię nazwaną „Smaki w EDO". Strategia ta składała się z kilku działań i kroków, jak zbudować solidny, intuicyjny i elastyczny kurs E-learningowy w czasie pandemii Covid-19. Od procesu myślowego do fazy przygotowania, weryfikacji, rozwoju i wdrożenia, aspekty te zostaną przedstawione i przeanalizowane w tej pracy jako sposób na rozpowszechnienie badań i procesu metodologicznego osiągniętego w związku ze strategią „Flavours in Ead".

S ł o w a k l u c z o w e: E-learning, Covid-19, Innowacyjne nauczanie cyfrowe, Metodologie nauczania

Мария Потес Барбас, Педро Матос

„Flavours in Ead" – инновационная концепция и подход для интуитивного и эффективного курса электронного обучения

А н н о т а ц и я

За последние несколько лет электронное обучение приняло большой оборот. В частности, после пандемии, разразившейся в первые месяцы 2020 года, вся наша система образования пострадала от нескольких побочных эффектов, которые необходимо было устранить, чтобы обеспечить эффективный и альтернативный способ обучения. Поэтому необходимо было разработать новые методы и методологии для удовлетворения потребностей студентов в обучении. Что касается высшего образования, то студенты и преподаватели привыкли к более традиционному способу преподавания, однако необходимо было внедрить стратегии для поддержания преподавания на более высоком уровне. Таким образом, была разработана методология под названием "Ароматы в EaD" ("Flavours in Ead"). Эта стратегия включала в себя несколько действий и шагов по созданию надежного, интуитивно понятного и гибкого курса электронного обучения в условиях пандемии Covid-19. В данной работе будут представлены и проанализированы все аспекты, начиная с процесса обдумывания и заканчивая этапами подготовки, проверки, разработки и внедрения, как способ распространения результатов исследования и методологического процесса, связанного со стратегией "Ароматы в Ead" ("Flavours in Ead").

К л ю ч е в ы е с л о в а: Электронное обучение, Covid-19, Инновационное цифровое обучение, Методологии обучения

„Flavours in Ead” un concepto y un enfoque innovadores para un curso de E-learning intuitivo y eficaz

R e s u m e n

El aprendizaje electrónico dio un gran giro en los últimos años. En particular, desde que se produjo la pandemia, en los primeros meses de 2020, todo nuestro marco educativo sufrió varios efectos secundarios que debían corregirse para garantizar una forma de enseñanza eficaz y alternativa. Por lo tanto, había que perfilar nuevos métodos y metodologías para atender las necesidades de aprendizaje de los alumnos. En lo que respecta a la educación superior, los estudiantes y los profesores estaban acostumbrados a la forma más tradicional de enseñar, pero había que aplicar estrategias para mantener la enseñanza en un nivel superior de rendimiento. Así, se desarrolló una metodología denominada „Sabores en EaD”. Esta estrategia comprendía varias acciones y pasos sobre cómo construir un curso de E-learning robusto, intuitivo y flexible en el tiempo de la pandemia de Covid-19. Desde el proceso de reflexión hasta las fases de preparación, verificación, desarrollo e implementación, estos aspectos se presentarán y analizarán en este trabajo como una forma de difundir el proceso de investigación y metodológico logrado en relación con la estrategia „Sabores en Ead”.

P a l a b r a s c l a v e: E-learning, Covid-19, Enseñanza digital innovadora, Metodologías de aprendizaje

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Individual and Collaborative Online Learning – Reasonable Compromise

Abstract

The collaborative attitude to education in general and e-learning in particular has become increasingly popular and productive. It preserves certain learning values connected with social context of learning and new phenomena of networking and using the tools of social media in education. Collaborative learning values include mutual inspiration, crowdsourcing, problem learning, peer learning and the like. More careful and elaborated look is necessary to pinpoint all important constituents of the overall positive account of social learning. One should take into account historical background and theoretical basis for a new wave in collaborative pedagogy.

At the same time, we face one of the greatest challenges in modern online learning, especially in its massive edition, including a new wave of MOOCs. It is a challenge of respecting an individual and open choice of learning path, even within more and more uniform massive online courses. One possible way of providing free choice of student's learning path is to offer more adaptive academic curricula.

The purpose of the study was to determine the students' attitudes toward community and individual online learning to explore their preferences in this regard, and to have them evaluate which of these forms held more promise for the future. In the study, we were also interested in tendencies in the choice of online learning and traditional learning, as well as factors that may influence the direction of these trends. The results showed that there are dichotomies and

conflicts between individual and collaborative online learning as far as sets of values are concerned. But the user practice shows that the reconciliation between the two is possible.

K e y w o r d s: online education; individual online learning path; collaborative learning; learning values; human factor

Introduction

A properly understood openness in the choice of learning modules, enrolment solutions, pace of learning, self-control, moderate supervision and even new ways of self-assessing are not obstacles but challenges. But open access to educational resources and mechanisms of individual modelling of curriculum is not the only dimension of individualism in online education we want to study in this paper. One should take into account the organisational consequences of distributed and less regulated population of learners, the need to respect learning outcomes independently from their origin, need to integrate academic and professional skills and, moreover, necessary supporting mechanisms which provide constant consultation and aid for the learners.

On the other hand, the collaborative attitude to education in general and e-learning in particular has become increasingly popular and productive. It preserves certain learning values connected with social context of learning and new phenomena of networking and using the tools of social media in education. Collaborative learning values include mutual inspiration, crowdsourcing, problem learning, peer learning and the like.

Our main goal in this paper is to summarize collaborative and individual learning values present in open education, and to analyse their impact on the learning effectiveness. Not every kind of positive factors in learning treated as a social phenomenon has the same influence and results in the same learning outcome. That is why the analysis will be useful in formulating the general, overall characteristics of the advantages of collaborative learning. On the other hand, we will study the value of learners having a free choice of individual path of learning. Positives of individual freedom to choose in this context are not only ideological or based only on the respect for human freedom of choice in general. There are obvious benefits one can derive from formulating and adapting an individual way, method, pace and kind of learning. A set of values attached to the social educational context is different from those present in the attitude to education respecting individual dif-

ferences. From our analysis we will see how far they are from each other and to what an extend they contradict each other.

Common history

Collaborative learning is largely based on crowdsourcing, the use of collective wisdom, the power of a group of learners working together. Crowdsourcing is a term in its most recent meaning used since 2006, covering the use of distributed sources to solve micro and macro problems (Howe, 2008). An interesting and practical example of such a customisable service is Craigslist, a network of local classifieds and help sites, created in 1995, and then served as a benchmark for many social media services.

Many theorists note that crowdsourcing is a secondary term to the term "smart mob", proposed by Howard Rheingold in 2002, meaning a rational effect, a collective intelligence, emerging as a result of increased interaction (Rheingold, 2002). So looking at learning as a bottom-up collective activity is rooted in quite a long tradition.

The same is true for the history of the idea of personal learning. The idea of a personal learning environment (PLE) is even older. The term was used as early as in 1976 by Goldstein and Miller (Goldstein & Miller, 1976). They were writing about the application of artificial intelligence methods to automated learning. The general idea behind the term is the creation of a personal learning environment by each individual learner, and thus the shaping of the learning activity by the learner him/herself. There is no ready-made scenario, no pre-imposed plan, no division between systematic education and informal or even non-formal education. Personalised learning tools and techniques are used. In modern terms, personal learning environment should be understood as independent, individualised, personalised learning. This individualised approach to distance learning also has quite a long tradition in the history of theoretical considerations of learning styles and various pedagogical attitudes. Hase and Kenyon wrote about this phenomenon as defining a separate type of pedagogy in 2000, using the term 'heutagogy'. With this approach to learning, it is described as a fully 'self-governed' process (Hase & Kenyon, 2000). Since 2005, this individualised approach to online learning has been supported by a number of e-learning projects, including those related to the development of peer-to-peer training, supported by the use of wide-ranging open access educational resources (Gurba, 2014).

A good institutional example of the application of collaborative teaching in the school education comes from Finland. Here the educational system underwent a real revolution. Finnish school classes no longer contain traditional subjects. Instead of particular subjects, like mathematics, physics, chemistry, history, geography, students will study events and phenomena in an interdisciplinary format. The Second World War will be studied from the multi-perspective of history, geography, and maths. Another course called 'Working in a Café' will allow students to absorb a whole multi-disciplinary knowledge about the English language, economics, and communication skills. A Finnish educational researcher and theoretician, Marjo Kyllonen, responsible within the Finnish educational authorities for the implementation of new methods of personalised learning, explicitly writes about the need for a 'new narrative' in describing the learning process (Kyllonen 2019).

The new teacher preparation system has ensured the successful implementation of a new style of teaching in schools. Teachers learn techniques for building student group motivation, become familiar with a range of techniques developed within educational psychology (Pressley 2020). 'The new trend sees teachers as developers in the whole school community. Teachers have research-based orientation in pre-service teacher education, which makes them capable to design school-based projects and their own development as it relates to school development' (Niemi 2015).

This system was introduced for senior students, beginning at the age of 16. The general idea is that the students ought to choose for themselves which topic or phenomenon they want to study, bearing in mind their plans for the future and their individual capabilities. Choosing an individual learning path, the student will not have to pass through an entire course on mathematics or chemistry, but will obtain sufficient knowledge and skills necessary in the future professional life. Of course, it changes also the traditional format of teacher-pupil communication. A traditional class teaching no longer exists. Students work together in small groups to discuss and solve problems.

The liberation, opening of educational resources is intended to serve the greater availability of educational content that can be used by participants in the learning process, who, in the new type of learning environment therby created, can exchange information with a wide range of co-participants, complement each other, share knowledge and common educational resources. There are many ways in which groups can organise themselves into such non-individual, collective learning often referred to as a 'virtual community' of learners.

There are many undoubted advantages of such a collective community learning. But there are also many missing educational values in the collaborative attitude. In an individual learning the student has a sense of freedom from the framework of compulsion, from the planned learning path, from limitations in

the pace and scope of learning. At the same time, however, an individual learning deprives students of valuable interaction with other learners, prevents project-based learning or inquiry-based learning. While in an individual learning, when choosing one's own learning path, the student has the possibility to adapt his/her learning style to his/her individual needs, to adjust the pace of acquiring knowledge, in the community learning, and social learning one uses various methods of interaction, cooperation in projects, controlling one's own mistakes, and taking advantage of the whole blessing of collective work.

Need for balance

The research generally shows the need for a reasonable balance between student freedom in the online learning process and supervision, control, and moderation by teachers. These two approaches can be sensibly combined, as Monika Weingartz, for example, has shown, indicating that student autonomy and independence in the learning process is best optimised by individualised selection of learning content, but also of the methods of control and academic supervision, best tailored by the student him/herself (Weingartz, 1990).

Another attempt to reconcile individual and collective approaches include courses called MOOLOs, which are a hybrid variant of MOOCs in which a set of learning modules, so-called learning objects, is made available to the student (Naidu, 2013). These are chosen by the student him/herself. In a similar way, Scharmer describes MOOC 4.0 courses as based on the use of both 'peer-to-peer' interaction and independent activities within formed subgroups or communities called 'social fields' (Schramer, 2014). In this way such local groups can make better use of the collective wisdom, while maintaining the relative autonomy of the participants in the learning process. Another name for a longer term initiative developed on a fairly massive scale is so-called Computer Supported Collaborative Learning (CSCL). Behind this name lies an approach in which the creative process in general and the learning process in particular is treated as a community endeavor. The CSCL community has for many years been developing its own tools, including online, social media tools to support this strand of collaborative learning. From a methodological point of view, this approach is called socio-constructivism.

The techniques for working and collaborating on course content fall within the broad field of participatory pedagogy. Within this model, different levels of participation are distinguished and the learning process, including the process of individual selection of the learning path, is adapted to the user's preference, which has been previously examined and precisely defined. Online educational content focused on passive participation is prepared differently from that focused on ac-

tive participation. Despite the great variety of educational content and methods for an individual and collective learning, it is possible to maintain the value of self-regulation of the range, level and type of educational content, while taking advantage of the interaction in a larger group or broader community of learners. Such a proposal for balancing the two extremes was proposed by me, among others, in the form of a proposal for sMOOCs included in my 2015 book 'MOOCs – history and future' (Gurba, 2015). Of course, this was not a new discovery, but merely the formulation of a number of postulates in relation to MOOC-type courses. The idea of such a combination of peer learning with the choice of an individual learning path was already discussed in 2012 by Howard Rheingold, who referred to this type of pedagogy as 'peeragogy' (Rheingold, 2012).

Methodology of research

In a study conducted at the end of 2020 and within first weeks of 2021, we tried to find out to what an extent the experience of distance learning during the COVID 19 pandemic influenced the appreciation of the advantages of an individual educational pathway compared to learning in the collective, whether in a traditional or online mode. We conducted the survey on the sample of 91 persons, students of the Pedagogical University of Krakow. Our study group consisted in the students of social service; 81 female, and 10 male, aged between 19 and 23. The group of students to whom the survey was addressed consisted of 200 people. The target number of fully completed questionnaires is a purposive selection, so it has exploratory value. The questionnaire consisted of 16 questions, mostly with a single or multiple choice. The questionnaire was distributed using student email accounts and completed within the MS Forms application. The Spearman's coefficient was used to analyze correlations between variables, appropriate due to the presence of ordinal scale variables in the study.

Before the study we formulated the following hypotheses: The use of methods of an individual educational path selection in e-learning will be indicated as more effective than the use of collaborative learning methods (Hypothesis 1). There will be a significant association of the distribution of responses to question of an intensive use of e-learning in a group of respondents looking for individual learning environments and learning paths, and in a group respondents who prefer searching the collaborative learning environments (Hypothesis 2). We also hypothesized a high awareness of e-learning typologies and a higher level of appreciation of e-learning as an educational opportunity, and assumed that there will be a significant relationship in the distribution of answers obtained for questions about

the promising prospects of e-learning and for question about a preferred form of e-learning environment. (Hypothesis 3).

Results of research

The students were surveyed about their online learning activities and their level of familiarity with online learning tools. As expected, the vast majority of respondents are online constantly. In this respect, they do not differ from the standard of their generation. Also, the declared rate of their social media activity in the time spent online is not surprising. The respondents indicated a level between 75 and 95% of the overall time spent in the Internet. When asked about a more advanced knowledge of online education tools, the students mostly declared a sufficient level of skills, allowing them to use search engines, instant messaging, e-learning platforms and open educational resources. However, this knowledge proved to be highly selective. The respondents are almost one hundred percent familiar with current tools in university teaching, such as MS Teams (100% of respondents are familiar with this tool) or Moodle (98% of students are familiar with this e-learning platform). The concept of MOOC-type courses is known to 68% of those surveyed, but the names of popular MOOC platforms are less familiar: FutureLearn 55%, Coursera 53%, and Udemy 45%. Students are not very familiar with the terms defining e-learning methodologies. For example, knowledge of the term "blended learning" is declared by only 22% of the survey participants, and 16% of students know the term "peer-learning". Slightly more, 17% of the respondents can define the term "collaborative distance learning".

The subjects were asked then the following complementary questions, concerning their attitude to e-learning as a future educational chance: Do you think that a collaborative e-learning at university is an educational opportunity? Do you think that an individual voluntary e-learning online is an educational opportunity?

The study found no significant differences between the responses to the two questions. The Spearman's rank correlation coefficient $r_s = 0.81$ ($p<0.01$). The numbers of positive responses in both surveys are almost identical (38% and 40%). Comparing the two results in Figures 1 and 2, there is slightly more indecision about future prospects for online learning in the collaborative mode (25%) than in the individual mode (18%). Related to this, there is also less skepticism towards a collaborative learning as an educational opportunity (35% of 'no' and 'rather not' responses) compared to the level of negative evaluation of such opportunities for an individual learning (44% of 'no' and 'rather not' responses).

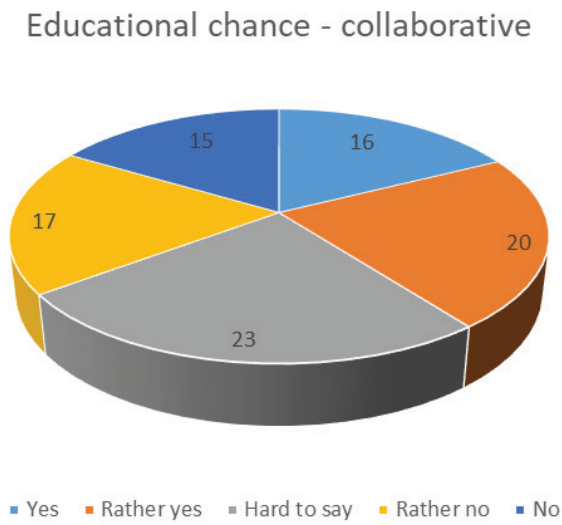

Figure 1. Collaborative e-learning as an educational chance.

