Krakow University of Economics
Field of Science: Management and Quality Studies
Scientific Discipline: Management

Svitlana Didkivska

An Enhancement of University Educational Services with the Use of Distance Learning: Polish and Ukrainian Perspectives

PHD dissertation

Supervisor:
Dr. hab. Grażyna Paliwoda-Pękosz, prof. UEK

Kraków, 2024

Table of Contents

List of acronyms 5

Introduction 6

1 Overview of educational services 9

1.1 Historical perspective of educational services 9

1.2 Types of educational services 17

1.3 Stakeholders of university educational services 21

2 Introduction to distance learning 24

2.1 Evolution of distance learning 24

2.2 Electronic distance learning as the current stage of distance learning 28

3 Quality of educational services 31

3.1 The concept of quality 31

3.2 Approaches to the quality of educational services 34

3.2.1 General approaches to the quality of education 34

3.2.2 Approaches to education quality in Europe 36

3.2.3 Quality of distance learning 38

3.2.4 Distance learning quality from Polish and Ukrainian perspectives 40

3.3 To-date approaches to the quality of educational services with the use of distance learning 41

4 Research methodology 45

4.1 Settings of the study 45

4.1.1 Krakow University of Economics 45

4.1.2 Zhytomyr Polytechnic State University 45

4.2 Research methods 46

4.3 Research procedure 48

5 Results and analysis 54

5.1 Document analysis 54

5.1.1 Distance education from the perspective of Ukrainian regulation 54

5.1.2 Distance education from the perspective of Polish regulation 55

5.1.3 Crisis regulations in Ukraine and Poland based on KUE and ZP examples 58

5.2 Academic Staff 60
5.2.1 Academic Staff's general opinion on distance learning 60
5.2.2 Academic Staff's outlook on good quality of distance learning 62
5.2.3 Academic Staff's opinions on distance learning difficulties 65
5.2.4 Academic Staff's opinions on unethical behavior during distance learning 67
5.2.5 Academic Staff's visions on the future of distance learning 69
5.2.6 Academic Staff's outlook on the stakeholders of distance learning 71
5.2.7 Academic Staff's outlook on the skills they gained connected with distance learning 74
5.2.8 Lessons learned for the framework from Academic Staff 75

5.3 Students 76
5.3.1 Students' general opinion on distance learning 76
5.3.2 Students' outlook on good quality of distance learning 79
5.3.3 Students' opinions on unethical behavior during distance learning 81
5.3.4 Students' outlook on the stakeholders of distance learning 83
5.3.5 Lessons learned for the framework from Students 85

5.4 E-Learning Departments 86
5.4.1 E-Learning Department's general opinion on distance learning 86
5.4.2 E-Learning Departments' outlook on good quality of distance learning 89
5.4.3 Questions, problems and highlights reported by lecturers and the E-Learning Departments' reaction 91
5.4.4 E-Learning Departments' outlook on the stakeholders in distance learning 93
5.4.5 E-Learning Departments' vision on the future of distance learning 95
5.4.6 Lessons learned for the framework from the E-Learning Departments 98

5.5 IT-Departments 99
5.5.1 Challenges the IT departments faced connected with distance learning 99
5.5.2 IT Departments' general opinion on distance learning 100
5.5.3 New technical solutions implemented for distance learning 101
5.5.4 IT problems reported by staff connected with distance learning 102
5.5.5 List of potential improvements 103
5.5.6 Lessons learned for the framework from the IT Departments 104

5.6 Employers 105
5.6.1 Employers' experience with graduates 105
5.6.2 Differences between distance learning graduates versus previous graduates who studied in the traditional form 106
5.6.3 Distance Learning effectiveness for employee training 108
5.6.4 The scope of distance learning usage in the future 109
5.6.5 Lessons learned for the framework from Employers 111

