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QUALITY DETERMINANTS OF e-LEARNING IN SCHOOLS OF HIGHER EDUCATION

Introduction

Education quality in e-learning is an issue which currently involves new challenges. It can be understood as the degree to which requirements are met of various groups of stakeholders and which concern both the process of education itself and its outcomes. For three decades the educational processes in Poland have been subject to dynamically changing conditions and an increasing competition for students between both Polish and foreign institutions. With the accelerated changes that concern all areas of human activity, the expectations change regarding not only the subject matter of teaching but also the ways how educational services are provided. Technical progress gives an opportunity to disseminate knowledge through the Internet. In theory, e-learning has been for years a necessary element of the educational offer of institutions of higher education. However, despite substantial expenses involved, numerous schools have not achieved the expected benefits from the implemented e-learning projects.

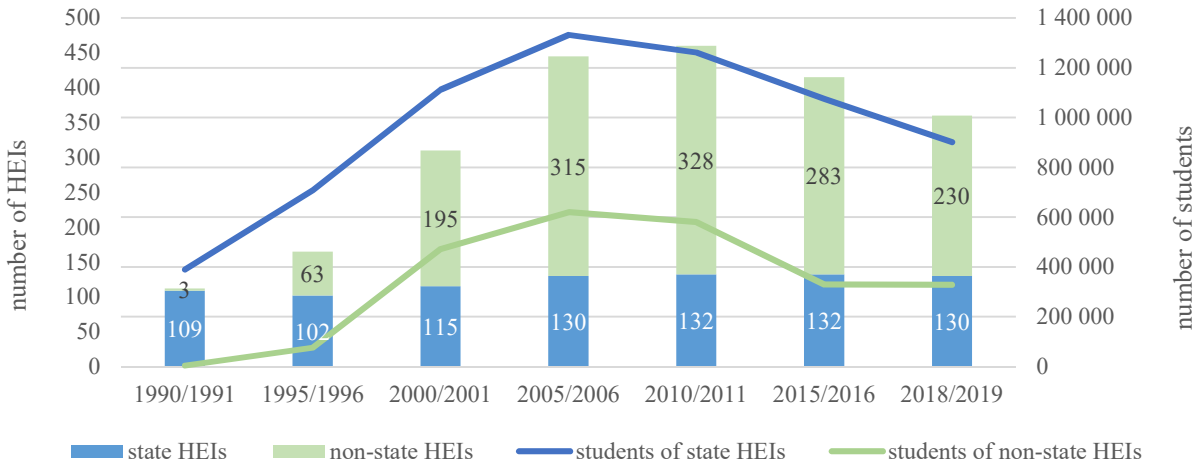
The article is an attempt to present issues of distance learning quality in the higher education sector. The authors[1] focus on the identification of the main factors that influence the quality of e-learning on the basis of their own experience and the survey among the students of the School of Banking and Management in Krakow (WSZiB). Although the authors think that distance learning in many areas does not match the effectiveness of the traditional ways of teaching and a direct contact among lecturers and students, the study of the determinants and factors of distance learning quality may result in the increase in the effectiveness of e-learning. This is especially important considering the fact that such a form of education may be forced by present circumstances.

[1] The Authors have a 50- and 25-year experience in teaching in various HEIs positions from an assistant to a rector in a non-state college and their careers involve traditional teaching (stationary lectures, workshops, laboratory classes). As an effective teaching job is their passion, they care about the usefulness of the knowledge, skills and social competencies that they share with students. Fortunately, being responsible for the college management and its financial policy, they can effectively pass this way of thinking to the 300 staff of the non-state educational institution.

1. Changes in higher education sector in Poland

Since the beginning of 1990s the Polish society has been facing a period of accelerated social, economic, political and cultural changes that are a part of a dynamic globalization process. After the introduction of democratic structures, the Polish higher education sector turned from elitism to egalitarianism. Positive demographic trends of 1990s coincided with an increase in the interest in receiving higher education. Over the last three decades the number of higher education institutions (HEIs) has tripled which was due mainly to a dramatic development of the non-state education. In 2011, which was a record year regarding the number of schools of higher education, there were 132 state- and 328 non-state HEIs (see Fig.1) The number of students, despite an increasing demographic decline in the last decade, has also increased over three times.