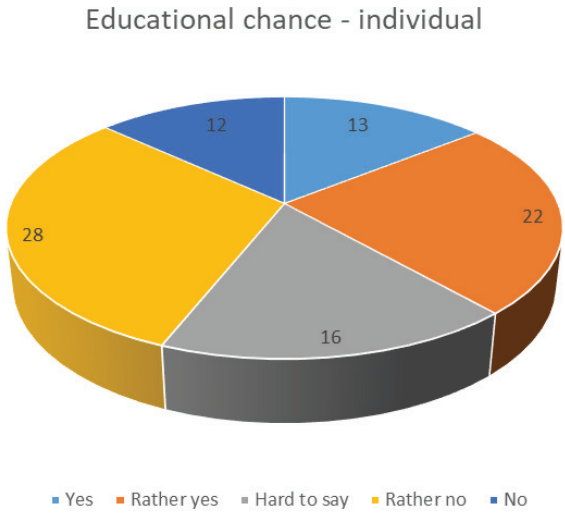

Figure 2. Individual e-learning as an educational chance.

The students were also asked about their own activity in terms of using e-learning outside classes and compulsory tasks. Such an activity was declared by two thirds of the respondents during the months preceding the survey, but the scope and intensity of this activity varied. Only 3% of the respondents studied additionally every day. 19% of the students undertook it every week and the rest (44%) did it occasionally (Figure 3).

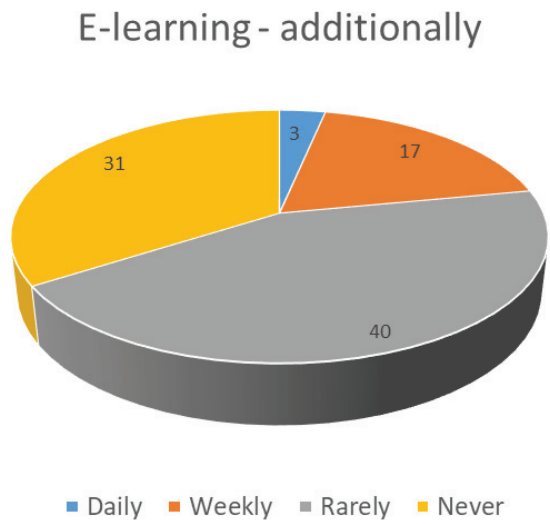

Figure 3. E-learning beyond the classes.

There is a (weak) positive correlation between the variable determining the additional educational activity in the network and indicators determining the respondents' attitude towards collaborative and individual learning, slightly higher for the group of supporters of individualised learning ($r_s = 0.40$, $p<0.01$) than for students indicating rather collective learning ($r_s = 0.36$, $p<0.01$).

The respondents also declared their intentions concerning the future use of e-learning, for example after completing formal education (Figure 4)

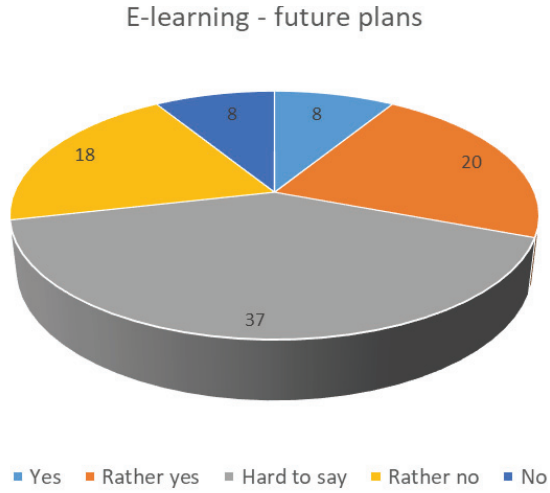

Figure 4. Declared future use of e-learning.

Among those responding to this question, the number of positive responses is almost identical to the number of negative ones (31% and 29% respectively). Interestingly, the correlation of positive responses with positive attitudes towards online learning (collaborative and personalised) is significant ($r_s = 0.41$ and 0.50 respectively, $p < 0.01$) and again slightly higher in the case of those who prefer personalised learning.

The final issue of interest in our study was no longer a general evaluation of the future of online education and an assessment of its value as an educational opportunity, but the practical resolution of a specific, albeit hypothetical, situation of choosing a type of course. We asked the students whether, if one of the courses during their studies were available both in the traditional lecture version and in the fully online version, and gave the same number of ECTS credits, which of them they would choose. The results are illustrated in Figure 5. As can be seen, in a choice situation, students prefer lectures delivered in the traditional mode, face-to-face, in a class. This is the choice of about a half of the surveyed group (47%). The lecture in the online mode would be chosen by 27% of the respondents. Interestingly, the preference for the online mode is very weakly positively correlated with the answers to the questions about the educational value of e-learning, but again the correlation is significantly higher in the case of those who highly value individualised learning ($r_s = 0.34$, $p < 0.01$, against a value of $r_s = 0.19$, $p = 0.07$ for the preference for collaborative learning).

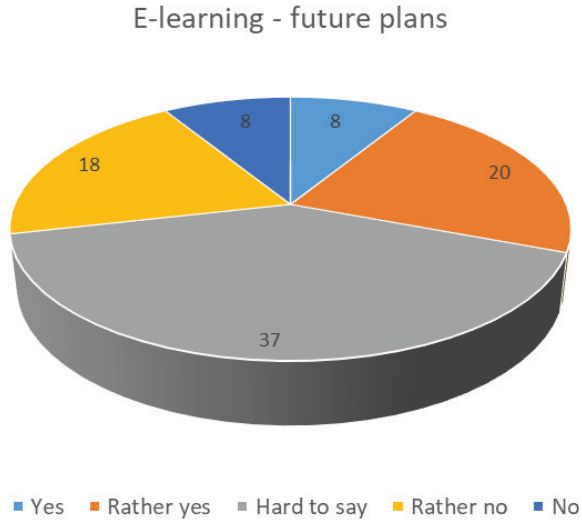

Figure 5. Traditional vs. online lectures – student's choice.

A possible interpretation of these results would indicate the students' continuing attachment to traditional forms of learning, even despite their intense experience with online learning during the months of the Covid-19 pandemic. At the same time, those who favor individual forms of online learning and examination are more likely to choose the online mode of learning and examination, and they will be the ones more eager to appreciate the educational potential of the distance learning model.

Discussion

The results of the study partly confirm our Hypothesis 1. Indeed, choosing individual learning paths is a more valued option among the students than collaborative learning. However, this preference is not significant. Nevertheless, the study did confirm our other hypothesis that the greater the experience of using e-learning tools, and the greater the belief in the significant educational value of online learning, the greater the preference for free and individual choice of learning paths will be.

A more intensive use of e-learning proved to result in bigger engagement in looking for individual learning environments and learning paths. Thus, the Hypothesis 2 was confirmed. But, looking at the results we cannot say that an individual choice of learning path is in contradiction with a collaborative attitude.

We can assume that the habits of group work in a traditional learning are strong enough to be transferred to habits in an online learning. Of course, we have to take into account the factor affecting students' attitudes during the Covid-19 pandemic. This factor was not distinguished in the present study due to the lack of comparative analysis available so far. Such a study will be performed after the cessation of restrictions. After all, there is no doubt that an intensive and circumstance-enforced use of e-learning tools results in a sense of missed or reduced interaction, which intensifies the demand for a return to collaborative learning.

Despite this increased intensity of students' immersion in e-learning, the awareness of typologies, methodological distinctions and the whole theoretical environment of online education did not prove to be high. Thus, the first part of our hypothesis 3 did not gain confirmation. On the other hand, the second part of Hypothesis 3 was confirmed, as indeed the subjects significantly appreciated the educational potential of e-learning. The part of the study that addressed this issue did not differentiate between individualistic and communitarian approaches.

The contemporary development of school and academic e-learning consists of two seemingly competing trends: an individualistic and collaborative. They appear under different names and in different contexts, technological environments and educational methodologies. The researchers place these two trends in the perspective of Education 2.0 and the new Web 2.0 and Web 3.0 tools. For example, the studies analyze the usefulness of particular LMSs (Learning Management Systems) and their functionalities for students to create and implement their own Personal Learning Environments (Bartolomé & Cebrian-de-la-Serna 2017). From this research, we conclude that students prefer software that, due to its flexibility and ease of use, allows them not only to select their own learning paths, but also to integrate it with their own external sources of educational content. The students extend the learning environments created even to their engagement in non-formal and informal learning. These results are consistent with those obtained in our study, which also indicated a link between the evaluation of personalized learning as an educational opportunity and current and projected future intentions to use an extra-curriculum online educational content.

Followingly, the concept of heutagogy (Hase and Kenyoa), cited by us as symptomatic of the development of personalized learning, developed one decade ago (McLoughlin & Lee, 2010), has now returned as a theoretical framework to describe one of the dominant trends in modern online learning (Wismaningrum & Prayitno & Supriyanto, 2020).

There are few comparative studies conducted between social and personalized approaches; however, extensive analyses of the pros and cons of personalized learning environments include the attempts to reconcile both contemporary dominant trends. Susan Tenton, for example, weaves the research-based advantages of collaborative learning, such as the formation of communication competences, the acquisition of collaborative skills, and the feeling of integration into a group, into her analyses of the positive aspects of personalized online learning, such as the satisfaction and sense of independence, self-discipline, and self-actualization, as the co-creation of a vision of the student's presence and activity in the labor market, as the control over time (personalized learning implies a self-paced mode) (Tenton 2020).

Conclusions

The hypothesis with which we started this article, pronouncing the complementarity of the two types of online learning, has found significant confirmation.

There is a reasonable compromise between an individualistic and collaborative online learning. However, ways and methods of reconciling the individual mode of selecting educational pathways with the advantages of community learning require further research, both in the context of recent experience with an accelerated and necessity-driven pandemic situation and, indeed, especially regardless of temporary circumstances.

A compromise and balance between individualism and collaborativism seems universally appropriate. It is worth developing existing theoretical schemes in which such a balanced approach to online education fits well (such as heutagogy). It is also worth revisiting theoretical distinctions that worked well in other contexts in the past. Such distinctions include, for example, the division of individualism and collectivism into vertical and horizontal, proposed as early as in 1995 (Singelis & Triandis & Bhawuk & Gelfand, 1995). In the vertical understanding of collectivism, a group cooperation occurs despite the acceptance of differences among group members, and in the horizontal approach to collectivism, the focus is on blurring group differences. In contrast, vertical individualism emphasizes the autonomy and uniqueness of each individual, while the horizontal understanding of individualism emphasizes the equality and the need to strive for levelling of opportunity. Applying this important distinction to the study of the effectiveness of online education would be an interesting experience and is planned for the further course of our research. Further analyses of the forms and techniques of online learning by students will be confronted with a more detailed conceptual framework, to be incorporated into a refined research tool, resulting in the distinction of a greater number of possible predictors of distance learning effectiveness. At the same time, it will be possible to compare the results over an interval of time (longitudinal studies), which will, in the context of ongoing epidemic waves, provide additional insights into the phenomenon of the increasing scale of online learning, allowing conclusions on the dynamic context in students' attitudes towards an individual and collaborative e-learning.

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Krzysztof Gurba

Indywidualne i zespołowe uczenie się online – rozsądny kompromis

Streszczenie

Podejście oparte na współpracy w edukacji w ogóle, a w e-learningu w szczególności, staje się coraz bardziej popularne i skuteczne. Zachowuje ono pewne zalety uczenia się związane ze społecznym kontekstem edukacji i nowymi zjawiskami w sieci i oraz z wykorzystaniem narzędzi mediów społecznościowych w edukacji. Wartości uczenia się opartego na współpracy obejmują wzajemną inspirację, crowdsourcing, uczenie się problemowe, uczenie się przez rówieśników i tym podobne. Konieczne jest bardziej uważne i szczegółowe spojrzenie, aby wskazać wszystkie ważne elementy składające się na ogólny pozytywny obraz uczenia się społecznego. Należy wziąć pod uwagę tło historyczne i podstawy teoretyczne dla nowej fali w pedagogice współpracy.

Jednocześnie stoimy przed jednym z największych wyzwań współczesnej nauki online, zwłaszcza w jej masowym wydaniu, w tym nowej fali MOOCs. Jest to wyzwanie związane z poszanowaniem indywidualnego i otwartego wyboru ścieżki kształcenia, nawet w ramach coraz bardziej ujednoliconych masowych kursów online. Jednym z możliwych sposobów zapewnienia swobod-

nego wyboru ścieżki edukacyjnej przez studenta jest oferowanie bardziej adaptacyjnych programów akademickich.

Celem badania było określenie postaw studentów wobec społeczności i indywidualnej nauki online, aby zbadać ich preferencje w tym zakresie, a także aby ocenić, która z tych form ma większe szanse na przyszłość. W badaniu interesowały nas również tendencje w wyborze nauki online i tradycyjnej oraz czynniki, które mogą wpływać na kierunek tych tendencji. Wyniki pokazały, że istnieją dychotomie, istnieją konflikty pomiędzy indywidualnym i zespołowym nauczaniem online, jeśli chodzi o zestawy wartości. Jednak praktyka użytkowników pokazuje, że możliwe jest pogodzenie tych dwóch wartości.

S ł o w a k l u c z o w e: edukacja online; indywidualna ścieżka kształcenia online; uczenie się kolaboratywne; wartości edukacyjne; czynnik ludzki

Кшиштоф Гурба

Индивидуальное и совместное онлайн-обучение – разумный компромисс

А н н о т а ц и я

Коллаборативное отношение к образованию в целом и электронному обучению в частности становится все более популярным и продуктивным. Оно сохраняет определенные ценности обучения, связанные с социальным контекстом обучения и новыми явлениями сетевого взаимодействия и использования инструментов социальных медиа в образовании. Ценности совместного обучения включают взаимное вдохновение, краудсорсинг, проблемное обучение, обучение с помощью сверстников и тому подобное. Для того чтобы определить все важные составляющие общего позитивного представления о социальном обучении, необходим более тщательный и детальный анализ. Необходимо учесть исторические предпосылки и теоретическую базу для новой волны в коллаборативной педагогике.

В то же время мы сталкиваемся с одним из самых больших вызовов в современном онлайн-обучении, особенно в его массовом издании, включая новую волну МООКов. Это проблема уважения индивидуального и открытого выбора пути обучения, даже в рамках все более и более унифицированных массовых онлайн-курсов. Одним из возможных способов обеспечения свободного выбора студентом пути обучения является предложение более адаптивных учебных программ.

Целью исследования было определить отношение студентов к общинному и индивидуальному онлайн-обучению, изучить их предпочтения в этом отношении и оценить, какая из этих форм более перспективна в будущем. В ходе исследования нас также интересовали тенденции в выборе онлайн-обучения и традиционного обучения, а также факторы, которые могут повлиять на направление этих тенденций. Результаты показали, что существуют дихотомии, есть конфликты между индивидуальным и совместным онлайн-обучением в том, что касается набора ценностей. Однако практика пользователей показывает, что между ними возможно примирение.

К л ю ч е в ы е с л о в а: человеческий фактор; человеческий фактор; индивидуальная траектория онлайн-обучения; совместное обучение; ценности обучения; онлайн-образование

Krzysztof Gurba

Aprendizaje individual y colaborativo en línea – Compromiso razonable

R e s u m e n

La actitud colaborativa en la educación en general y en el e-learning en particular es cada vez más popular y productiva. Conserva ciertos valores de aprendizaje relacionados con el contexto social del aprendizaje y los nuevos fenómenos de creación de redes y uso de las herramientas de los medios sociales en la educación. Los valores del aprendizaje colaborativo incluyen la inspiración mutua, el crowdsourcing, el aprendizaje de problemas, el aprendizaje entre iguales y otros similares. Es necesario un examen más minucioso y elaborado para determinar todos los componentes importantes del relato positivo general del aprendizaje social. Hay que tener en cuenta los antecedentes históricos y la base teórica de la nueva ola de la pedagogía colaborativa.

Al mismo tiempo, nos enfrentamos a uno de los mayores retos del aprendizaje en línea moderno, especialmente en su edición masiva, incluyendo la nueva ola de MOOCs. Se trata del desafío de respetar la elección individual y abierta del camino de aprendizaje, incluso dentro de cursos masivos en línea cada vez más uniformes. Una posible forma de proporcionar la libre elección del camino de aprendizaje del estudiante es ofrecer planes de estudios académicos más adaptativos.

El propósito del estudio era determinar las actitudes de los estudiantes hacia el aprendizaje en línea comunitario e individual para explorar sus preferencias en este sentido, y hacer que evaluaran cuál de estas formas era más prometedora para el futuro. En el estudio también nos interesamos por las tendencias en la elección del aprendizaje en línea y del aprendizaje tradicional, así como por los factores que pueden influir en la dirección de estas tendencias. Los resultados mostraron que existen dicotomías, hay conflictos entre el aprendizaje en línea individual y el colaborativo en lo que respecta a los conjuntos de valores. Pero la práctica de los usuarios muestra que es posible la reconciliación entre ambos.

P a l a b r a s c l a v e: educación en línea; trayectoria individual de aprendizaje en línea; aprendizaje colaborativo; valores de aprendizaje; factor humano

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

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The Socio-emotional Context of E-learning in Teachers' Opinion

Abstract

The article presents the research results on the socio-emotional context of distance learning from teachers's perspective. The primary purpose of this study was to explore teachers' experiences in primary, secondary, and vocational schools as they converted their classes to distance learning, and in a broader perspective, indicate difficulties resulting from the mediation of personal contacts.