5.7 Discussion of results 112
5.7.1 Quality and stakeholders of distance learning (RQ1 and RQ2) 112

5.7.2 Quality parameters (RQ3) 115

6 Framework for shaping the quality of distance learning 119

6.1 Framework proposition 119

6.2 Discussion of possible framework applications 127

Conclusions 129

References 133

List of tables 160

List of figures 162

Annex 163

1. Questions for Academic Staff for the semi-structured interviews 163

2. Questions for Students for the semi-structured interviews 163

3. Questions for E-Learning Department staff for the semi-structured interviews 163

4. Questions for IT Department staff for the semi-structured interviews 164

5. Questions for Employers for the semi-structured interviews 164

List of acronyms

DL – distance learning

E-Learning – electronic distance learning

ESG – Standards and Guidelines for Quality Assurance in the European Higher Education Area

EU – European Union

ID – respondent identification number

KUE – Krakow University of Economic

PL – Poland

PR – public relations

QC – quality control

UA – Ukraine

US – United States

ZP – Zhytomyr Polytechnic State University

Uni – university

X.Y.Z – respondent identification code:

X – PL/UA – country Poland/Ukraine

Y – T/S/E/P/IT – Academic Staff/ Student/ E-Learning Department/ Employer/ IT-department

Z – respondent number

For example: PL.S.1 – the first respondent from Student group from Poland, KUE or UA.P.03 – the third respondent from Employer group from Ukraine, ZP.

Introduction

University educational services have been an important topic of research for hundreds of years, but their quality is still under investigation (Haskins, 2020). For example, there was a significant gap in online education quality frameworks, which often overlook different groups of stakeholders, focusing primarily on students (Esfijani, 2018). Additionally, these frameworks are typically based on Western experiences, ignoring other cultures (Masoumi & Lindström, 2012). With the global transition to digital learning modalities, distance education has become a cornerstone in maintaining the continuity of higher education. However, the rapid transition revealed several systemic vulnerabilities and highlighted the need for robust educational structures that can withstand unexpected disruptions. The COVID-19 pandemic has underscored the urgent need for effective distance learning solutions, revealing universities' unpreparedness and causing widespread dissatisfaction (Sahu, 2020; Wilder-Smith & Freedman, 2020; Chen, Angela, & Huang, 2022). The ongoing interest in distance education highlights the importance of researching its quality and effectiveness, especially from the perspectives of stakeholders in different cultural contexts such as Poland and Ukraine (Nenko, Kybalna, & Snisarenko, 2020; Stecuła & Wolniak, 2022).

The growing interest in distance learning, the new context of remote education that followed the pandemic, and the lack of a comprehensive theoretical framework that can be efficiently used in the context of Poland and Ukraine was the main motivation for the research. The goal of the study is to fill the research gap by developing a framework for shaping the quality of distance learning that would include various stakeholders of an educational process, encompass the lessons learned from the global switch to distance learning caused by the pandemic, as well as consider cultural aspects. This study is particularly timely and relevant, given the unique experiences of Poland and Ukraine, countries which have navigated both the disruptions of a global pandemic but, in Ukraine's case, also an ongoing war which appears to be an even greater obstacle for high-quality distance learning. These experiences could provide valuable lessons for similar situations in other regions. Besides, with a substantial number of Ukrainian students in Poland, their perspectives are crucial to the development of effective educational strategies at Polish universities.

The aim of the research is to identify the determinants shaping the quality of educational services provided by universities using distance learning from the viewpoint of different stakeholders, in order to create recommendations for the enhancement of educational services. It can be operationalized by four detailed goals:

G1: Identification of the state of the art approaches to the quality of educational services and the quality of distance learning. This goal seeks to investigate and gain insights into the range of existing approaches, as well as to detail these approaches as they currently stand. It could be classified as both exploratory and descriptive.

G2: Identification of stakeholders and their characteristics in university educational services in Poland and Ukraine. This goal is also descriptive, as it focuses on identifying and describing the stakeholders involved in university educational services, detailing who they are and providing their characteristics.