Figure 1. Number of higher education institutions and students in selected academic years n 1990-2019



Source: Authors' research based on GUS and POLON data.

The mass scale of higher education resulted in a number of negative phenomena that influenced disadvantageously the quality of Polish schools of higher education. They included mainly a disproportionate increase in the number of students in relation to academic staff, a disappearance of the sense of academic community, insufficient funding of higher education, devaluation of the significance of a higher education diploma and an educational offer that was

inadequate to the needs of employers, which resulted in a surplus of graduates with education that did not meet the demand of employers[2].

The requirements of the labour market that graduates are faced with are closely related to the development of technology. Technical progress is the cause of changes which in line with A.Toffler's predictions appear with an increasing pace[3] and modify the ways of human functioning in the contemporary world. The changes force schools to prepare students to professions and specializations that unexpectedly emerge with the development of new technologies. Although market economy provides more opportunities to be successful, the success is more difficult to achieve. In the new conditions students' expectations from higher education have increased as it is conceived as an investment instrument supporting the acquisition of skills and practical knowledge[4].

The Polish accession to EU resulted in the extension of the educational offer to Polish students as they obtained the opportunity to study abroad. In the conditions of the demographic decline and a fierce competition on the market of educational services, the provision of education that would comply with European standards and meet the expectations of various groups of stakeholders has become a be-or- not-to-be issue for many schools of higher education[5].

A strong attachment of young people to modern technologies and the resulting change in communication habits forced schools to take this fact into consideration. Numerous NEIs implemented e-learning systems in order to take advantage of such widely advertised advantages of distance learning as flexibility, easier access to education, lower teaching costs[6], simplicity and convenience of management. A question arises why – despite significant resources involved – the majority of schools did not achieve the expected benefits from the implementation of e-learning projects

One should admit that there is no universal, commonly accepted definition of e-learning[7]. In the article, the term *e-learning* refers to a form of distance learning and teaching through

[2] M. Raczyńska, *Od elitarności do masowości. Stan szkolnictwa wyższego w Polsce po transformacji ustrojowej z 1989 r.*, „Polarchia" 2013, No. 1, pp. 230-239.
[3] A. Toffler, *Future shock*, Random House, New York 1970.
[4] A. Karwińska, M. Karwiński, *Perspektywy doskonalenia dydaktyki. Dwa punkty widzenia* [in:] T. Gołębiowski, M. Dąbrowski, B. Mierzejewska (ed.), *Uczelnia oparta na wiedzy. Organizacja procesu dydaktycznego oraz zarządzanie wiedzą w ekonomicznym szkolnictwie wyższym*, Fundacja Promocji i Akredytacji Kierunków Ekonomicznych, Warszawa 2005, pp. 349-351.
[5] Every third non-state school of higher education did not survive the competition which was infrequently dishonest.
[6] R. Tadeusiewicz, J. Kusiak, *E-learning szansą wzbogacenia oferty edukacyjnej Uczelni,* Biuletyn Informacyjny Pracowników AGH 2005, No. 138, p. 5.
[7] L. Szczepaniak-Sobczyk, *E-learning w edukacji humanistycznej*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2018, pp. 62-63.

electronic media where the latest technical developments are used in the interactive educational process and the information is transferred mainly via the Internet, frequently with the application of multimedia materials[8].

If e-learning is to be an effective substitute of traditional teaching, it should guarantee the same educational quality. Is this possible? The research on the subject testifies both to the weaknesses of distance learning and to some positive changes in this field. Such a situation encourages a detailed analysis of *educational quality* which is an ambiguous and multidimensional category.