The main research question was: What are teachers' opinions related to relationships and their well-being connected with conducting remote classes? Based on the results of a diagnostic survey conducted in primary, secondary, and vocational schools in Silesia, Poland, it can be concluded that the well-being of teachers has worsened due to the need to stay at home and prolonged social isolation. The teachers also pointed to the deterioration of relationships with students and the loosening of ties in the classroom. The article ends with recommendations for improvements in distance learning.

K e y w o r d s: remote learning, socio-emotional context of distance schooling, teachers' well-being, class relationship

The COVID-19 pandemic has undoubtedly created a new situation in every area of human life; it has also forced a change in the functioning of most educational institutions. For this reason, we are witnesses and participants of the transfer of

education from the real world to virtual reality. For students and many teachers and parents, the virtual world was already a tame space (safe, obvious), but until the pandemic appeared, it was only an option that we could use to a certain extent at work, for entertainment, or maintaining social contacts. Currently, this choice is impossible, and the compulsion to work online, in social isolation, affects many professional groups. In this text, the focus will be on teachers who have been particularly touched by remote work. Mediated communication has prevented teachers from fully fulfilling their professional role based on direct, constant, and interactive contact with students, parents, and colleagues. The ontological complexity of the teacher's professional role had to be simplified in the virtual space.

Remote education – opportunities and threats from the perspective of pedagogy

Before the pandemic, e-learning and distance learning were not used very often in the Polish educational system. Distance learning popularized many modern methods and techniques of education. Teachers who previously reluctantly used the opportunities offered by e-learning, beingforced to transfer their professional activity to the TEAMS, ZOOM, MOODLE, or other platforms, slowly adopted this unexpected change. They learned how to use new devices and new applications and "switched" to multimedia materials supporting the learning process. According to the principals and teachers, some methods can be successfully used in further, hopefully, stationary school work. According to principals and teachers, the main advantages of remote work, are the possibility of organizing remote meetings of pedagogical boards on an online platform, online consultations, the use of teamwork tools, e.g., for the joint creation of documents in the cloud, individual meetings with students, the sending of homework and the receiving of feedback on the online learning progress using the platform. As they and their students declare, teachers have acquired new digital skills and move more efficiently in the digital world, more and more often use communicators and social platforms to contact students and parents as well as improve the process of individual work (revalidation, corrective and remedial classes, compensation classes) (for example Plebańska et al., 2020; Pyżalski, 2020).

Apart from the inclusion of ICT in school education and school management, it is not easy to find other long-term benefits of obligatory distance learning. Students have lost the most by far. Starting with the restriction of access to education in general (equal, free and universal – according to Polish constitutional law), the

use of school teaching facilities, computers, libraries, teaching materials, access to individual support in the field of meeting special educational needs (this applies to both students with medical certificates or opinions of counseling centers, as well as those covered by psychological and pedagogical help) or even its interruption, ending with the lack of the implementation of the statutory task of the school, which is care (lack of access to the school canteen, care during lessons and day-room) (The Children's Ombudsman Intervention, 2021).

Consequently, distance learning increases social inequalities (Poleszczak, 2020). The researchers call these constraints straightforwardly a violation of children's rights (Turczyk & Jaskulska 2020), and The

The Children's Ombudsman has intervened in this regard (2021). These are "hard" arguments confirming that the educational system has failed to bear responsibility for distance education. On the other hand, students' deteriorating well-being, sense of loneliness, anxiety, suicidal thoughts, and lowered self-esteem, especially in families with a lack of interest from parents or guardians, are at stake (Kozański, 2020; Supiano, 2020). Being forced to spend most of the day in front of a computer or telephone that enables remote learning is exacerbating the problem of addiction to technology. According to experts (psychologists, psychiatrists), the experience of remote education is often traumatic for many children (Ghebreyesus, 2020).

The biggest problem of remote education, as indicated by scientific reports and analyzes, at the present stage of remote education, is no longer the lack of equipment and the low digital competence of teachers; it is the persistent lack of direct communication between the teacher and the class; which will be discussed in the following subsection; and the typically low competence of students to manage their learning (Bailey et al., 2009). Distance learning works well if students, apart from digital skills, are independent, motivated to learn, and manage their learning process responsibly (Yeh et al., 2019). These characteristics are called online learning readiness (see Bernard et al., 2004; Clarke, 2007; Hung, 2010). Three aspects of learning effectiveness can be derived from the research based on the nature of online learning. They are 1. students' online skills and efficacy; 2. the self-directness of their learning; 3. their ability to socialize and communicate online with others. Online learning readiness can be influenced by intervention; therefore, it is necessary to create favorable conditions and involve children and young people in activities that allow for maximum achievement in the current situation (Joosten, Cusatis 2020; p. 1). Students will only be ready to learn online if they find themselves in a positive relationship network and feel relatively safe using the Internet.

What we know about remote education before the pandemic does little to help manage the current situation (Pyżalski, 2020; Suspiano, 2020). There are several

reasons for this state of affairs. In pre-pandemic times, we used distance learning voluntarily. Schools and universities would supplement their offer with remote forms. Today, distance education has to be used by everyone, and the digital literacy levels of students, parents, and teachers vary greatly (e.g., Cortesi et al., 2020; Pyżalski 2020; Smahel et al., 2020). Another reason is acting in a difficult psychological situation, all of which are accompanied by a feeling of danger, fear of illness, and a state of deprivation of many psychological and social needs. The duration of mediated work and learning is also essential, which contributes to the growing dissatisfaction and weariness of all its participants (Arora & Srinivansen, 2020; Ghebreyesus, 2020).

Teacher and teaching in online reality – is it still education?

Observations of remote education, which has been going on for over a year, show the concentration of both normative and instrumental efforts of the ministry, governing bodies, and principals on the didactic function of the school and overlooking their educational and protective role (comp. The Regulation of the Ministry of National Education of March 20, 2020). The tendency to reduce the role of schools and teachers to impart knowledge and implement programs (syllabus) is not a new problem; it is one of the most frequently raised accusations against the Polish educational system (e.g., Dudzikowa, 2004). Online learning has clearly revealed this weakness of the Polish educational system. So, we can talk about the remote transfer of knowledge, however, it is difficult to see the educational significance in the current way of education. A broad understanding of education can support the thesis: the school, besides the structure, has its own culture. That is why attending schools provides a wide range of experience, and it is educational *per se* (Bruner, 2006).

The basis of a constructivist approach to education, both in the context of didactics and upbringing, is the relationships built by the teacher and the student as a result of the many acts of direct interpersonal communication in the classroom. A school (classroom) is a group of people connected in the network of these relationships, and lessons are much more than transmitting, remembering, and testing knowledge. Physical distance, the lack of face-to-face interaction can result in the loss of interpersonal contacts (Kim, 2010; Suspiano, 2020) and completely change what we call ‘everyday school life’. The ritualization of the day, duties and rules, playing and quarrels, difficulties, and overcoming them together are educational experiences that cannot be replaced, even by cutting-edge technology. Thanks to

participation in the school's everyday life, students get to know themselves and the social world, values, and the rules of social behavior (cf. Przybylska, 2018). Thus, during distance schooling, students' social, communicative, and moral competencies are at risk, especially in the case of children whose families do not adequately meet children's needs. The teacher plays an invaluable role in these processes. **Maintaining a bond, taking care of students, helping them overcome difficulties is a real challenge when the contact is so significantly reduced**. In remote education, the most important task is building and upholding relationships, emotional involvement, and a positive emotional atmosphere of online meetings (Arora & Srinivasan 2020; Turczyk & Jaskulska, 2020).

Although we regard students as the most sensitive element of the educational system, teachers are the focus of social expectations and formal requirements in the current context. The teachers, in front of the webcam, are firming up subsequent changes in the organization of classes, program content, requirements, and the organization of external examinations. They have found themselves in a tough psychological and professional situation. The pressure to implement the core curriculum, the limited possibilities of pedagogical intervention, difficulties in implementing educational, care, and support activities cause increasing frustration among teachers. They have to deal with technical obstacles, reluctance, often apathy or physical absence of a large part of their students, as well as a tricky, demanding parents's behavior from time to time. Teachers report difficulties, overload, feel a reduction in job satisfaction, or loss of passion for the job (Jaskulska & Jankowiak, 2020). In such conditions of limited agency, teachers try to bear the burden of remote schooling. Some of them focus only on imparting knowledge; others try to maintain contact with students and be supportive. I think that instead of receiving more and more unrealistic guidelines about covering the syllabus, they should get organizational and substantive support in order to make the best use of the online lesson time and cope with online job stress.

Methodology outline

This report presents the results of a survey of teachers who, since last March, have been working remotely with short breaks. The given and analyzed data are part of the materials collected as part of a research project conducted at the University of Silesia in cooperation with the social environment. At the request of municipalities, the research team diagnosed the impact of the pandemic on education in public schools. The project's main goal was to identify the nature of the activities,

problems, and solutions used in remote education in a COVID-19 threat situation and, based on this diagnosis, to develop recommendations that could support education in similar cases. Students, parents, teachers, and principals of kindergartens, primary and secondary schools participated in the research. The selection of the research group was deliberate; based on agreements signed with education departments in the communities of the Silesian Voivodeship, with the questionnaires being sent to the institutions. Participation in the study was voluntary. The research, its procedure, and the manner of implementation were approved by the Research Ethics Committee of the University of Silesia in Katowice in application no. KEUS.51 / 09.2020.

The researchers used Lime Survey to collect the data; with most questions being answered by Likert-like scales, although some questions were open-ended answers. The data was collected from December 2020 to March 2021. Out of 1,725 returned questionnaires, 998 complete answer sheets were selected for analysis in this study. The most significant number of surveyed teachers are employed in primary school in grades IV–VIII (516 people), 1st-degree industry school (136 people), technical secondary school (122 people), general secondary school (119 people), second-level industry school (93 people), other surveyed teachers indicated a different workplace (13 people). The vast majority of teachers have extensive work experience: 702 respondents are certified teachers, 98 are appointed teachers. The rest of the teachers are at the earlier stages of career advancement - 91 are contract teachers and 24 trainees. 83 teachers did not indicate the degree of professional promotion in the questionnaire. The subjects taught were not a variable in the research as not all teachers indicated it in the survey.

Based on the analysis of the answers, the socio-emotional context of distance learning from the teachers' perspective was described. The primary purpose of this study was to identify how teachers cope with remote work. I was interested in the experiences related to relationships with students and the well-being of teachers connected with conducting remote classes, with cooperation in a team of teachers, and in a broader perspective, difficulties resulting from the limitation of professional relationships and contacts imposed by online teaching.

To investigate the area of my interest, I asked the following research questions:

1. Whether and how, in the opinion of teachers, have their relationships with students, other teachers, and parents changed?
2. What is the well-being of teachers in the remote education period, and has it changed compared to the pre-pandemic period?
3. Which situations, in the opinion of teachers, affect their well-being the most?
4. What difficulties did they experience, and were they more frequent compared to the time before the pandemic?

Data presentation and analyses

In the following parts of the text, the obtained data were collected in tables and presented in charts. The observed trends in the distribution of results were also analyzed, and conclusions were drawn regarding the well-being of teachers, their educational relationships, and educational problems within the context of distance work.

Interpersonal relationships in teachers' perception

The noticeable feature of distance learning is mediating the relationship between all the subjects of education. Therefore, teachers were asked how they assessed and described their relationships with students, other teachers, and parents. The results are graphically presented in figure 1.

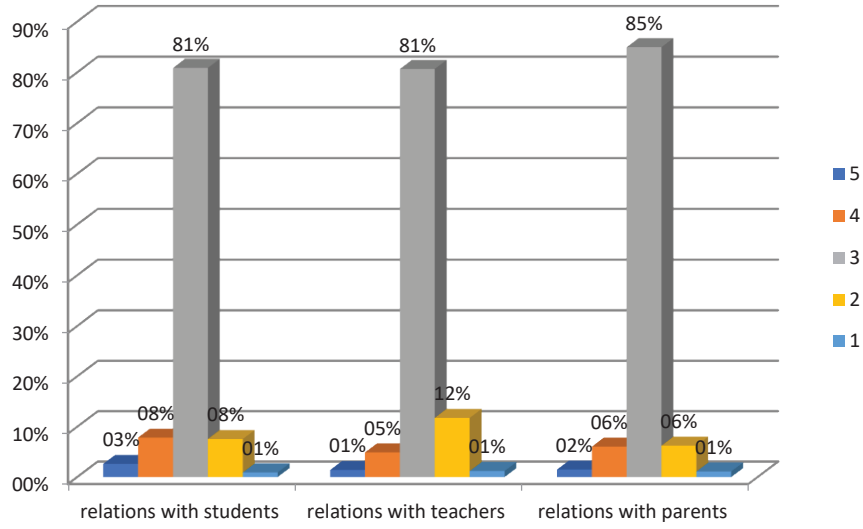

Figure 1. Relations with students, other teachers, and parents in teachers' perception.

K e y: 5 – definitely improved, 4 – improved, 3 – without change, 2 – worsened, 1 – definitely worsened

S o u r c e: own research.

Almost all respondents declared that they did not notice any changes in their relationships compared to the time before the pandemic. Taking into account the lowest grades, a similar group of teachers perceives a deterioration in their relationships with students and their parents, slightly more respondents perceive a deterioration of relationships in the team of teachers. Several dozen teachers noticed

an improvement in their professional relationships; the progress was slightly more frequent in relations with students, and least with other teachers. These differences, however, are insignificant and confirm positive feelings about the relationship. The research by other teams in the first period of the pandemic showed a more significant number of teachers experiencing a deterioration in relationships. In the spring of 2020, as many as 1/3 of teachers indicated that they had worse relations with their colleagues at work (Ptaszek et al., 2020, Pyżalski, 2020). Teachers responded slightly differently to the statements related to maintaining relationships during remote education (Table 1).

Table 1
Teachers' opinions about relations with students, school colleagues, and parents during distance education

Opinions about relations during online education	5		4		3		2		1	
Most of all. I miss the direct contact with my students	815	79.1%	145	14.1%	50	4.9%	14	1.4%	6	0.6%
I have difficulty maintaining close relationships with my students	136	13.2%	254	24.7%	326	31.7%	233	22.6%	81	7.9%
Distant education has changed the relationship in the class	202	19.6%	403	39.1%	277	26.9%	128	12.4%	20	1.9%
I feel that I have lost contact with my colleagues	110	10.7%	26	25.3%	303	29.4%	256	24.9%	100	9.7%
I regularly discuss school matters with other teachers	236	22.9%	406	39.4%	206	20.0%	140	13.6%	42	4.1%
My work colleagues support me	437	42.4%	450	43.7%	106	10.3%	24	2.3%	13	1.3%

K e y: 5 – definitely agree, 4 – agree, 3 – neither yes, nor no, 2 – disagree, 1 – definitely disagree.
S o u r c e: own research.

First of all, teachers lack face-to-face contact with students, and more than half of the respondents observe the loosening of contacts between students in the class. It is challenging to assess class relationships that are not seen in the interaction or that group relationships were not paid attention to under normal working conditions; it is probably this group of teachers, about a quarter of respondents who do not have an opinion and the rest of teachers do not notice changes in the classroom life. Teachers, when asked whether they experienced difficulties in establishing and maintaining relationships, provided different answers. A part of them feel

this difficulty to a varying degree, and some have no problems with maintaining relationships while working remotely. The factor differentiating teachers' responses may be their educational attitudes and the preferred style of teachers' work (cf. Przybylska, 2018). Teachers who prefer the personal manner in managing classwork are likely to be much more affected by relationship deficits during distance learning. Similarly, teachers for whom cooperation, a positive emotional atmosphere, and meeting students' needs are the primary conditions for didactic work feel the consequences of the lack of in-person contact much more. It seems that teachers who prefer the positional style in managing their work in the classroom, i.e., they do not enter into close relationships, do not expect personal interactions, cope better with the lack of contact with students in lessons (Bielecka-Prus, 2010). They also do not mind the virtualization of social space in classwork. One can go a step further and hypothesize that in extreme cases of positional style, teachers feel better in remote work because they do not feel obliged to maintain communication and activate an atmosphere of cooperation.

Given the relationships with colleagues, the teachers' responses are optimistic. The vast majority of the respondents feel supported by their colleagues, and maintain constant contact in professional matters with members of the teaching staff. When it comes to continuous personal relationships with other teachers, the answers were spread, apart from extreme indications (definitely agree and disagree), almost evenly. That is, a similar number of teachers do not perceive changes, feel, or do not feel a loss of contact. The differentiating factor here might be teachers' needs and expectations regarding teamwork, which were not included in the study. The extent to which the surveyed teachers feel "attached" to their colleagues from the teachers' room may also be substantial. Another factor that may impact maintaining relationships in the teaching community is the social response to the pandemic. Sociologists and psychologists point out that the health-threatening situation and the change in social life conditions increase sensitivity to social relations, a sense of community, and motivation to maintain close contacts, which have been broken by the restrictions related to the pandemic. Frequent contact by phone, e-mail, activation on social networks confirms this need (Marek, 2021).