G3: Identification and comparison of the up-to-date factors that determine the quality of distance learning in higher education from the point of view of different stakeholders at Krakow University of Economics (KUE) and Zhytomyr Polytechnic State University (the abbreviation ZP is used for this research, however this university does not have an official acronym yet). This goal seeks to identify the factors affecting the quality of distance learning, and then compare these factors between two universities in different countries. It is explanatory as it aims to uncover and understand the influences or effects of various factors on distance learning quality, considering the perspectives of different stakeholders. The comparison adds an analytical layer that helps explain how cultural contexts might influence these determinants.

G4: Creation of a framework of shaping the quality of distance education that takes into account Polish and Ukrainian perspectives. This goal involves developing a new framework that incorporates findings from the previous goals, considering the specific cultural contexts of Poland and Ukraine. It is exploratory because it seeks to create something new based on the insights gained — namely, a framework for enhancing educational services through distance learning.

Research goals will be achieved by answering the following research questions:

RQ1: What are the state-of-the-art approaches towards assuring the quality of educational services and the quality of distance learning?

RQ2: Who are the main stakeholders of university educational services in Poland and Ukraine, and what are their profiles/characteristics?

RQ3: How can the quality of distance learning be captured from the point of view of various stakeholders (e.g. students, academic staff, university administration, accreditation bodies, employers), taking into account the cultural dimension of learning (Polish and Ukrainian perspectives)?

Central to the study are comparative case studies, incorporating thematic analysis and some elements of ethnographic techniques. Data collection involved systematic and narrative literature reviews, document analysis of education regulations and accreditation guidelines, semi-structured interviews with stakeholders, and in-depth interviews with experts in e-learning. Data were analyzed using a thematic analysis approach and grounded theory elements, and a hermeneutic approach was used to capture the various perspectives and insights.

The structure of this thesis is designed to comprehensively explore the quality of distance learning within the context of Polish and Ukrainian higher education. The next three chapters are based on literature review. The first chapter provides an overview of educational services, including a historical perspective, types of services, and stakeholder analysis. The second chapter, delves into the evolution of these educational methods, their types, and specific dynamics during the COVID-19 pandemic. The third chapter focuses on the quality of educational services, discussing various quality approaches and specifically the quality of distance learning from both Polish and Ukrainian perspectives. The fourth chapter outlines the methodology employed in this study, detailing the research goals, methods, and process. It is followed by a fifth chapter that contains the results and analysis of the comparative case studies conducted at KUE and ZP. The sixth chapter proposes a framework for shaping the quality of distance learning, discussing the potential applications and concluding with overall findings and recommendations. A summary of the research is provided in Conclusions section.

1 Overview of educational services

1.1 Historical perspective of educational services

Learning as a process came about a long time ago out of the need to pass on knowledge to descendants. Even some of the most developed animals teach their young various skills. Mankind, in the process of evolution, was trying to optimize any processes in people's lives along with the development of culture, and has developed certain educational institutions. This is how one of the oldest professions in the tribes appeared – a teacher. This profession was known by different names in different places, but the essence was reduced to one idea - the transfer of accumulated experience and the upbringing of future generations (Compayré, 2015). As a result of technological progress, the way education is conducted has changed significantly (Paliwoda-Pękosz, Stal, & Wojtowicz, 2015). Currently, universities of various types offer educational services at the higher level, which include undergraduate and graduate courses, postgraduate courses, refresher courses, and adult literacy and remedial education courses.

There is no reliable data on the transfer of knowledge and experience to descendants during the birth of primitive society. However, in folk art, which was transmitted in traditional forms (fairy tales, songs, legends, epics) we can see the knowledge transfer in oral form (Rahman, 2017; Bowers, 1993). In addition, scientists have made an invaluable contribution to knowledge on the topic of history of learning and education by observing the life of tribal communities, which are still preserved in an almost original form, for example, in Africa (Tylor, 1871). However, it can be assumed that at this stage of development, training was a joint pastime, while working on an action useful for the tribe, for example, making tools, collecting fruits, supporting fire or hunting was the primary focus. At this time, the older generation not only taught the younger the actions necessary for survival, but also had the opportunity to convey information about the world around them in a form that was understandable at that time (Candy, 2002). By the time they grew up, the community had already instilled in children's norms of behavior in society necessary for that time. This was facilitated by various means, such as participation in ritual ceremonies and holidays, which included children engaging in family customs, which developed appropriate ideals and value orientations in them (Stewart, 1947).