2. The idea of educational quality

The interest in educational quality increased significantly in academic environment when Poland – as a signatory of the Bologna Declaration – committed to cooperate on educational quality improvement. In order to define the idea of *educational quality* one has to explain the meaning of its component terms. It is difficult to explain clearly the term *quality*. Quality is related to perfection or flawlessness. The concept is subjective and related to a set of features that are valued with reference to a level that can be reached. In the literature on management and quality the term usually refers to products or services[9]. It is closely linked with the expectations of the product or service receiver and with the effectiveness in achieving individual goals. From the point of view of the ISO 9000 standards that are considered to be the basis for developing quality management systems in organizations, quality concerns the level to which a set of inherent features of an institution or services the institution provides meet the required expectations.

Educating is the basic service activity of HEIs. This is a process that results in the formation of student's intellectual identity. This involves teaching and studying together with a comprehensive general educational impact. Purposeful, systematic and multilateral elements of the process are directed towards an individual and a group[10].

The search for the answer to the question about the present meaning of the term *educational quality* requires the development of an approach that would take into consideration the dynamics of the current changes. Each era has its new requirements for education that result

[8] This concept is also referred to as e-education, e-learning or teaching, modern distance learning, contemporary distance learning, distance education or online education.
[9] A. J. Blikle, *Doktryna jakości. Rzecz o skutecznym zarządzaniu*, Wydawnictwo Helion, Warszawa 2014, p. 37.
[10] L. Szczepaniak-Sobczyk, *E-learning w edukacji humanistycznej*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2018, pp. 62-63.

from the specific features of the social and economic system where humans play varied social and professional roles. The objectives of present-day education do not only involve teaching literacy, numeracy and life skills but they also put emphasis on a comprehensive and sustainable development of the learner. In the present times, the role of schools of higher education has gained significance; they are a place where not only professional skills (including digital literacy) are taught but also where students acquire social competencies, including effective communication (the culture of dialogue), learn how to cope with unusual situations that require creativity, innovativeness and flexibility[11]. It is rather appropriate attitudes rather than strictly professional qualifications that are crucial. Effective functioning in a knowledge-based information society involves openness to continuous development (life-long learning) and the necessity to adapt to changing requirements and update one's skills, knowledge and competencies[12]. All this considered, it seems justified to create conditions for the development of new forms of education that involve IT technologies.

Quality of education can be defined as the degree to which requirements are met that are expressed by various groups of stakeholders and which concern both the process of education itself and its outcomes with the consideration of internal and external conditions. The requirements and, consequently the understanding of the term *quality of education* depend on the stakeholder's group. In spite of the fact that quality should connect all parties in the educational process, it must be emphasized that the expectations of students, teaching staff, business environment, crediting institutions and state authorities are frequently contradictory and change dynamically. This is a significant obstacle in the development of a universal measure of educational quality which would be a resultant of indicators that measure the degree of the fulfilment of educational requirements that are determined by particular groups[13].

Quality of education, including distance education, can be analysed in its external dimension with the consideration of the compliance with particular standards and in its internal dimension where the assessment of the academic environment is taken into consideration with regard to the fulfilment of needs and the satisfaction from the education service. In the latter case, it seems justified to refer to the assessment of the quality of education obtained by a survey

[11] A. Karwińska, M. Karwiński, *Perspektywy* ..., op. cit., p. 350.
[12] M. J. Pigozzi, *What is the 'quality of education'(A UNESCO perspective)* [in:] K. N. Ross, I. J. Genevois (ed.), *Cross-national studies of the quality of education: planning their design and managing their impact*, UNESCO, Paris 2006, p. 41.
[13] P. Grudowski, K. Lewandowski, *Pojęcie jakości kształcenia i uwarunkowania jej kwantyfikacji w uczelniach wyższych*, „Zarządzanie i Finanse" 2012, Vol. 10, No. 3(1), p. 400.

among students. This particularly applies in the *service purchase model*[14] where students make their own decisions regarding the choice of the school and curriculum and the educational fee entitles them to expect a success.