Teachers' well-being

Assuming that the change of the form of work and the state of epidemic threat is complicated, teachers were asked about their well-being. And just as teachers assessed the relationship with students and teachers rather positively, their mood worsened despite the lack of direct contact. This is confirmed by the data contained in the figure below (Figure 2).

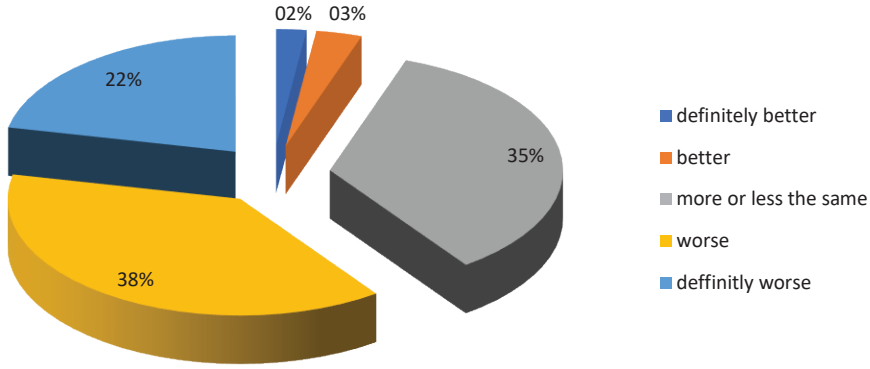

Figure 2. Teachers' well-being during the pandemic.
S o u r c e: own research. Mean – 3,23; SD – 0,9

In the study, teachers estimated their well-being with work compared to the time before the pandemic. On an estimated scale from much better (5) to definitely worse (1), the largest group of teachers indicated a deterioration in well-being, including almost a quarter of teachers who declare a significant decline in their subjective mental state. To deepen the analyses related to well-being, teachers were asked to define the intensity of experiencing emotions, commonly considered positive and negative (Figure 3).

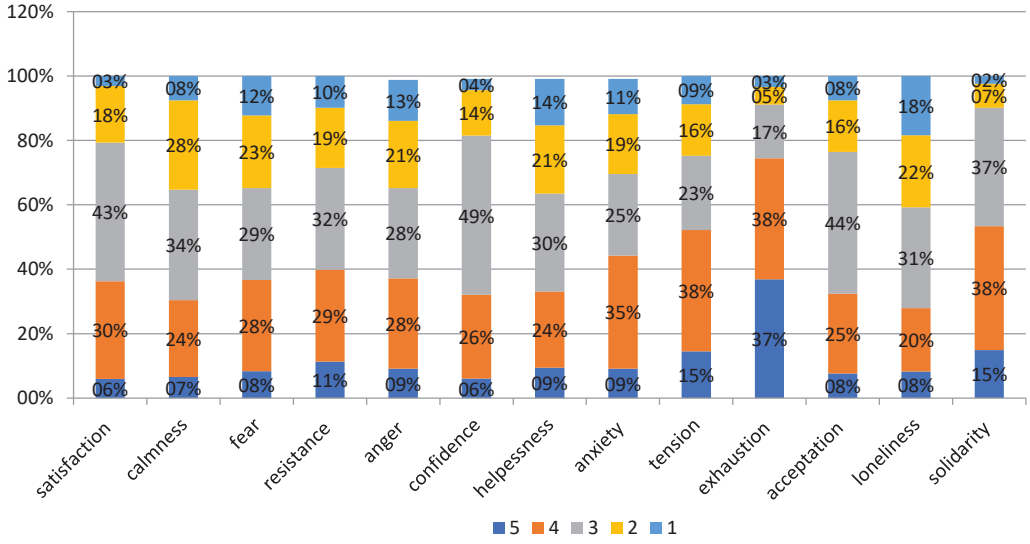

Figure 3. Emotional symptoms of teachers' well-being.
K e y: 5 – very often, 4 – often, 3 – from time to time, 2 – rarely, 1 – very rarely.
S o u r c e: own research.

Analyzing the frequency of the occurrence of individual emotions, moods, and states, it can be concluded that negative experiences prevail. Most teachers feel exhausted; as many as 74.4% of teachers experienced extreme fatigue very often and frequently. More than half of the respondents claim that tension in remote work accompanies them often and very often. Slightly fewer teachers feel anxious and disagreed with the need to work remotely. Fear and anger also appear more often than most of the positive emotions indicated in the survey. If we refer to the positive feelings, the feeling of social solidarity was most often declared by slightly more than half of the surveyed Silesian teachers. About 1/3 of teachers stated that they had not lost job satisfaction, they felt confident in remote education, and accepted the situation and conditions in which they teach. In an open-ended question about feelings related to remote work, only five teachers commented on their emotional state and its reasons for a more extended time. They pointed to the uncertainty related to the epidemic situation, the fear of getting sick, the frustration of not being able to fulfill their duties satisfactorily, and the feeling of isolation that leads to uncertainty and even chronic anxiety. One teacher admitted that she is so frustrated with distance learning that she does not have the words to describe her fatigue and sense of meaningless work in this way. The lack of sense in the actions taken, in her opinion, is primarily an incredibly low effectiveness of distance learning in primary schools and the practically impossible educational impact. It is a pity that only a few such personal statements allow us to look at distance learning from the perspective of individual stories and experiences.

To sum up, the well-being of the surveyed teachers during remote education is mainly characterized by negative emotions and states that are often, or even very often, experienced. **Teachers report a subjective deterioration of well-being**. Polish studies from June 2020 (Ptaszek, 2020) and international studies (Arora & Srinivasan, 2020) also report on the situation related to a significant decrease in the well-being of teachers and other educational entities.

Difficult situations in remote work. Educational difficulties

What are the reasons for the deterioration of the well-being of the surveyed teachers? In addition to the traditional stressors related to the relationship in the pedagogical group, with the head teacher and parents, the necessity to work remotely results in the emergence of new ones, e.g., increased social exposure, technostress, or the abuse of digital media (Brod, 1984). The surveyed teachers also indicated difficulties in using technology, forced to work many hours, or increased social exposure (This information comes from a part of the study not covered in this text). By analyzing the teachers' responses (Figure 4) in the described research, one can group the causes/sources of difficulties into those related to the

formal requirements of work and those resulting from the change in the form of interpersonal contacts.

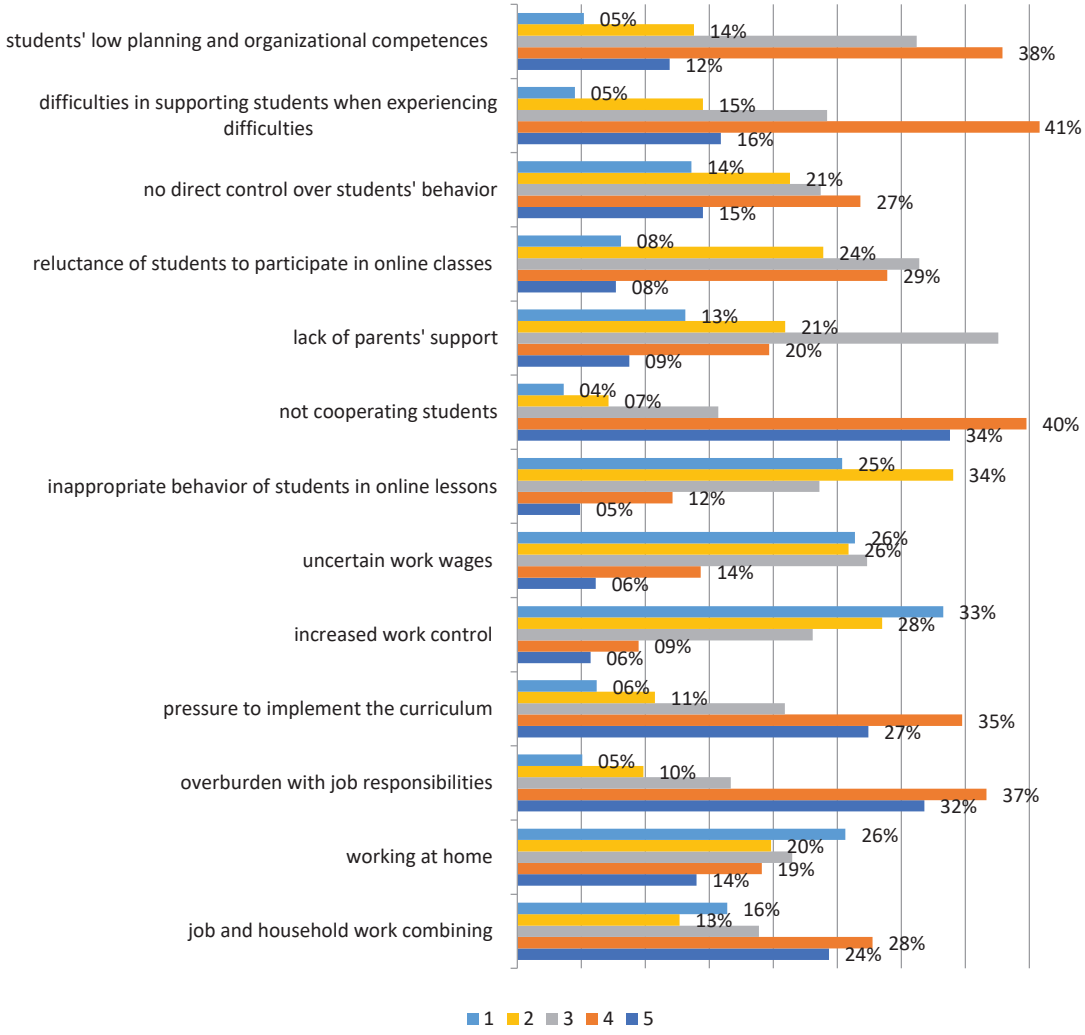

Figure 4. Causes of teachers' deteriorating well-being (including educational difficulties).

K e y: 5 – very often, 4 – often, 3 – from time to time, 2 – rarely, 1 – very rarely.

S o u r c e: own research.

Referring to the first group, the primary source of lowering the well-being of teachers was the burden of professional duties, which were multiplied along

with the necessity of a quick transformation of the classroom to the conditions of the virtual space. Almost 70% of the respondents paid the greatest attention to this factor. Some of the teachers who commented on this closed question wrote: 1. [too] many hours of preparing materials for their work with/for students, 2. searching for and learning to use new methods of working with the technology, 3. the need for individual contact with many students and their parents who were unable to cope organizationally and substantively with the preparation and participation in classes.

The emphasis on implementing the core curriculum is the most significant legal and organizational problem of a remote school. This problem was repeatedly commented on by the Ministry of Education and Science, the Children's Ombudsman, and from the perspective of the actual possibilities of implementation, teachers. Responsibility in this regard rested entirely on their shoulders; 2/3 of the respondents very often or often feel worse because of this. Another and most frequently indicated source of difficulties is the need to combine household duties and professional work. More than half of the respondents pointed out that they very often or often experience difficulties in running and preparing for classes due to the need to divide their attention all day between work and home activities. In such a situation, the parent's responsibilities turn out to be particularly burdensome; the presence of children whose nurseries, kindergartens, and schools have been closed is a vital stress factor for the surveyed teachers. Also, staying at home in the presence of other household members (partners, other family members) harmed the well-being of almost every fourth teacher.

Considering the second group of causes described by teachers as being subjectively aggravating, one can pay attention to the deterioration of social relations during remote work, the attitudes of students, and, less frequently, parents. In the opinion of the surveyed teachers, students lack the readiness to learn online, as was mentioned in the theoretical introduction to the research, is a major cause of concern. Almost ¾ of the respondents see the problem of students' dependence on the teacher in the preparation for classes, and difficulties in planning and organizing work. In addition, teachers point out the lack of students' motivation to participate and be active in online lessons, including avoiding the use of cameras and microphones, explaining the lack of presence and activity by constant problems with the Internet connection and equipment. According to teachers, a severe source of anxiety and malaise are educational problems generated by the lack of direct contact. According to the majority of teachers, remote work makes it impossible to react quickly and help students in a difficult situation.

Another problem is the inability to exercise control over behavior and interactions in the classroom. Teachers less often "complained" about students' inappropriate behavior, which is probably related to muting microphones and turning

off webcams during lessons, or the absence of students. They are also somewhat satisfied with the cooperation with parents, although many often or very often feel the lack of support from parents, a significant part of whom are unwilling or unable to support students in such a difficult situation.

A study by Centrum Cyfrowe (Ptaszek, 2020) shows that the worsening mental state of teachers results from similar premises. In this study, teachers declared that during the pandemic, they experienced more significant than usual stress resulting from their profession and the need to take on the frustration of students and parents. Teachers felt lonely, without any institutional support, negatively assessed, and exposed to contradictory and changing expectations of pedagogical supervision, students and parents. Other distance learning researchers also draw similar conclusions. According to Polish and international researchers, the deterioration of the well-being of all remote education participants is related to the lack of digital hygiene (Arora & Srinivasan, 2020; Marek, 2020; Ptaszek, 2020; Pyżalski 2020).

The summary of the described and partially analyzed data on the deteriorating well-being of teachers and its causes will refer to the question about educational difficulties in the perception of teachers. As shown by the data presented so far, remote work is less didactically effective (difficulties with implementing the core curriculum, low activity, and cooperation on the part of students). Considering the data from figures 4 and 5, the last one in the article, there is no doubt that the remote form of fulfilling the obligation to study is not conducive to implementing the school's educational tasks.

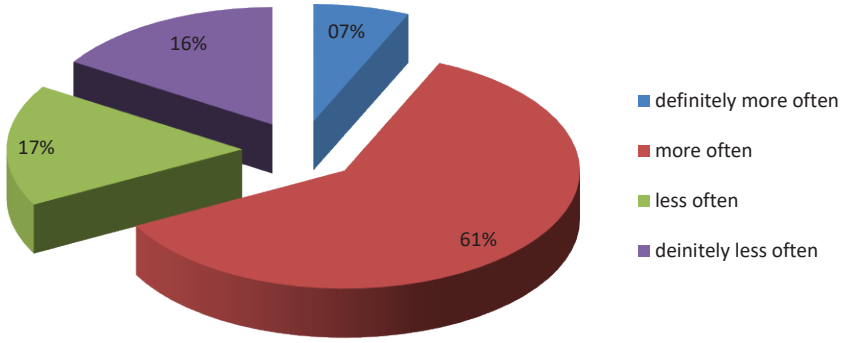

Figure 5. The frequency of experiencing educational problems in the opinion of teachers.

Mean – 4,19; SD – 1,26.

S o u r c e: own research.

This problem is noticed by most teachers who experience educational difficulties more often than before the pandemic. The feeling of difficulty (or perhaps

educational helplessness) translates into a generalized negative assessment of remote education. In this aspect, the presented research leads to similar conclusions as the reports of other research teams, which I referred to in the article: long-term distance learning leads to a deterioration of the relationships and well-being of all educational entities and is likely to contribute to disruptions in the emotional, social and intercultural development, especially of younger students. It also changes the nature of relations in the classroom and school, which, if such a form of education was used over a longer period of time, the school would cease to be a community based on relationships and a sense of bonding among parents, teachers, and the most affected group, students.

Summary and conclusions from the research

The study, the results of which have been presented above, allowed us to capture the socio-emotional situation of distance learning during the COVID 19 pandemic. Based on the results of a diagnostic survey conducted in primary, secondary and vocational schools, it can be concluded that the well-being of teachers has worsened due to the need to stay at home and prolonged social isolation. The teachers also pointed to the deterioration of relations with students and the loosening of ties in the classroom. There were no significant differences in the perception of e-learning between teachers working in different types of schools. The assumptions were confirmed that e-learning could not replace direct contact with students and interaction in the classroom and school in the surveyed teachers' opinion. The implemented extraordinary solutions related to the organization of school activities during the pandemic did not sufficiently ensure that the needs of either students or teachers were met. As an essential link in the educational system, the task of the school is not only to guarantee access to learning but also education, which is understood as supporting students in their physical, emotional, intellectual, moral, and social development (Educational law, Act of December 14, 2016). The condition for the school to fulfill its educational function is direct contact between the educator and the pupil, participation in the class and school community, and mutual communication (interpersonal communication). **Online lessons, although they can be instructional, sometimes even more attractive thanks to the use of technology, do not meet the *sine qua non* conditions of the educational relationship.**

Limitations of the study include the method of gathering data. In the project, we could not directly talk with teachers about their experiences, so we relied upon their opinions. Consequently, further research should adopt, apart from quantita-

tive, a qualitative approach to find out what the teachers really think about the socio-emotional context of distance schooling and their everyday experience when working with distance learning. It would be possible to get to know the teachers' idiographic histories about combining working and daily life. I hope that the research has given the first bit of insight into teachers' experiences and will help researchers better understand the dynamics of distance learning and the longer-term consequences for students, teachers, class relations, and the school community.

If remote learning turns out to be a necessity in the coming months, it is essential to consider the ways of maintaining relations between students, conducting educational activities, and in the field of psychological and pedagogical support. Of course, not only in distance learning, but it is also essential to carry out activities supporting the development of emotional skills, especially such as dealing with aversive feelings (sadness, anger, apathy, and loneliness). The solutions in this area applied so far have proven to be completely insufficient, and parents of children indicate anxiety resulting from isolation (Kozański, 2020).