In the Neolithic era (c. 10,000 BCE to c. 2,000 BCE), evidence of a breakthrough in the development of learning processes were discovered by scientists - they consider such evidence the emergence of new means of teaching and educational orientation (mascot toys, figurines of animals and people made of various materials). In addition, it is believed that it was the Neolithic (Paleolithic in some schools) era, along with the growth of tribes and their geographical distribution, that pictography appeared - one of the initial stages of the development of writing (Nazarova, Usarova, & Kadirova, 2020).

Scientists who have looked at the tribes that have survived in the world also believe that at a certain stage of tribe development, the tradition of initiation began to emerge - a procedure after which a member of the society could be considered an adult in the tribe. The development of this practice led to the fact that in the communities a category of people gradually appeared who was engaged in preparing young people for this procedure, thus being the forerunner of organized learning that appeared centuries later (Tylor, 1871).

In the late Neolithic era, it is believed that the decomposition of tribal society took place, after which there was a transition to a state system, where the concept of a school was formed in the most ancient civilizations. One of the first people known to us who spread schools on their territory were the people of Mesopotamia, who left a huge amount of archaeological and epigraphic evidence. For about four thousand years, schools of scribes have been widespread in this area. In these schools, students were taught cuneiform (on clay tablets) (Kramer, 1949). In addition, students studied literature and mathematics. School cuneiform texts allowed researchers to study the processes of teaching and learning, which gave us a lot of relatively undistorted information about the educational processes of that period (Proust, 2011; Kramer, 1949).

Some information about the formation of ancient Egypt was obtained in the process of evaluating the relics of this era. During this period, school education was to form a valuable member of society, resistant to adversity. Moral education in Ancient Egypt was carried out mainly through the memorization of instructions (often based on observance of the moral principles accepted in that society). Writing, reading, and memorizing instructions was not an easy task, as they were depicted in hieroglyphs different from living speech (Delpit & White-Bradley, 2010). The purpose of the training was to prepare for the profession, which was traditionally practiced by family members. Thus, the family was the primary link in learning. Priests, musicians, and craftsmen passed on their profession to children. Artisan fathers sometimes used children's toys in their training: models of agricultural implements, mills, and smithies. Only military affairs were outside the strictly special class-professional

training. Future warriors were taught to wield weapons, special exercises developed strength, endurance, agility (Kulganov, Nikolajeva, & Junackevych, 2021). Acquiring education required a lot of work. Classes at the school went from early morning to late evening. The negligent were severely punished. Attempts to disrupt the ascetic regime were ruthlessly thwarted. To be successful, students had to sacrifice worldly joys. Apparently, schools arose at temples, palaces of kings and nobles. Pupils were trained in them from 5 years old. At first the student had to learn to write and read correctly and beautifully; then - to make business papers, observing the corresponding style. To master the literacy, the student had to memorize at least 700 hieroglyphs, distinguish between fluent, simplified, and classical writing. As a result, the student had to master the business style for secular needs and the statutory one for compiling religious texts (Delpit & White-Bradley, 2010).

India can be considered as another center of education of the ancient world. Initially, the main system of education in this region was considered to be the study of sacred texts, in which one could find a description of the rules of sacrifices, grammar, versification, and secrets of nature. In addition, the basics of medicine were available for study (information on medicinal herbs for the treatment of diseases such as fever, cough, baldness and on the rules for treating injuries, such as a snakebite) (Singh & Saradananda, 2008). The training was conducted by priests, usually for children from the upper classes. Traditionally, they taught in a guru's house or in a monastery, at first trying to locate educational processes away from the bustle of the world, but over time, some schools began to appear in cities (Mookerji, 1994). The education itself was free, but after the completion of the learning process, the parents of the students gave voluntary contributions. In the process of training, one of the main goals of the guru was the formation of a certain type of thinking, which depended on the future profession and allowed students in the future to better fulfill their duties (Moorkerji, 1941).