3. Distance education in a systems approach

The quality of distance education services is related with the process of their delivery and the commitment of the service providers. The process of distance education is formed by various elements that are simultaneously involved and change in time. From a systems perspective the process can be presented as the transformation of varied inputs (investments,) in relation to the outcomes of teaching, studying and forming individuals. The quality (the characteristics and the value) of the inputs can be determined in different stages of the process. The determination of the factors is crucial as it gives the opportunity to manage effectively the process of education quality development in a teaching institution. It is important to define what elements have a direct and regular impact on the quality and what elements influence the quality indirectly, to determine the force and direction of the impact and the elements that can be influenced and the ones that do not depend on the decisions of HEIs.

High-quality education means that:

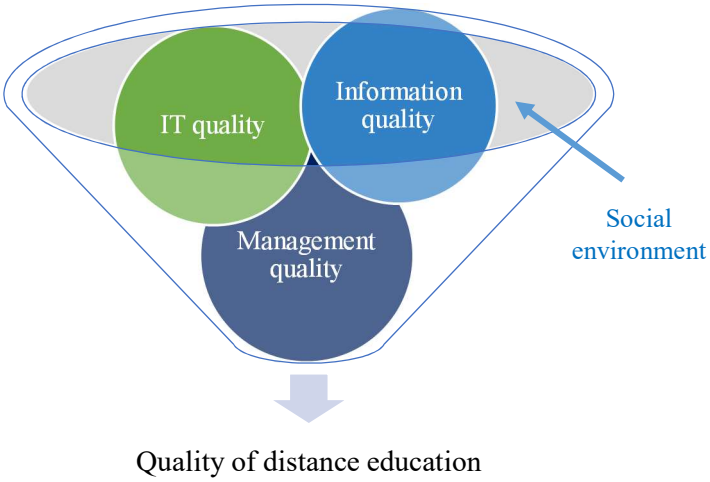
- firstly, the contents transferred and the way it is presented comply with the requirements of the stakeholders (in the article referred to as high *information quality*);
- secondly, when the management of an educational institution is effective, flexible to the needs and the expected solutions are immediately implemented (high *management quality*);
- thirdly, the IT system and infrastructure of an educational institution are user friendly, functional and reliable (high *IT quality*), which is crucial in the case of distance education.

High quality can be achieved by a continuous improvement of factors and conditions of the process. Single improvement activities result in the improvement of the whole process and influence directly the society's quality of life and indirectly the quality of future investments (a

[14] K. Denek, *Teoretyczne i aplikacyjne aspekty jakości kształcenia akademickiego*, „Neodidagmata" 2012, No.33/34, p. 53.

further iteration) of the educational process (Fig.2). This mechanism is the core of the *continuous improvement process*[15].

Figure 2. Quality inputs of distance learning process



Source: Authors' research.

Education quality inputs are a network of dependencies that influence one another. Information quality of the virtual education environment is obviously shaped by curriculum content, its topicality and usefulness. The effectiveness of the contents depends also on intellectual potentials and determination of students. However, in the conditions of an increasingly easy access to information, it seems that the crucial factor that has an impact on the satisfaction from the information received are the way the education is conducted by the teaching staff and their skilful instructions how to transform information into knowledge and wisdom. As the methodology of e-learning is not fully developed and determined[16], it must be stated that the quality of distance education depends on the commitment, qualifications, digital literacy and creativity of teachers.

Work motivation and a resulting satisfaction of the academic staff play a key role in their commitment to the e-leaning process. Skilful educational management that is supported by adequate benefits and continuous training in digital technologies are crucial in developing an environment of competent staff that are committed to the effective application of distance

[15] D. Adair, S. Díaz, *Stakeholders of Quality Assurance in Online Education* [in:] K. Shattuck (ed.), *Assuring Quality in Online Education: Practices and Processes at the Teaching, Resource, and Program Levels*, Stylus Publishing, Sterling 2014, p. 5.
[16] E. Smyrnowa-Trybulska, *Technologie informacyjno-komunikacyjne i e-learning we współczesnej edukacji*, Wydawnictwo Uniwersytetu Śląskiego, Katowice 2018, p. 26.

learning methods and eager to adapt to changing conditions. E-Learning, particularly in the form of synchronous classes such as audio- or video-conferences, requires a substantial amount of additional effort on the part of teachers, it takes significantly more time and frequently involves the necessity to overcome technological obstacles Thus, the provision of technical support for the academic staff is indispensable to conduct classes effectively. It seems that non-state schools, which are not subordinated to administrative authorities and where innovative projects are implemented immediately, have better chances to be effective in the implementation of distance education systems.