The lengthening of the time spent on remote schooling is undoubtedly a threat to a person's physical and mental well-being; it also exposed the weaknesses of schools as such, especially those connected with the organizational and financial aspects; but also and more importantly, with the core curriculum. Although the research reveals the negative consequences of remote work for the well-being of teachers and students and the *de facto* educational relationship, I would like to end the above research report with optimism. Referring to Winston Churchill saying: "You never want a serious crisis to go to waste" and the concept of Erik Eriksson, that a crisis can have a positive impact. If constructively worked through, complex situations lead to new personal competencies, a better understanding of oneself and the social situation, or simply new skills (Brzezińska, 2004).

Although remote education raises many doubts and negative emotions, if we (scientists, teachers, parents, education dissidents) analyze our experiences and draw conclusions, it may help in developing valuable solutions for education. Those solutions will stay with us for longer and improve the quality of education in any form, including face-to-face. What conclusions about the socio-emotional context of online education can be drawn? Based on the teachers' research, daily observations of the remote school reality, as well as UNESCO recommendations (Doucet et al., 2020), the most important indications are:

1. maintaining relationships with students during lessons and during individual meetings, supporting relationships in the class, e.g., by sharing time on an e-learning platform, or organizing a video meeting. Having conversations with students on everyday topics, asking about their well-being, while introducing elements of humor and fun in the classroom can play an important role in maintaining bonds in the classroom and improving students' mood;

2. reformulating the curriculum content, goals, and priorities of the curriculum so that the requirements for teachers and students are realistic; taking into account educational goals, especially those related to emotional and social competencies;
3. pedagogical supervision, in particular, monitoring the work of teachers, especially in the field of adaptation processes for students with special needs;
4. enabling and encouraging active participation of students in online learning;
5. supporting teachers in developing digital competencies and providing generally accessible digital resources of materials and teaching aids;
6. guaranteeing students their rights and conditions for safe use of the Internet;
7. prevention programs against growing virtual aggression, depression, technology addiction;
8. supporting teachers in developing their teaching competencies, using learner-centered methods. A generally accessible base of teaching materials would certainly be useful;
9. supporting teachers, helping them to strengthen their own socio-emotional and communication skills;
10. transferring psychological and pedagogical counseling support for students, parents, and teachers to remote interventions.

The above recommendations are an open-ended list; they will not become obsolete when the pandemic is hopefully over, and we return to a new normality. They will remain important because they refer to the essence of distance learning and the nature and sense of education, and finally, the ontology of teachers' activities.

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Irena Przybylska

Społeczno-emocjonalny kontekst e-learningu w opinii nauczycieli

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

W artykule przedstawiono wyniki badań nad społeczno-emocjonalnym kontekstem kształcenia zdalnego. Głównym celem badania było rozpoznanie doświadczeń nauczycieli pracujących zdalnie, a w szerszym ujęciu trudności, które wynikają z zapośredniczenia kontaktów osobistych. Główny problem badawczy opisywanego projektu to: Jak nauczyciele spostrzegają relacje z uczniami i innymi nauczycielami oraz jakie jest ich samopoczucie w związku z prowadzeniem zajęć na odległość? Na podstawie wyników badania diagnostycznego przeprowadzonego w szkołach podstawowych, ponadpodstawowych i zawodowych na Śląsku można stwierdzić, że samopoczucie badanych nauczycieli pogorszyło się ze względu na konieczność pozostania w domu i długotrwałą izolację społeczną. Nauczyciele wskazywali również na pogorszenie stosunków z uczniami i rozluźnienie więzi w klasie. Artykuł kończą rekomendacje dla praktyki kształcenia zdalnego.

S ł o w a k l u c z o w e: nauczanie zdalne, kontekst społeczno-emocjonalny zdalnej edukacji, samopoczucie nauczycieli, relacje społeczne w klasie szkolnej

Ирена Пшибыльска

Социально-эмоциональный контекст электронного обучения, по мнению учителей

А н н о т а ц и я

В статье представлены результаты исследований о социально-эмоциональном контексте дистанционного обучения с точки зрения учителей. Основная цель этого исследования состояла в изучении опыта учителей в начальных, средних и профессионально-технических училищах, поскольку они преобразовали свои классы в дистанционное обучение, и в более широком смысле, указывают на трудности, связанные с посредничеством личных контактов. Главный исследовательский вопрос был: Что такое мнение учителей, связанное с отношениями и их благополучием, связанным с проведением дистанционных занятий? На основе результатов диагностического обследования, проведенного в начальных, средних и профессиональных школах в Силезии, Польша, можно сделать вывод о том, что состояние учителей ухудшилось из-за необходимости оставаться дома и длительной социальной изоляции. Преподаватели также указали на ухудшение отношений со студентами и ослабление связей в классе. Статья заканчивается рекомендациями по практике дистанционного обучения.

К л ю ч е в ы е с л о в а: дистанционное обучение, социально-эмоциональный контекст дистанционного обучения, благополучие учителей, отношения в классе

The Socio-emotional context of e-learning according to teachers

Irena Przybylska

Contexto socioemocional del e-learning en la opinión de los profesores

R e s u m e n

El artículo presenta los resultados de la investigación sobre el contexto socioemocional del aprendizaje a distancia desde la perspectiva de los profesores. El objetivo principal de este estudio era explorar las experiencias de los profesores en las escuelas primarias, secundarias y vocacionales a medida que convertía sus clases en aprendizaje a distancia, y en una perspectiva más amplia, indicar las dificultades resultantes de la mediación de los contactos personales. La principal pregunta de la investigación fue: ¿Cuáles son las opiniones de los maestros relacionadas con las relaciones y su bienestar relacionados con la realización de clases remotas? Sobre la base de los resultados de una encuesta diagnóstica realizada en escuelas primarias, secundarias y vocacionales en Silesia, Polonia, se puede concluir que el bienestar de los profesores ha empeorado debido a la necesidad de permanecer en casa y el aislamiento social prolongado. Los profesores también señalaron el deterioro de las relaciones con los estudiantes y la flexibilización de los lazos en el aula. El artículo termina con recomendaciones para la práctica del aprendizaje a distancia.Palabras clave: aprendizaje a distancia, contexto social y emocional de aprendizaje a distancia, bienestar del profesorado, relaciones en el aula

P a l a b r a s c l a v e: aprendizaje remoto, contexto socioemocional de la educación a distancia, bienestar de los maestros, relación de clase

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Higher Education Employees' Workplace Learning Within Three Schemes of International Mobility

Abstract

Studies on the educational dimension of international mobility discuss the implications of academic, international mobility in general, or focus mainly on students' mobility. There is, however, an insufficient number of studies that focus on the mobility of higher education staff, particularly in relation to learning. Each year, studies on the impact of mobility are published by the European Commission, but this does not provide an overview of how adult learning occurs within mobility and how mobility affects the lifelong learning of higher education employees. The purpose of this paper is to describe and explain HE employees' learning characteristics in the course of three types of mobility: traditional, blended and digital. The study was conducted with the participation of 103 staff members of European Universities from 17 countries. We claim that the three mobility schemes studied here are different ways of experiencing the world and learning. Therefore, they should be implemented in parallel, and not perceived as alternatives.

K e y w o r d s: workplace learning, Higher Education, mobility, staff, international learning

Introduction

Learning in the workplace allows employees, societies and countries to meet the challenges of the present day, such as rapid technological development, the globalization process and progressive socio-economic and cultural changes. It enables employees to improve their qualifications after completing their education. This can be achieved by participating in courses and training, as well as completely independently, e.g. by watching instructional films and reading books. Employees learning in various types of institutions has become a standard workplace practice requirement. Organizational solutions that support workplace learning consist in the mobility of employees, and its three types: physical mobility (traditional), mobility in the virtual world – digital mobility, and blended mobility, which consists in combining physical and digital mobility.

This article deals with the problem of conducting higher education employees' workplace learning through three schemes of mobility. Study justification is the process of replacing the traditional (bureaucratic) model of the university with a management model which is robust, competitive and governed by the laws of academic capitalism (Antonesei 2007). It is important to improve the quality of work done by academic staff by increasing student orientation, supporting researchers and increasing the efficiency with which grants are obtained. The implementation of these demands requires new knowledge, skills, competences and styles of administration from administrative staff and education from teachers.

The main research question was: *What are the characteristics of higher education employees' workplace learning within three international mobility schemes?* To solve this research problem, when planning the study, we aimed to conduct the research in 20 countries on a group of approx. 500 people. However, the COVID-19 pandemic has limited our research capabilities. Finally, we managed to receive the surveys form 103 academic employees located in 17 countries between April and May 2020. Thus – because of the small research sample – we are aware that our research cannot be used as a basis for formulating broad generalizations. However, the study was preceded by theoretical analyzes, was carried out and consulted in the international community as a part of an international research project. Therefore we think that our finding can be used in designing other research projects and are worth publishing in the form of a scientific article. The questionnaires were also used with the aim to give us a diagnostic overview over issues that relate to workplace learning within higher education.

Workplace based learning – new technology, new perspectives

The origins of scientific thinking about workplace learning should be sought in the concept of organizational learning developed by two Americans, Chris Argyris (1993, 1978, 1974), and Donald Schön (1987, 1983). However, this concept is more a management than a learning concept, as learning in it relates to organizations not to workers. This concept does not take into account that there is a gap between what workers say, think, plan and what they actually do in the organization. Its attention is focused more on the creation of learning-friendly situations by institutions than on learning itself.

Learning in the workplace is most often classified as non-formal education that takes place without any imposed education programme (Hodkinson, Colley, Janice Malcolm, 2003, p. 313–318). As David Livingstone (1999, p. 51) points out, informal learning can be defined as "any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions, or the courses or workshops offered by educational or social agencies". This kind of learning may not have specific learning objectives. Informal learning may occur on the initiative of the individual, but also happens as a by-product of organized activities, which may or may not have learning objectives. Also, studies on workplace-based learning within Higher Education emphasize outcomes of learning like crossing boundaries, empowerment or teaching activities that embrace flexible conditions for learning (Ryan and Tilbury, 2013; Barnett, 2014).

The current growth of interest in workplace learning is expressed both in the intensification of scientific research in this area (Rintala, Nokelainen, Pylväs, 2018; Coetzer, Kock, Wallo, 2017; Froehlich; Beausaert, Segers, 2017; Haemer, Borges-Andrade, Cassiano, 2017; Janssens, Smet, Onghena, Kyndt, 2017; Illeris, 2004; Illeris & Associates, 2004; Koltai, 2002; Järvinen, Poikela, 2001; Engeström, 2001; Ellesröm, 2001) and in the institutional support of this process by international organizations. Workplace learning has been recognized by the European Commission as important for the future of the European Union's societies and is a priority in the Horizon 2020 programme. The purpose of supporting and promoting workplace learning is to increase levels of innovation within European Union's economies, to accelerate economic development and to reduce unemployment. Institutional support and the intensification of workplace learning are expected to fill in the gaps between science and economy and to remove barriers to cooperation between science and economy to stimulate innovation.

The technological revolution has now transformed the workplace environment, especially the educational dimension of work. More and more companies are shifting towards fully digitalising their work processes, which was signifi-

cantly accelerated by the pandemic COVID-19. It means that the traditional methods for workplace learning, training and professional development are slowly becoming obsolete. Therefore, companies invest in digital technologies in order to educate their employees. According to H. G. Bauer (Bauer et al., 2012) and C. P. Cerasoli (Cerasoli et al., 2018) digital tools (formerly known as "ICT") broaden the autonomy of employees in learning and managing their development. As a result, employees' learning is becoming more independent and self-directed (Heinz, 2010). This type of learning is based on various sources (Edwards, 2010; Ha, 2008, 2015) and is supported by challenging and exciting tasks and collaboration between professional groups and the expectations of work effectiveness constrain learning and creativity (Vähäsantanen & Eteläpelto, 2017). According to Smyrnova-Trybulska et al. (2018, p. 30) "digital technologies provide innovative openings to partnerships and exchanges and pose a number of challenges". Ajrouh & Slamti (2020, p. 3) are of the opinion using digital technologies "employees would reach their ultimate goal of developing personally and professionally and become operational in the dynamic educational environment". Therefore, learning is perceived as necessary for the organisation (Scheeres et al., 2010) and is driven by the organisations' and employees' expectations (Fuller & Unwin, 2010; Riddell et al., 2009).

It seems that learning in the workplace is as vital as never before, but – as H. G. Bauer and his associates – noticed, we do not know in detail how this learning is going and its characteristics (Bauer et al., 2012). Therefore, it is worth conducting research in this area.

Purpose

The aim of the study was to examine , identify and explain the main characteristics of HE staff learning through three schemes of mobility:

a) *traditional mobility*, where mobility participants go abroad to carry out mobility activity in a partner country different from the country of the sending organization and the country where they live (Pherali, 2012; Kim, 2016; Messelink et al., 2015)
b) *blended mobility*, where mobility participants go abroad to carry out their mobility activity (as mentioned above), and supplementary to the physical mobility at the same time, they use digital technologies (digital tools, mobile devices, online courses) for their learning (Ritchie, 2018; Gruber, 2018; Owston, 2018; Naylor & Gibbs, 2018; Consuegra & Engels, 2016;

c) *digital mobility*, where mobility participants do not go abroad to carry out their mobility activity abroad, however, they learn within their mobility throughout online courses in the cyberspace understanding as "a non-material reality which includes the totality of information moving among different communicators through the new types of media (…) opens new geographies, new territories to conquer and explore at the same time (Cucoş, Ceobanu, 2009, p. 2). The courses were led by teachers coming from foreign universities (Carlsen, Holmberg, Neghina & Owusu-Boampong, 2016; Philipsen, Tondeur & Zhu, 2016; Schuwer et al., 2015; Desimone & Garet, 2015; Graham, Allen & Ure, 2003).

Methodology

The study used a questionnaire with open-ended and close-ended questions and was conducted between April and May 2020.

The leading questions when building the questionnaire were:

- *What are the main characteristics of HE staff learning through traditional mobility?*
- *What are the main characteristics of HE staff learning through blended mobility?*
- *What are the main characteristics of HE staff learning through digital mobility?*
- *What are the similarities and differences in learning within three mobility schemes?*

The survey was developed in the English language and all answers were given in English. A purposive sampling of employees was performed. Respondents were selected based on their experience with mobility (selection criteria: participation in at least one mobility scheme in the last 18 months). The study sample constituted 103 employees involved within mobility from 17 countries both inside the European Union (EU) and outside of the European Union (non-EU) (68% females, 30% males, other than female or male gender was declared by 2%; 16% were 20-30 years of age, 32% ware 31–40 years old, 37% were 41–50 years old and 15% more than 50 years of age). The participants came from different departments of education faculties at state universities. The study is diagnostic in character and focused on the description of the values and features of dependent and independent variables. The results obtained were the basis for formulating judgments about the occurrence or absence of relationships between variables. The research method was a diagnostic survey. Based on the theory of three dimensions of learning developed by Knud Illeris (2002), our study can be illustrated by the following model.

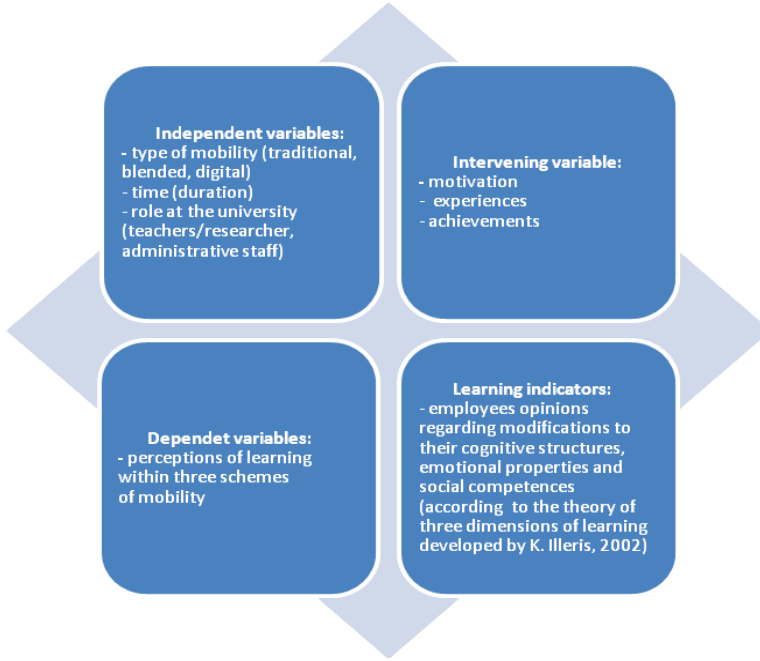

Figure 1. Models of Cloud Computing Services.
S o u r c e: own work

Data Analysis

Since we rely on and infer facts about social sciences about education only on the basis of learners' results and their opinions, the assumption was made that employees' opinions could be treated as indicators of learning. These indicators were measured in the survey questionnaire, for which employees determined their degree of compliance and acceptance on the Likert scale, and answered open questions, which were then categorized. During the analysis of answers to the open questions, each quote was inductively coded. No text recognition or automated frequency software was used; all analyses were performed manually to ensure coding familiarity. With the help of content analysis, the data were refined, and underlying patterns and qualitative differences likely to be present in the data were revealed and coded. Once the codes were saturated, similar open-text answers were grouped together through content-driven analysis, and then built into themes.