The pace of implementation is particularly important in the light of the need of constant adaptation of the IT infrastructure and systems not only to the conditions that are dictated by technological progress but also to the requirements of users. Numerous studies show that IT quality is crucial for the acceptance and success of an e-learning system[17]. Quality assessments of IT infrastructures and systems are usually made on the basis of opinions about the ease of use of e-learning systems, their flexibility, convenience of access, attractiveness, interactivity features, availability, reliability, usefulness, integration with various systems applied by the institution and empathy on the part of the technical support department staff and e-learning system administrators.

However, it should be indicated that the perceived usefulness and satisfaction from e-learning are not only conditioned by HEI's IT infrastructure but also they depend significantly on the quality of the users' hardware and the internet bandwidth.

The presented above list of quality inputs is only a general view and an introduction to further in-depth research on a universal model. It includes mainly the determinants that can be improved by educational institutions, which may increase the effectiveness of distant learning.

In the authors' opinion traditional education cannot be replaced completely by online teaching. There are courses, especially ones that include laboratory classes, that cannot be provided distantly. A direct contact between the main participants of the education process: students with lecturers, students with students and lecturers with lecturers cannot be overestimated and substituted. A restriction of the process solely to a virtual environment is not favourable for the formation of adequate social attitudes. Separation of students and teachers may have long-term consequences not only to the academic environment (deformation of the idea of educational institution functioning) but also to the whole society.

[17] A. Y. Alsabawy, A. Cater-Steel, J. Soar, *Determinants of perceived usefulness of e-learning systems*, „Computers in Human Behavior" 2016, No. 64, pp. 843-858.

4. Distance education quality in the opinion of the students of The School of Banking and Management in Krakow

The School of Banking and Management in Krakow (WSZiB) took steps regarding digitial transformation in a thoughtful and orderly way. Already in 1999 the School's intranet platforms (*The School Web-Based Information Management System* -SUSZI and *The School Web-based e-Learning Platform* – SAKE were developed within the framework of research conducted by the faculty staff and funded by the School. The idea of the platforms is to support the teaching and School's management processes. The systems enable lecturers to develop *teaching objects and tools* that support distance learning of particular courses. In an intuitive way teaching units can be edited, the course files can be shared with student groups in any formats (documents, spreadsheets, presentations, audio lectures, video, graphic files) and the assignments for students can be stored and presented in the system (with the determination of deadlines and the possibility of updating). Moreover, training and assessment tests can be sent and the grading is automatically entered into *e-registers;* additionally, for each course a forum is developed. Office 365 service subscription provides the access to the latest versions of the Office applications. Since 2009, the WSZiB platforms have been also integrated with anti-plagiarism systems (previously with Plagiat.pl, now with JSA). All WSZiB students, lecturers and office workers have been using the systems for many years now, performing numerous tasks related to the complex provision of educational services with the application of the latest technologies that support traditional teaching models (*blended-learning*).

Student opinion surveys that are conducted every semester and concern the quality of classes and lectures are one of the elements of the internal system of teaching quality provision. They emphasize the partnership role of students in the teaching process. The monitoring of student expectations and satisfaction from education results in a prompt and determined reaction to the problems that are noticed by students. The surveys consist of close-ended questions where in a five grade scale students assess such factors of *information quality* as the topicality of information, presentation methods, teachers' preparation and commitment to classes, clarity and attractiveness, the usefulness of information presented via e-learning, lecturers' attitude to students and their objectivity in the verification of educational outcomes. Moreover, the questionnaires provide space for open-ended comments. The latter are significantly helpful in the assessment of the strengths and weaknesses of classes and in their

eventual enhancement. When they presented their expectations, students emphasized the advantages both of distance classes and of direct meetings where joint work on solving issues is more important rather than the presentation of a closed set of information.