Findings

HE staff members prefer short-term forms of mobility. In each scheme of mobility, the respondents indicated up to 2 weeks as the most favorable, specifically 37% in cases of blended mobility, 43% in cases of digital mobility and 58% in cases of physical mobility. Less favorable, and in the second place, were answers concerning cases of blended and physical learning from 2 weeks up to 2 months. Significantly fewer respondents indicated longer than 12 months. The HE workers would be the least willing to leave for longer than 12.

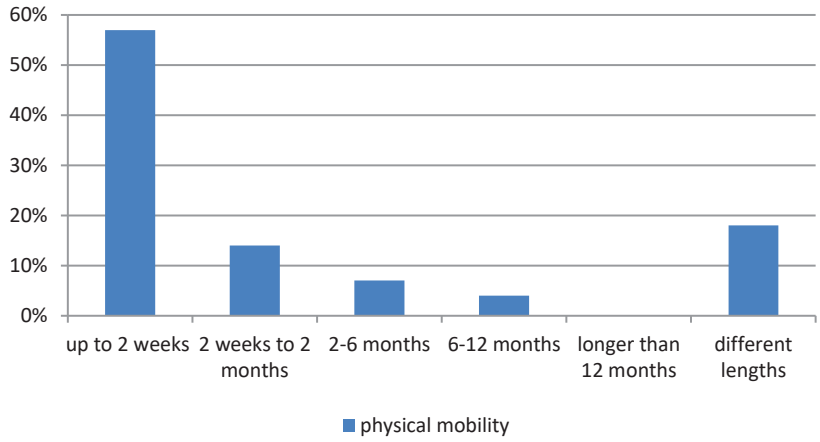

Figure 2. Preferred length of stay – physical mobility.
S o u r c e: own work

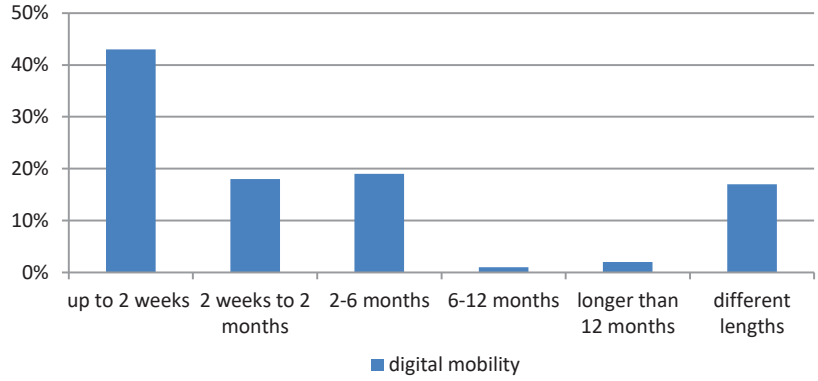

Figure 3. Preferred length of stay – digital mobility.
S o u r c e: own work

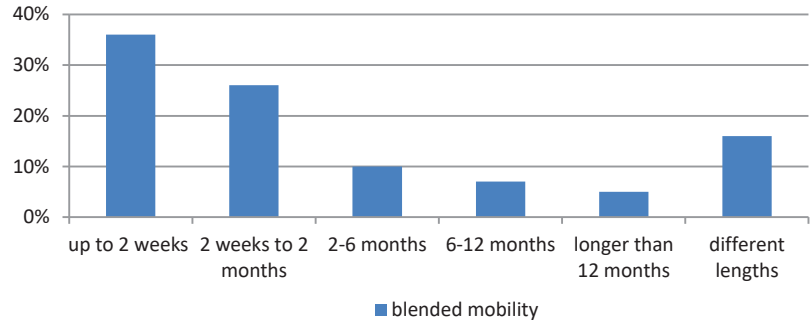

Figure 4. Preferred length of stay – blended mobility.
S o u r c e: own work

Learning in the workplace gives one the opportunity to learn and develop competences. The study, therefore, asked about the educational benefits of the three types of mobility. In the case of physical mobility, the dominant indication was international experiences (31%). Online networking was in the second place (23%). It turned out that professional knowledge and professional skills are also important. The other benefits were of little importance. The responses in cases of digital mobility were slightly different. One answer that was dominant was gaining digital skills (31%) and professional knowledge (29%). The average values were professional skills (9%), networking opportunities (7%), and others (8%). The remaining responses received less than 5% of responses. Responses about

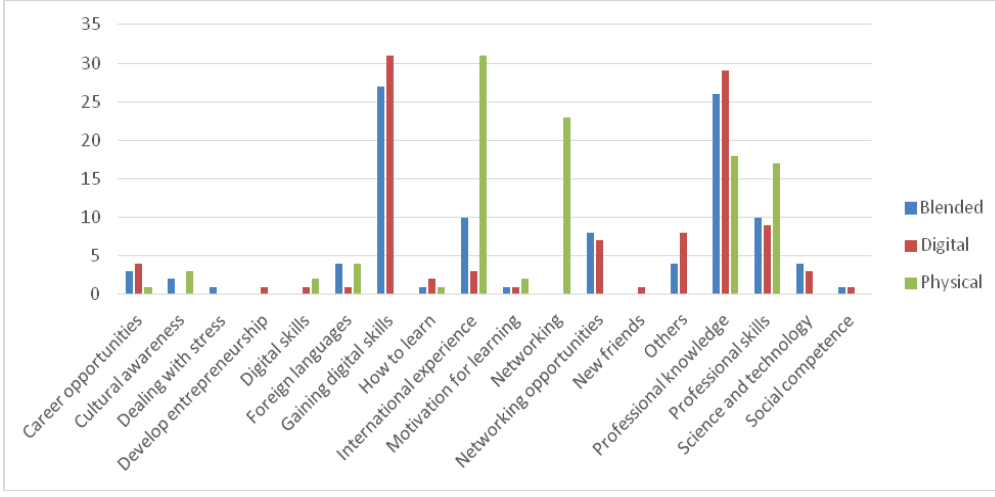

Figure 5. Comparison of benefits from three schemes of mobility.
S o u r c e: own work

blended mobility were very similar to digital mobility, however, there were slight differences. Greater importance was attached to international experiences (10%), and foreign languages skills (4%).

In an open-ended question, we asked staff to explain their choices. The most popular responses were as follows: "you need to share your knowledge", "knowledge about the background of the subjects or courses to be an attendee", "it is necessary to have knowledge about the topic that will be discussed during the mobility", "knowledge about the topic that the mobility is focused on is needed prior to the mobility", "knowledge for exchanging best-practices, seeing what services the universities provide you with". By way of explanation, university staff made the following comments regarding professional skills: "you need to have social skills (and know) how to communicate with others", "language skills are needed", "skills to adapt to a new country".

When comparing the benefits of the three types of mobility, one can see that the benefit of mobility is visible regularity, and that benefits from blended and digital mobility are similar, but form physical mobility significantly differently.

Most respondents (96%) would like to take part in physical mobility again. In the second place was blended mobility (68%) while digital came third (47%). The largest number of respondents expressed their reluctance to participate in digital mobility (22%). There were definitely fewer respondents interested in taking part in blended mobility (8%) and physical (7%).

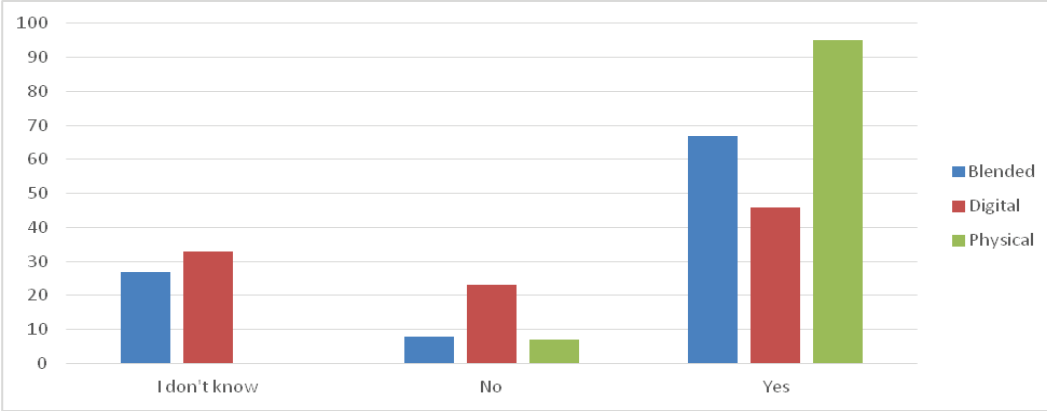

Figure 6. Willingness to participate again in three schemes of mobility.
S o u r c e: own work

Assuming that the willingness to participate again is a measure of the attractiveness of the mobility, it can be concluded that for the respondents, physical mobility was definitely the most attractive. Most Higher Education employees

would like to take part in it again, and only a few percent would not. At the same time, the fewest number of workers would like to take part in mobility again and most would definitely not. It can be assumed that the willingness to participate again is a measure of the attractiveness of the mobility.

Discussion and conclusions

Organizations aiming to make operations faster and more flexible have begun to transfer power to individuals (Rigby & Ryan 2018) and responsibility for learning has moved to individuals and teams themselves (Ellinger 2004). This has become possible by creating self-directed teams that can respond to the individual needs of staff (Holbeche 2015). Our study shows that workplace learning within mobility where individuals and groups who take responsibility for their learning both in planning and assessing a mobility programme, aims to develop professional knowledge rather than skills. The approach to learning taken by higher education staff was to view it more as an opportunity than a duty. What is interesting is that professional knowledge within mobility was perceived as added value that is rather shared within mobility than gained. Employee's skills have less bearing on their professional development than their interpersonal relationships and interactions with others.

Higher education administrative staff and academic teachers are one of the professional groups whose workplace conditions have changed in recent years and are continuing to change. Mainly due to globalization the university has become an entrepreneurial institution governed by the laws of academic capitalism (Clark, 1998). This change necessitates altering the competences required and can be achieved through learning. One of the organizational solutions conducive to learning is mobility. The opinions of university staff on studied schemes of mobility varied. Opinions were more similar regarding digital and blended mobility, and differed significantly from opinions on physical mobility. Hence, the three mobility schemes studied here are different ways of experiencing the world and learning. Therefore, they should be implemented in parallel, and not on the basis of alternatives.

Wallin, Pylväs & Nokelainen (2020) illustrate the double nature of digitalization, as it may both support and hinder professional development and learning by changing work tasks, work practices and knowledge development and management. Our findings confirm this educational and development potential. The international mobility of academic staff in which digital tools become more and more important,

improves the effectiveness of research, builds the potential and competitiveness of scientific institutions, and contributes to the progress and development of science in the country and at the European Union level. However, academics must not be forced to be internationally mobile and learn in a multinational environment as this may be counterproductive. Whereas, it is worth considering creating a system of incentives and promotion at universities, as well as creating an organizational culture at universities in which mobility and internationality are central values. Superiors should also appreciate the international activity of employees. There is also a need to move away from single or uncoordinated efforts to a coordinated strategy to promote mobility and internationalization.

Our study shows that workplace-based learning occurs because of the interpersonal contact between people rather than the environment in which that social interaction occurs. The culture within which learning takes place is a critical issue in higher education, understood as a supportive work environment where staff make decisions concerning the content and scope of their learning within mobility. University employees are typically adult learners who learn independently, and pursue job-oriented learning within mobility. Thus, the learning culture is a critical issue in higher education, understood as a supportive work environment where staff decide about the content and scope of their learning within mobility.

In recent years, learning motives have been perceived as crucial for an individual employee's learning path. These might cover various activities designed to develop your career such as learning for professional development and learning for social functioning (Markus, 2006), "learning by adding something new in the job" (van der Pol, 2011). This study shows that workplace learning within the mobility of higher education staff is also based on professional development, however, physical mobility that is combined with going abroad focuses on international experience and networking opportunities. Consequently, the learning focus is moved towards the development of digital skills.

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Marcin Rojek, Joanna Leek

Uczenie się pracowników szkolnictwa wyższego w formule trzech rodzajów międzynarodowej mobilności

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

Dotychczasowe badania nad edukacyjnym wymiarem mobilności międzynarodowej środowiska akademickiego dotyczą głównie rezultatów mobilności akademickiej oraz koncentrują się na mobilności studentów. Istnieje jednak niewystarczająca liczba badań, które koncentrują się na mobilności pracowników szkolnictwa wyższego (nauczycieli akademickich/badaczy i kadry administracyjnej), zwłaszcza w odniesieniu do ich uczenia się. Każdego roku Komisja Europejska publikuje badania dotyczące wpływu mobilności, ale nie zawierają one przeglądu tego, w jaki sposób uczenie się dorosłych odbywa się w ramach mobilności i jak mobilność wpływa na uczenie się przez całe życie. Celem tego artykułu jest opisanie i wyjaśnienie cech uczenia się pracowników szkół wyższych w odniesieniu do trzech rodzajów mobilności: tradycyjnej, mieszanej i cyfrowej (digitalnej). Badanie zostało przeprowadzone z udziałem 103 pracowników europejskich uniwersytetów z 17 krajów. Twierdzimy, że trzy badane tutaj schematy mobilności to różne sposoby doświadczania świata i uczenia się. Dlatego powinny być wdrażane równolegle, a nie postrzegane jako alternatywy.

S ł o w a k l u c z o w e: uczenie się w miejscu pracy, szkolnictwo wyższe, mobilność, kadra, uczenie się międzynarodowe

Марчин Ройек, Иоанна Лик

Обучение сотрудников высших учебных заведений по формуле трех типов международной мобильности

А н н о т а ц и я

В исследованиях образовательного аспекта международной мобильности обсуждаются последствия академической, международной мобильности в целом или основное внима-

ние уделяется мобильности студентов. Однако недостаточно исследований, посвященных мобильности сотрудников высших учебных заведений, особенно в отношении обучения. Ежегодно Европейская комиссия публикует исследования о влиянии мобильности, но они не дают обзора того, как происходит обучение взрослых в рамках мобильности и как мобильность влияет на непрерывное обучение сотрудников высших учебных заведений. Цель данной статьи – описать и объяснить характеристики обучения сотрудников высшего образования в ходе трех типов мобильности: традиционной, смешанной и цифровой. В исследовании приняли участие 103 сотрудника европейских университетов из 17 стран. Мы утверждаем, что три изучаемые здесь схемы мобильности представляют собой разные способы познания мира и обучения. Поэтому их следует реализовывать параллельно, а не воспринимать как альтернативу.

К л ю ч е в ы е с л о в а: обучение на рабочем месте, высшее образование, мобильность, персонал, международное обучение

Marcin Rojek, Joanna Leek

Aprendizaje de los empleados de educación superior en la fórmula de tres tipos de movilidad internacional

R e s u m e n

Los estudios sobre la dimensión educativa de la movilidad internacional discuten las implicaciones de la movilidad académica, internacional en general, o se centran principalmente en la movilidad de los estudiantes. Sin embargo, hay un número insuficiente de estudios que se centren en la movilidad del personal de educación superior, particularmente en relación con el aprendizaje. Cada año, la Comisión Europea publica estudios sobre el impacto de la movilidad, pero esto no proporciona una descripción general de cómo ocurre el aprendizaje de adultos dentro de la movilidad y cómo la movilidad afecta el aprendizaje permanente de los empleados de educación superior. El propósito de este artículo es describir y explicar las características de aprendizaje de los empleados de ES en el transcurso de tres tipos de movilidad: tradicional, mixta y digital. El estudio se realizó con la participación de 103 empleados de universidades europeas de 17 países. Afirmamos que los tres esquemas de movilidad estudiados aquí son diferentes formas de experimentar el mundo y aprender. Por lo tanto, deben implementarse en paralelo y no percibirse como alternativas.

P a l a b r a s c l a v e: aprendizaje en el lugar de trabajo, educación superior, movilidad, personal, aprendizaje internacional

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Student's Well-Being in the E-School Environment: Selected Research Results

Abstract

The aim of the study was to identify the areas most sensitive to the well-being of students in the e-school environment. The researchers' interest in the field of education most often relates to students' school achievements. It seems reasonable to look at the reality of school from the perspective of the well-being of adolescents. The threat of a pandemic and the transition to remote learning have created unique conditions for understanding student problems. In reference to Allardt's concept, four categories of well-being were distinguished 1) school conditions, 2) interpersonal relationships, 3) means of self-fulfillment, and 4) overall health condition.

The study was conducted online, but through schools, among grades 7 and 8, and the first grade of secondary school students (N = 360). The principal component analysis (PCA) and confirmatory factor analysis (CFA) of the tool have been developed. The criterion validity was determined on the basis of the relationship between the questionnaire and other tests that measure similar problems. Rosenberg's Self-Assessment Scale and the KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children were used.