It is worth mentioning that the average grade of classes in 1999-2020 changed from 4.39 at the beginning of the period under investigation to 4.62 and the average growth was 0.13% per semester. Formally, there was no significant improvement throughout the 40 semesters. However, the growing expectations of students should be taken into consideration, which can be well illustrated by the following anecdote:

Some time ago one of automotive magazines conducted a survey checking a level of car owners' satisfaction. The results were surprising: owners of the Trabant were more satisfied than the owners of the Mercedes. The Trabant owners were happy when they could open the door and start the engine, while the Mercedes owners complained when they heard "a slight squeak somewhere in the boot".

When private higher education started in Poland, it was regarded by students as the easy way to get a degree. However, presently numerous majors on private HEIs, particularly the ones related to IT and business, are ranked higher and are more prestigious than their equivalents in state institutions. Thus, the fact that student assessments of education quality are approximately on the same level as two decades ago does not indicate that there was no improvement in this respect but rather that the education quality is improving in the conditions of the rising expectations of students.

In 2020, the sudden necessity to turn to distance education revealed weaknesses of numerous HEIs in this area and resulted in the emergence of leaders ready to face the online challenge. Despite the fact that before the pandemics not all WSZiB teaching staff applied e-learning tools that were offered to them, they took the challenge of distance education thanks to the motivational incentives of the WSZiB authorities. The development and implementation of IT tools proved to be successful. The lecturers had no problems with placing teaching materials on-line so that they would be shared asynchronously by students. However, problems mainly emerged with real-time classes. Teachers used various synchronous communication platforms (e.g. *Skype*, *MS Teams*, *Webex*, *Zoom*, *Meet*). It turned out that many students and faculty members who were used to centralized systems had problems with the application of new tools. Sending meeting links and particularly adding to meetings many new students from numerous course groups appeared to be troublesome as there were frequent cases where students had to be added to or transferred from various groups. However, thanks to a modular structure of the intranet systems, their prompt modernization was provided. Already in the first

week of April 2020, in line with the strategy of *continuous improvement process,* the WSZiB platforms were integrated with *MS Teams,* which simplified significantly the implementation of on-line classes. Training courses were conducted on the solutions that were implemented; they were recorded and shared with the whole school community.

The measures taken by WSZiB had a positive feedback from students. The survey took place on 24 April- 5 May and was participated by 552 students (i.e. 27%), including 96 full-time and 456 extramural students. 73% of respondents rated on-line classes run by WSZiB as very good or good. For 8% of students the classes were not satisfactory, including 2% who had a definitely negative opinion. The difference of opinion between full-time and extramural students was insignificant.

Open-ended questions in the survey played an important role in the identification of factors that influence student satisfaction and the perceived usefulness of distance education. They helped identify why WSZiB succeeded in the provision of the continuous teaching process at a satisfactory level.

Almost all respondents (96% of responses) pointed at the significance of the IT infrastructure in an effective presentation of the teaching material, emphasizing *easy access to materials and an intuitive use of the platforms*[18]. The main advantages of distance learning that were listed by students include: *time saving* (148 responses), *convenience* (138), *possibility to learn in one's own pace in any place at any time* (133). Distance learning as the only form of study resulted in the rise of students' expectations from technical support that would enable effective use of virtual environment. Students' suggestions concerning an increase in the scope of the assistance provided by the IT department (17 responses) were immediately implemented. Daily technical duty hours were introduced for students and the staff during which – apart from standard communication channels (telephone, e-mails, messages on SUSZI) – individual consultations and trainings were conducted on *MS Teams*. Teachers were not only offered technical assistance in developing, conducting and recording their classes but also (together with their students) they had the access to computer classrooms that were equipped with the hardware and software necessary for online classes (with the possibility of remote work at school work stations).