The Student's Well-being in the E-school Environment: A Questionnaire is sufficiently reliable and valid. The distribution of low, average and high results

in the sub-scales was more or less even. Low scores in the first sub-scale were reported by every fourth student, in the second and third sub-scale by every third student. The scale can be used to recognise the well-being of students learning in a remote or hybrid system. Well-being translates into functioning in many areas of life activity.

K e y w o r d s: remote learning, coronavirus pandemic, well-being, students, e-school

Background of research

The coronavirus pandemic has brought many areas of life, including the reality of school, into a new dimension. Until now, the use of modern technologies in school education has been an alternative to traditional forms and methods of teaching. With the closure of schools, remote learning has become a necessity for the continuation of the educational process worldwide. The school as a place of education has moved to the student's home, and school interpersonal relationships have been suspended in the virtual space. In a situation where teachers, parents and education experts ask themselves questions about the effectiveness of e-school education, it is worth considering how a student feels in this new school reality.

Well-being is identified with quality of life and, especially in psychology, is often defined as welfare, or ‚more, precisely as a subjective sense of welfare. Research on mental welfare goes in two directions: (1) the eudaimonic model (living in harmony with oneself – happiness, life full of moral virtues, good experience of one's own existence) (Czapiński, 2012; Dodge et al., 2012; Trzebińska, 2012; Wojciechowska, 2008) and (2) the hedonistic model (satisfaction with life, positive and negative feelings, focus on personal feelings of pleasure – sorrow, fulfilment – non-fulfilment) (Argyle, 2004; Carr, 2004; Czapiński, 2012; Diener et al., 2012; Ryan and Deci, 2001).

The best-known well-being aspects are presented in the works of Seligman, Diener, Ryff, Ryan and Deci. According to Seligman (2011), well-being, as a mental state among individuals, refers to positive emotions, a state of involvement, relationships, a sense of meaning/significance and the achievement/appreciation of what one does. Diener (1999) sought to look at the various dispositional influences, counselling strategies, goals and ways of adaptation that may be relevant to subjective well-being. He stressed the interaction between psychological factors and life circumstances. Subjective well-being (SWB) focuses on three dimensions: (1) satisfaction with life, (2) pleasant and (3) unpleasant emotions.[10] Subjective

well-being consists of cognitive assessments and affective reactions, both positive and negative, that people experience in connection with their lives, themselves, and the events and circumstances in which they live (Diener et al, 2006). There is a dynamic relationship and interaction between these elements.

The six-factor model of psychological well-being is a theory developed by Ryff (1989). She drew attention to factors that affect a person's psychological well-being, satisfaction and happiness. Psychological well-being is influenced by positive relationships with others, control over the environment, autonomy, a sense of purpose, as well as the sense of life, self-acceptance and personal development. An individual can feel well even if he or she suffers temporary setbacks or if he or she does not feel pleasure (Ryf and Keyes, 1995).

Researchers in the eudaimonistic field expose a sense of meaning and self-fulfilment, and the level of well-being is determined by references to the extent to which a person realises the fullness of his/her abilities (Ryan and Deci, 2001). In Ryan's and Deci's theory of self-determination, the conceptualisation of well-being is based on psychological analysis. Well-being is a complex structure, consisting of two general perspectives: hedonistic, which focuses on happiness and defines well-being in terms of achieving pleasure and avoiding pain; and eudaimonic, which focuses on meaning and self-actualization and defines well-being in terms of the degree to which a person is fully functional. Ryan and Deci, when reviewing the study, drew attention to the stability of well-being over time and the importance of cultural circumstances.

The student's well-being is conditioned by many factors, both personal and environmental. Well-being is a point of balance between an individual's resources and difficult life situations (Dodge et al., 2012). If an individual has the mental, social, and physical resources to help him or her meet the challenges they might face, then his or her well-being can be stable. The importance of environmental, school-related factors relating to working conditions cannot be overlooked (Diener et al., 2006). One of the important well-being factors which is relevant to educational achievement is the school atmosphere (Daily et al., 2020). In the case of the e-school environment, the atmosphere is related not only to the physical space of the school, but also to the interpersonal relationships transferred to the Internet space and the home/family situation of the student.

In recent years, interest in the topic of well-being has led to the development of research tools with different dimensions and measurement indicators (Allardt, 1989,1993; Huebner and Gilman, 2002; Karatzias et al., 2001; Keith and Schalock, 1994; Konu and Lintonen, 2005; Opre et al., 2018; Putwain et al. 2020; Reid & Smith 2018; Renshaw et al., 2015; Soutter et al., 2013; Tomyn and Cummins, 2011).

There are very few analyses in the literature to date based on proven measurement tools to diagnose the well-being of students and teachers at school. The

current situation associated with the coronavirus pandemic has forced the school to move to a virtual space. Furthermore, social isolation, health concerns, worrying media information, and an uncertain future, justify the need to pay attention to the well-being of students in the e-school environment. The theoretical basis of the research undertaken is Allardt's concept (1993), which was developed in the field of sociology and related to the concepts of welfare (objective dimension) and happiness (subjective dimension). Allardt distinguishes three dimensions of human functioning: having, loving, and being, which are well integrated into the relationship between resources and challenges. Having symbolizes material resources (economic, working conditions, nutrition, but also psycho-physical, as well as social conditions). Loving incorporates social relationships (family, school, peer, employee relationships). Being has a broad meaning – it concerns individual mental well-being (best associated with mental well-being). It reflects satisfaction with life, activity, the level of self-actualization, as well as self-esteem. At the same time, it underlines the need for integration into society and nature (Allardt, 1993). The basic concept of a school of prosperity is the concept of well-being (Konu et al., 2002).

The aim of the research was to prepare a tool for examining the well-being of adolescents in the e-school environment and to check their psychometric properties. In reference to Allardt's concept of well-being (1993), adopted by Konu et al. (2002) to the school situation, well-being indicators are presented in four dimensions: 1) school conditions, 2) interpersonal relationships, 3) means for self-fulfilment, 4) health condition. They correspond to the four dimensions of the author's *Student's Well-being in the E-school Environment: A Questionnaire*.

Methodology of Research

Sample of Research

The survey was carried out online between 15 May and 15 June 2020, using Google Forms applications. Prior to launching the research procedure, consent to participate in the survey was obtained from the parents and legal guardians of underage participants. For reasons of personal data protection, the headmasters of the schools attended by the students in question remain the controllers of these consents. The group of respondents consists of 360 students from grades 7, 8 of primary school and the first grade of secondary school (231 girls, 129 boys; both rural (138 people) and urban (222 people).

Instruments

When preparing the research tool, 36 questionnaire items were created, dividing it into four sub-scales according to the categories corresponding to Allardt's concept. The participants replied by responding to the statements on the five-point Likert scale. In addition to the author's *Student's Well-being in the E-school Environment: A Questionnaire*, the respondents completed *KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children and Adolescents* (Ravens-Sieberer et al., 2010) and *Rosenberg's Self-Esteem Scale* in the Polish adaptation of Dzwonkowska, Lachowicz-Tabaczek and Łaguna (Łaguna et al., 2007). These additional assessment instruments made it possible to assess the criterion accuracy of the prepared research tool.

Procedure

Structure of the Student's Well-being in the E-school Environment: A Questionnaire – the principal component analysis (PCA)

In order to determine the internal structure of the author's questionnaire, the principal component analysis (PCA) was conducted. Before performing the factor analysis, the correlation matrix determinant was checked (which turned out to be equal to 3.683E-6) and the Kaiser-Mayer-Olkin test was performed, recalling the KMO measure of sample selection adequacy (0.880). The Bartlett sphericity test result was statistically significant ($\chi^2 = 4331.152$; df = 630; $p < 0.001$). The correlation matrix determinant does not allow for a factor analysis. The distributions of several variables were not normal. Kendall's tau-b correlation was made between the 36 items of the questionnaire and the overall result. The 12 items with the lowest correlation coefficients with the overall result of the tool (tau-b below 0.3) were discarded.

After rejecting the 12 items, the correlation matrix was 0.001, the KMO measure of sampling adequacy was 0.908; therefore such a result made it possible to carry out a factor analysis, followed by the rejection of a further 7 items with a weak factor load and clearly undefined in terms of the dimension to be distinguished.

There were 17 items left for which the correlation matrix was 0.002 and the KMO measure of sampling adequacy was 0.913. The chi square coefficient in the Bartlett test was statistically significant ($\chi^2 = 2191.186$; df = 136; $p < 0.001$). The results obtained allowed for an exploratory analysis of the main components in order to determine the internal structure of the scale. The number of factors was determined using the criterion of the scree plot. It was finally decided to divide the scale into three sub-scales for which the total explained variance is 51.353%.

An analysis of the rotation of factors using the Oblimin with Kaiser normalisation method was performed. The thus separated components, the description of the items and their factor loadings are listed in Table 1.

Table 1
Items and their factor loadings for the sub-scale of the Questionnaire on Student's Well-being in the E-school Environment as identified in the factorial analysis

Item No.	Factor I: State of physical, mental and social health	factor loadings
i35	I have noticed that isolation contributes to the increase in human conflict and physical and psychological violence	0.832
i34	Due to the large amount of time spent in front of the computer/phone, I feel headaches, pains in my spine, eyes, etc.	0.820
i31	In connection with e-school, I spend too much time in front of the computer	0.827
i24	It takes me more time to meet the demands of teachers than before the pandemic	0.832
i17	After working in the e-school system I feel very tired	0.814
i16	I feel uncomfortable about not being able to influence decisions made at school.	0.827
i15	I have sleeping problems due to the current situation	0.831
i14	The current situation makes me feel uncomfortable (mood and energy drop, nervousness and irritation)	0.811
Item No.	**Factor II: Learning conditions**	**factor loadings**
i10	Learning at home is more comfortable for me, [it] gives me a greater sense of security, I do not feel excessive control	0.737
i22	I like remote learning – I don't have to leave home, I work at my own pace, I have more free time	0.727
i25	It is difficult for me to focus on learning at home, traditional teaching is more effective for me	0.765
i4	I am satisfied with the current timetable	0.802
i32	Due to the pandemic, I cannot develop my educational opportunities for my future, e.g., by participating in extra-curricular activities	0.799
Item No.	**Factor III: Interpersonal contacts and self-fulfilment**	**factor loadings**
i5	Online contact with teachers is a source of stress for me	0.550
i7	Due to the pandemic, I have fewer opportunities to engage in various social activities	0.584
i12	I have the opportunity to be successful	0.502
i21	The presence of the household members disturbs me during my online activities	0.526

S o u r c e s: Own work

The first factor concerns the assessment of physical health, which is influenced by prolonged time spent in front of a computer in connection with school tasks. This factor also includes statements relating to an assessment of the mental state and social situation. The second factor is a description of the assessment of working conditions at home, with attention being paid to both the benefits and limitations of such conditions. The third factor highlights the problems of interpersonal contact with teachers and peers and the opportunities for achievement.

Validation of the internal structure of the questionnaire – confirmatory factor analysis (CFA)

Due to the discrepancy between the questionnaire structure expected from the theoretical assumptions resulting from Allardt's concept and the results of the principal component analysis (PCA), a confirmatory factor analysis (CFA) was conducted using the AMOS SPSS. Three models were built for which data matching was tested. Model 1 assumed a 4-factor structure of the questionnaire consisting of 36 items, its construction is based on Allardt's theory of welfare. Model 2 results directly from the principal component analysis (PCA), which left 17 items of the questionnaire, including 3 factors. Model 3 tested the validity of the questionnaire consisting of 17 items selected by the PCA, which were divided into 4

Table 2
Results of the confirmation factor analysis carried out using the AMOS programme

Model	Dimensions	NPAR	CMIN	F	P	CMIN/ DF	RMSEA	NFI	CFI
Model 1 Null correlation	36 items 4 dimensions	76	3200.990	26	<0.001	5.113	0.107	0.287	0.333
Model 1 Existing correlation		77	2506.622	25	<0.001	4.011	0.092	0.442	0.513
Model 2 Null correlation	17 items 3 dimensions	51	662.480	19	<0.001	5.567	0.113	0.703	0.741
Model 2 Existing correlation		52	337.368	18	<0.001	**2.859**	**0.072**	**0.849**	**0.895**
Model 3 Null correlation	17 items 4 dimensions	38	1179.677	32	<0.001	8.937	0.149	0.471	0.500
Model 3 existing correlation		39	549.736	31	<0.001	4.196	0.094	0.754	0.800

S o u r c e s: Own work

sub-scales according to Allardt's assumptions. The results of the CFA for the three models showed that only Model 2 is sufficiently matched to the data (see Table 2). In the adopted model, the factorial loadings of all the questionnaire items are in the range 1.08-0.75 for the first factor, 1.30-0.97 for the second factor, 1-0.74 for the third factor, with the assumption of correlation (correlation estimated at 0.70).

The fit indices for the Confirmatory Factor Analysis model may be adopted in recognition of the existence of correlation. The quoted criterion of goodness chi-quadrat = 337.368 at df = 118; $p < 0.001$ causes the zero hypothesis of empirical equality and reproduced by the model of the covariance matrix to be rejected. However, the chi-quadrat test is about the zero hypothesis, which means that the rest of the standardised empirical and theoretical matrices that the model reproduces are equal to 0. This result suggests that the restrictions imposed in the theoretical model are correct. The test is sensitive to the size of the sample, with large samples there is a growing confidence that the matrices are equal and the significance of these differences may be small. Therefore, alternative tests are recommended (Sagan 2003). However, absolute fit indices such as CMIN/DF, which is 2.859 (absolute fit type at less than 5) and the elemental value of Steiger-Lind's RMSEA average square approximation error of 0.072 (approximation error not exceeding 0.08 is still acceptable) indicate an acceptable level of model match. In addition, indicators relating to the divergence of the model under examination to the analogous measures of the NFI and CFI independence model, which do not exceed 0.9, have been taken into account, which confirms that the model is in line with reality.

Reliability

In order to check the reliability of the sub-scales of the analysed tool (their internal consistency), Cronbach's Alpha index was calculated, which is 0.895 (for 17 items). In addition, the Cronbach's Alpha and correlation coefficients of each of the three sub-scales were calculated, reflecting the three factors of student well-being in the e-school environment with the overall result of the questionnaire.

For factor I (state of physical, mental and social health) Cronbach's Alpha = 0.843 and the correlation coefficient with the overall result $r = 0.926$ ($p < 0.001$). High reliability values were also obtained in Factor II: Alpha = 0.805; $r = 0.847$ ($p < 0.001$). Factor III coefficients are slightly lower, although satisfactory: Alpha = 0.611; $r = 0.757$ ($p < 0.001$). In addition, the value of Guttman's half-life division coefficient, which determines the half-reliability for even and odd positions, is $r = 0.788$ at the relevance level $p < 0.001$. The inter-half correlation coefficient reached $r = 0.363$; $p < 0.001$. These results testify to the internal consistency of the questionnaire and confirm its reliability.

Validity

The coincidental (criterion-based) validity was determined on the basis of the relationship between the questionnaire and other tests that measure similar problems. M. Rosenberg's Self-Esteem Scale was used to assess global self-esteem in young people and adults (Baumeister et al., 2003). High self-esteem does not mean that you consider yourself better than others. The individual is defined as sufficiently good and valuable. People with low self-esteem are not satisfied with themselves and even reject their own "I". A statistically significant relationship was expected between self-esteem and student well-being (Celik, 2014).

The second tool was used to investigate the theoretical validity of the Student's Well-being in the E-school Environment: A Questionnaire was KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children and Adolescents. It is a one-dimensional, shortened scale of a full version of KIDSCREEN. While low scores indicate a sense of being unhappy, incapable and dissatisfied with family life, contacts with peers and school life; high scores are evidence of a sense of happiness, good condition of satisfaction with family life, peer contacts and school life (Ravens-Sieberer et al., 2010). A statistically significant correlation was expected between the result of the KIDSCREEN-10 questionnaire and the results of the author's Student's Well-being in the E-school Environment: A Questionnaire. The results of the correlation analysis between students' well-being in the e-school environment (total overall score and sub-scale results) and the global self-esteem and health indicator obtained in the KIDSCREEN-10 questionnaire are presented in Table 3.

Table 3

Correlations between students' well-being in the e-school environment, self-esteem and the health indicator measured by the KIDSCREEN-10 questionnaire

Pearson's r correlation	∑well-being	Factor 1 health	Factor 2 conditions	Factor 3 contacts	SES	KIDSCREEN
∑well-being	1	0.860**	0.782**	0.765**	−0.339**	0.639**
Factor 1 health	0.860**	1	0.648**	0.587**	−0.292**	0.567**
Factor 2 conditions	0.782**	0.648**	1	0.528**	−0.084	0.370**
Factor 3 contacts	0.765**	0.587**	0.528**	1	−0.288**	0.454**
SES	−0.339**	−0.292**	−0.084	−0.288**	1	−0.600**
KIDSCREEN	0.639**	0.567**	0.370**	0.454**	−0.600**	1

** correlation significant at 0.001 (bilateral)

S o u r c e s: Own work

The analysis of data contained in Table 3 showed highly significant correlations (at 0.001). The well-being tested by the author's questionnaire based on Allardt's concept was, by definition, of a similar design to the holistically understood health issues diagnosed with the KIDSCREEN-10 tool. Statistically significant correlations can be considered to confirm the criterion validity of the Student's Well-being in the E-school Environment Questionnaire. Only the correlation between learning conditions as a factor of well-being in the e-school environment and global self-esteem has proven to be statistically insignificant. The negative relationship between self-esteem and well-being may also seem somewhat surprising. It can be assumed that students with lower self-esteem perform well in the e-school environment, which may be related to better perceived health conditions (Factor 1, KIDSCREEN), and/or possibilities of self-actualization without direct interpersonal contacts (Factor 3).

Data Analysis

Students' well-being in the e-school environment

In order to define the values of the results as low, average, high, reference was made to indicators of variables, which were prepared by means of a regression method, taking into account the factor loads of individual questions in each factor. The indicators can take both positive and negative values. A negative value indicates that the tested person has a score below the average for the variable, a close to zero indicates an average score and a positive value indicates a high level of the variable (Bedyńska and Brzezicka, 2007). The breakdown into high, average and low scores was made on the assumption that indicators −0.50000 to 0.50000 are close to zero (usually standard deviation −/+0.5 is considered).

Table 4
Indicators for each sub-scale

Factor I	−2.28197 to −0.50224	34.4%	Low scores
	−0.48984 to −0.50224	30.9%	Average scores
	0.50017 to 2.14872	34.7%	High scores
Factor II	−1.86061 to −0.51082	35.0%	Low scores
	−0.49489 to 0.49997	31.7%	Average scores
	0.52892 to 2.10482	33.3%	High scores
Factor III	−2.91574 to −0.50493	27.8%	Low scores
	−0.47869 to 0.49884	38.6%	Average scores
	0.52193 to 2.06092	33.6%	High scores

The analysis of the data contained in Table 4 shows that the surveyed students are statistically more likely to show low scores in the area of well-being related to the conditions of remote education (Factor II) than in the area of social relationships and self-actualization opportunities (Factor III). In the area of health (Factor III), the percentage of low and high scores is similar. It can be assumed that contacts through social media (which, regardless of the limitations associated with forced isolation, are a typical form of communication for school-age youth) more than compensate young people for the lack of direct meetings. At the same time, students are more likely to experience discomfort caused by home educational conditions. It is likely that a significant proportion of students would prefer to spend their time at school rather than spend it at home on their own.

Results of the Research

In order to search for differences between the intensity of well-being of the respondents in the analysed sub-scales, weighted means were calculated for the 17-item scale and the e-school well-being factors identified within it (cf. Table 5).

Table 5
Weighted means for the sub-scales Student's Well-being in the E-school Environment: A Questionnaire

Descriptive statistics – weighted means	Min	Max	M	SD	Skewness		Kurtosis	
					Statistics	Standard error	Statistics	Standard error
∑well-being	1.12	4.94	**3.1502**	0.889	−0.124	0.129	−0.822	0.256
Factor 1 health/ 8 items	1.00	5.00	**3.1170**	1.033	−0.065	0.129	−1.009	0.256
Factor 2 conditions/5 items	1.00	5.00	**3.1678**	0.100	−0.221	0.129	−0.892	0.256
Factor 3 contacts/ 4 items	1.00	5.00	**3.1944**	0.92137	−0.285	0.129	−0.286	0.256

N=360; M-weighted mean (raw score/number of items)
S o u r c e s: Own work

The analysis of the weighted means for the sub-scales of the tool for examining the well-being of students in remote education conditions shows that they do not differ from the average for the total score of the scale. The physical, mental

and social health-related feelings of the respondents build up the well-being of the student in an e-school to a similar degree as the conditions of remote education and social contacts and opportunities for self-actualization in a pandemic situation. Differences in the perception of different well-being factors by the youth respondents are revealed in the percentage distributions of raw scores for individual items of the questionnaire. The surveyed students admit that after the introduction of remote learning in schools they spend too much time in front of the computer (60% of the respondents said "yes" or "rather yes"), and it takes them more time to meet the school requirements than before the pandemic (55% of the surveyed students said "yes" or "rather yes"). At the same time, the students surveyed generally do not experience any sleep problems that may indicate psychophysical or physically ill health (more than 70% of them marked "no" or "rather no"). The majority of the respondents (52%) admitted that learning at home is more comfortable than a traditional school education, while, at the same time, over 53% of the surveyed students are satisfied with the e-school timetable. It should be pointed out that in the group of respondents there is a larger group of those who "liked remote learning" (more than 48% said "yes" or "rather yes"; less than 41% said "no" or "rather no"). The students surveyed generally positively assess their relationship with their household members and teachers in terms of relevance to school education. Moreover, in their opinion, a temporary change in the organisation of the teaching process did not adversely affect their chances of success. At the same time, young people see limited opportunities for self-actualization in the social sphere (Bieganowska-Skóra and Pankowska, 2020).

The next focus is on differences in gender, educational level and place of residence. In order to identify differences in the assessment of well-being between girls and boys, an independent test was used. Statistically significant differences in the well-being of girls and boys occur in terms of physical health $t = -1.925$; $df = 358$; $p < 0.05$. Girls ($M = 24.31$; $SD = 8.434$) feel worse in remote education than boys ($M = 26.05$; $SD = 7.868$).

A statistically significant difference was observed between the pupils of grades 7, 8 of primary school and the first grade of secondary school (ANOVA) in the total result of general well-being in e-school $F = 9.268$; $p < 0.001$. Significantly lower results were achieved by secondary school students ($M = 50.10$ $SD = 15.292$) compared to grade 7 students ($M = 57.69$ $SD = 13.527$).

A statistically significant difference occurred in the assessment of health condition (factor I) $F = 11.773$ $p < 0.001$. Grade 7 students ($M = 27.47$ $SD = 7.566$) compared to secondary school students ($M = 22.81$ $SD = 8.330$) assessed their health status much better.

Statistically significant differences occurred in the assessment of interpersonal relationships and self-actualization (factor III) $F = 5.657$ $p < 0.05$. Significantly

higher scores were reported by grade 7 students (M = 13.57 SD = 3.411) compared to secondary school students (M = 12.11 SD = 3.815).

High school students evaluate their well-being in e-school and in pandemic conditions significantly worse than primary school students. The difficulties faced by students of the first year of high school are caused not only by the awareness of health risks, but also by the change of the school structure itself, to which they did not have time to adapt, when they were forced to switch to remote education.

Discussion

Studies on the functioning of students in the conditions of remote education caused by the pandemic constitute a new area of interest for both representatives of the social sciences and experts in education. Since mid-March 2020, schools around the world have been operating in a new reality based on information technology. The use of the media in education, while, at the same time, lacking direct contact between students and teachers and their peers, has forced students to become more involved in individual learning rather than be in a traditional school setting, and, at least in part, parents were forced to assume the role of the teacher. The new form of education has become a kind of pedagogical experiment, the results of which are so far difficult to predict.

The results of the research presented in this study show convergence with similar ones carried out in Poland and e.g., in Germany and Austria. Such an example is the research project „Remote learning and adaptation to social conditions during the coronavirus epidemic", which shows that the perception of e-school is „heterogeneous and not entirely negative". Some teachers and students complain about the deterioration of mental well-being. Students notice that remote lessons are less attractive, and teachers lack the technical and substantive preparation for the new working conditions. At the same time, there is a clear determination of teachers to carry out teaching and educational tasks, which in turn is noticed and appreciated by students, especially in the area of teacher-student relations (Ptaszek, et al. 2020). An international study conducted under the guidance of Huber at the turn of March and April 2020 showed that 49% of students feel comfortable in an e-school. The possibility of learning at one's own pace, lack of school stress, and support from parents are just some of the positive aspects of remote education. Only 13% have taken the fact that the closure of the traditional teaching model in connection with the coronavirus pandemic was wrong or very wrong. Almost a quarter of the students surveyed admit that they are currently spending more

time studying than before the pandemic. Most of the students surveyed (53%) value time spent with their families as a positive effect of staying at home. Since the research involved parents and teachers in addition to the students, it could be shown that young people are the most satisfied with education at home, while their parents, educators and teachers are more skeptical about the effects of this form of school functioning (Huber et al., 2020). Researchers from the University of Vienna have shown in their longitudinal research that the well-being of students has changed positively since the introduction of remote learning in early March 2020, at least for the following two months. Approximately 49.5% of the students surveyed rated their well-being better and 20.3% worse than at the beginning of the pandemic. 35.7% of the students examined admitted that they are doing better and better with their schoolwork. 14.8% said that at the beginning of May they were less able to meet school requirements than at the beginning of March. At the same time, it was found that achievements in remote education are linked to the ability to organise one's own learning. Social contacts are an important factor in the well-being of students. About 45.8% of the respondents stated that during the 2 months of remote education, social relations with peers did not change, and in 30.4% – worsened (Schober and Lüftenegger, 2020). The functioning of students in e-school and the well-being of children and adolescents associated with an epidemic cannot be reduced to the results of home learning alone, as highlighted by the students participating in such studies (Andresen et al., 2020). Mental problems associated with the need for isolation, the deteriorating financial situation of many families, fears of the possibility of infection are just some of the factors in the well-being of children and adolescents that require pedagogical interventions and represent new challenges for health education (Imran et al., 2020; Spinelli et al., 2020; Juneja et al, 2020).

Possibilities of using the *Student's Well-being in E-school Questionnaire* and its limitations

The prepared tool for testing the well-being of students in remote education conditions can be used in situations where schools, classes or individual students temporarily move to a distance learning system for epidemic or other random reasons. It can be assumed that the techniques and methods of education developed using modern technologies will be used more widely in schools, and thus, part of school education will be conducted via the Internet. In the event of the spread of such 'hybrid' forms of school education, implemented regardless of epidemic and health-related conditions, it would be worth taking into account the well-being of the student in a traditional school and in education implemented remotely. The restrictions on the use of the questionnaire are due to the fact that it can only be used to examine students in remote teaching at home. In addition, this question-

naire diagnoses the mood associated with the role of the student in an e-school environment. In further research work, it is worth taking into account the wider well-being of children and adolescents, not only in relation to their role as students of a traditional school or an educational institution operating in a remote mode. The study of the well-being of children and adolescents requires particular attention because of the significant increase in the population of problems relating not only to physical, but also psychosocial health. It is also worth trying to design tools for diagnosing the well-being of teachers, both in traditional schools and in the special conditions of distance learning.

Summary and conclusions

1. The analysis of the psychometric properties of the *Student's Well-being in the E-school Environment: A Questionnaire* showed that the tool is sufficiently reliable and valid.
2. The results of the research obtained on a group of 360 students indicate that the surveyed adolescents coped quite well with the challenge of participation in remote education, positively assessing their psychophysical and social health in the new educational situation, the conditions for the implementation of tasks resulting from the implementation of compulsory schooling and the possibility of achieving success and self-actualization.
3. The analysis of our own research results and an attempt to juxtapose them with the reports from other authors' research does not allow for an unambiguous assessment of students' well-being in the e-school environment in terms of good and bad.
4. The young people surveyed report difficulties in self-actualization in the area of social activities. Furthermore, an analysis of the well-being of the young people in a pandemic situation reveals the need to address the welfare of children and adolescents regardless of their role as students. The psychosocial functioning and health risks of the young generation in an epidemic is still an open area of research in the social sciences.

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Agnieszka Buczak, Izabella Maria Łukasik

Samopoczucie ucznia w środowisku e-szkoły: wybrane wyniki badań

Streszczenie

Celem badania było zidentyfikowanie obszarów najbardziej wrażliwych na samopoczucie uczniów w e-szkole. Zainteresowania badaczy zdalną edukacją dotyczą najczęściej osiągnięć szkolnych uczniów. Wydaje się rozsądne spojrzenie na szkolną rzeczywistość z perspektywy dobrostanu młodzieży. Zagrożenie pandemią i przejście do zdalnego uczenia się stworzyło wyjątkowe warunki do zrozumienia problemów uczniów. W nawiązaniu do koncepcji Allardta wyróżniono cztery kategorie dobrostanu: 1) warunki szkolne, 2) relacje intrepersonalne, 3) środki do samorealizacji, 4) stan zdrowia.

Badanie zostało przeprowadzone online, ale za pośrednictwem szkół, wśród uczniów klas 7 i 8 szkół podstawowych oraz uczniów klas 1 szkół ponadpodstawowych (N = 360). Wykonano analizę głównych składowych (PCA) i konfirmacyjną analizę czynnikową (CFA) autorskiego narzędzia do badania samopoczucia ucznia w e-szkole. Trafność kryterialną określono na podstawie

relacji między kwestionariuszem a innymi testami mierzącymi podobne problemy. Zastosowano Skalę Samooceny Rosenberga oraz Kwestionariusz Jakości Życia Związanej ze Stanem Zdrowia KIDSCREEN-10.

Kwestionariusz Samopoczucie Ucznia w E-szkole jest wystarczająco rzetelny i trafny. Rozkład wyników niskich, średnich i wysokich w podskalach był mniej więcej równomierny. Niskie wyniki w pierwszej podskali odnotował co czwarty badany uczeń, w drugiej i trzeciej skali co trzeci. Skala może służyć do oceny samopoczucia uczniów uczących się w systemie zdalnym lub hybrydowym. Dobre samopoczucie przekłada się na funkcjonowanie w wielu obszarach aktywności życiowej.

S ł o w a k l u c z o w e: zdalne nauczanie, pandemia koronawirusa, samopoczucie, uczniowie, e-szkoła

Агнешка Бучак, Изабелла Мария Лукасик

Самочувствие учащихся в среде электронной школы: избранные результаты исследования

А н н о т а ц и я

Целью исследования было выявить области, наиболее чувствительные к благополучию учащихся электронной школы. Исследователей дистанционного образования чаще всего интересуют школьные достижения. Представляется разумным взглянуть на школьную реальность с точки зрения благополучия молодежи. Угроза пандемии и переход к дистанционному обучению создали уникальные условия для понимания проблем студентов. В отношении концепции Алларда были выделены четыре категории благополучия: 1) школьные условия, 2) межличностные отношения, 3) средства самореализации, 4) здоровье.

Опрос проводился онлайн, но в школах, среди учеников 7-ого и 8-ого класса начальной школы и учеников 1-ого класса средней школы (N = 360). Был проведен анализ главных компонентов (PCA) и подтверждающий факторный анализ (CFA) собственного инструмента оценки благополучия учащихся электронной школы. Достоверность критерия была определена на основе взаимосвязи между анкетой и другими тестами, измеряющими аналогичные проблемы. Использовались шкала самооценки Розенберга и опросник KIDSCREEN-10 по качеству жизни, связанному со здоровьем.

Анкета Благополучия Ученика в Электронной Школе достаточно надежна и точна. Распределение низких, средних и высоких баллов по субшкалам было более или менее равномерным. Низкие результаты по первой подшкале зафиксировал каждый четвертый опрошенный ученик, по второй и третьей шкалам - каждый третий. Шкалу можно использовать для оценки благополучия учеников, обучающихся в удаленной или гибридной системе. Благополучие означает функционирование во многих сферах жизнедеятельности.

К л ю ч е в ы е с л о в а: дистанционное обучение, пандемия коронавируса, благополучие, ученики, электронная школа

Agnieszka Buczak, Izabella Maria Łukasik

Bienestar de los estudiantes en el entorno de la escuela electrónica: resultados de investigación seleccionados

R e s u m e n

El objetivo del estudio fue identificar las áreas más sensibles al bienestar de los estudiantes en e-school. Los investigadores de la educación digital suelen estar interesados en los logros escolares. Parece razonable mirar la realidad escolar desde la perspectiva del bienestar de los jóvenes. La amenaza de una pandemia y la transición al aprendizaje remoto han creado condiciones únicas para comprender los problemas de los estudiantes. En referencia al concepto de Allardt, se distinguieron cuatro categorías de bienestar: 1) Condiciones escolares, 2) Relaciones interpersonales, 3) Medios para la autorrealización, 4) Salud.

La encuesta se realizó on-line, pero a través de las escuelas, entre los estudiantes de la educación secundaria (N = 360). Se realizaron análisis de componentes principales (PCA) y análisis factorial confirmatorio (CFA) de la herramienta patentada de bienestar del estudiante de la escuela electrónica. La validez de criterio se determinó sobre la base de la relación entre el cuestionario y otras pruebas que miden problemas similares. Se utilizaron la escala de autoevaluación de Rosenberg y el cuestionario de calidad de vida relacionada con la salud KIDSCREEN-10.

El Cuestionario de Bienestar del Estudiante en E-school es lo suficientemente confiable y preciso. La distribución de puntuaciones bajas, medias y altas en las subescalas fue más o menos uniforme. Uno de cada cuatro estudiantes encuestados registró resultados bajos en la primera subescala y uno de cada tercero en la segunda y tercera escalas. La escala se puede utilizar para evaluar el bienestar de los estudiantes que aprenden en un sistema digital o híbrido. El bienestar se traduce en funcionamiento en muchas áreas de la actividad de la vida.

P a l a b r a s c l a v e: educación digital, pandemia de coronavirus, bienestar, estudiante, e-school

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