The students also mentioned some negative factors that do not depend on the School's operations. According to 14% of the respondents the main disadvantages of distance learning

[18] The text in italics refers to student actual responses.

include technical issues and limitations: *slow Internet access* or *service interruptions, substantial hardware and software costs.* However, an advantage for some students (e.g. *peace and quiet at home*) is a disadvantage for the others (a home full of *distractions* that make it impossible to concentrate, get ready and complete tasks)

Numerous respondents expressed their appreciation of the lecturers' commitment to the development of distance classes: *Lecturers are doing good and effective work (...) The majority of lecturers are doing their best to share as much knowledge as possible, they ask about our opinion how to improve online classes (...) The way the material is presented is clear and simple; there are no problems when one wants to ask questions (...) Lecturers' creative attitude to problems.*

Class materials were placed by lecturers in different formats to meet the needs of both the students who participated synchronously in the classes and the ones who were limited by technical or living conditions problems. Students' responses frequently reflected their expectations regarding the access to static materials that are easy to print such as PDF files, documents, presentations (385 responses). Numerous responses (231) concerned the effectiveness of assignments and tests, which *make students work in a systematic way and monitor the class material in an ongoing basis.* However, it should be emphasized that all respondents who had a chance to listen to on-line classes that were recorded and *could be listened to at any time and analysed thoroughly* regarded this form of e-learning as the most preferable. Single respondents pointed at the need to include in the methodology of e-learning elements that would capture their attention during classes to a more extent. It is worth mentioning here that a passive attitude of some students could be observed as well as the phenomenon of "ticking off the attendance" – it was a frequent case that after an on-line class single students remained in the meeting and did not react to teacher's questions.

Every fifth respondent considers e-learning to be an alternative to traditional classes. However, most of them (56%) could see some drawbacks of distance education. Their negative opinions emphasized most *frequently the social aspect: a lack of direct contact between the lecturer and the student, weak group integration, social isolation, a lack of the opportunity to take advantage of Krakow's cultural life* (in the case of students who do not live in Krakow). In the opinion of 47% of students, the lack of classroom classes is the main reason for the difficulty in mastering the material, especially in the case of workshops and laboratory classes. 17% of respondents think that distance education *does not provide the opportunity for a reliable assessment of their knowledge.*

In many responses one could feel that student missed the traditional form of learning that was assisted by distance education. The suggestions for a change included a recurrent opinion that classes conducted in a traditional form should be recorded in a compulsory basis and shared on an e-learning platform.

Conclusions

The improvement of distance education quality cannot be provided without a thorough study of the concept and determinants of educational process. Currently, the most significant challenge for the education is to follow the technological progress. The quality of the virtual teaching environment depends mainly on the quality of the provided content which is related substantially to the commitment, readiness for continuous development, qualifications and the level of digital competences of lecturers. The significance of the IT infrastructure cannot be overestimated – HEIs must be aware of the technical issues of distance learning as IT systems require continuous enhancement and the adaptation of their functionalities to the requirements of the users.

The authors think that present-day higher education institutions, when managed in a modern way, may be temporarily successful in the area of distance education. However, the implementation of distance learning as the only form of education results in the loss of benefits related to social contacts in the academic environment and in the reduction of higher education institutions to the level of vocational training centres.

Students, the main stakeholders of the educational process, are in favour of a form where traditional teaching is supported by distance learning. At present, all students and teachers are familiar with e-learning, its advantages and disadvantages. The elements of distance education that are expected, the best and most beneficial should be applied to enhance traditional university education. The balance between technology and humanity may help man to function effectively not only in the digital but also in the real world.

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Abstract

The article focuses on the quality of distance education in higher education, which is a crucial and topical issue. On the basis of the analysis of the literature on the subject, the authors' own experience and the survey conducted among the students of The School of Banking and Management in Krakow (WSZiB) the paper presents the main factors that influence the quality of e-learning. High quality of distance education requires a synergy of activities of a committed and creative teaching staff, modern governance and effective IT infrastructure services. However, the sole application of the distant form of teaching is related with the loss of benefits of social contacts in academic environment and the reduction of higher education to vocational training.