In ancient China, Lao Tzu and Confucius were the most prominent figures in the education system. The first in the 6th-5th centuries BC, with the help of a student who underwent the enlightenment procedure, left instructions for the salvation of mankind, which gave instructions to act in accordance with their true essence (Tian-hong, 2005). The second, having worked for many years as a teacher of writing, arithmetic, music and rituals, he was an adherent of the opinion that education plays an important role in the emergence of harmony and culture in society, since not only knowledge, but also human moral qualities are discovered and formed in learning (Jingpan, 1990). In addition, one of the central places in the teachings of Confucius is played by the ideal of a noble person (the main role in which

is played not by origin, but by the willingness to adequately fulfill its social role, defending the values of morality), for the upbringing of which the Confucian educational system is needed. Speaking for education for all people without exception, regardless of class, Confucius urged to take into account the student's abilities (Elliott & Tsai, 2008). Education began with the most important teaching texts of Confucianism. Interestingly, during the Han dynasty, Confucianism acquired the status of a national doctrine of education. Ancient books were appreciated during this period, and the classics became the basis of education. With great efforts, previously forbidden books were restored (Jingpan, 1990). They also found manuscripts that scientists kept in secret places, after which painstaking work was carried out to restore the text. In education, special attention was paid to the study of the classics. It is also worth noting the increase in the volume of papermaking, which further stimulated the revival of education. Critical examination of ancient texts eventually led to the emergence of textual criticism long before it appeared in the West (Elliott & Tsai, 2008).

Under Darius I, most of the noble citizens of ancient Persia knew how to write the documents necessary for state office work. Sons from five to twenty years of age were taught only military skills and truthfulness, also trying to form the necessary moral qualities - justice, restraint, morality, and the like (Forkner, 2012). In Babylonia, literacy also spread among the alien population: merchants, artisans, and fishermen. Later, special attention was paid to medical education. For example, the city of Gondishapur (Jondishapour) turned into a medical center, which included a university, a hospital, a pharmacological laboratory, a house for translating medical texts and a library containing about half a million manuscripts. Scientists from different countries taught here not only medicine, but also other knowledge necessary for doctors. The training of students took place in practice in the hospital under the supervision of teachers of the Faculty of Medicine. At the end of their studies, graduates took exams to practice as doctors (Zargaran, Daneshamuz, & Mohagheghzadeh, 2011).

Speaking about upbringing and education in ancient Greece, two methods can be distinguished - Spartan and Athenian. In Sparta, conditions were harsh from birth, starting with the infanticide (killing unwanted children) of the weak at birth. Children were brought up in harsh military teams under the strict supervision of the government in order to achieve the highest, according to the Spartans, virtue - equality of the military, absolute loyalty to the state and xenophobia towards other peoples. Spartan children lived in barracks, and they got food for themselves, often by stealing, which was not censured. In addition to developing physical skills, the Spartans were taught short speech, writing, playing musical instruments and choral singing, necessary for successful parades, at the same time literature and art were

not studied, since they were considered useless for soldiers. Women, who at that time had great independence, were trained in the women's barracks on an equal basis with men, but after the initiation they were assigned a husband and the girl was returned home (Kennell, 1995; Fleck & Hanssen, 2009; O'Pry, 2015).

In Athens, education focused on the civic and cultural aspects of life. Men were brought up as defenders of the state, but with equal attention to both physical and intellectual development. A slave accompanied the boys from the noble class to school, but more often such citizens could afford to hire a personal teacher. At the age of 6-7, boys often attended three schools in sequence - sports, music and general. The parents paid for the education, who themselves determined the lines and parameters of education and could, for example, assign a child to only one or two of the three schools. After graduating from these schools, if the young man wanted to continue his studies and could afford it financially, there was an opportunity to enter an analogue of the university - a school of philosophy. Women and the lower class in Athens were not allowed to study. Mothers taught their daughters, who live with them in the female half of the house, to manage the household and be a good wife (Işbilen & Karaduman, 2014; O'Pry, 2015).

In the first Christian schools, initial instruction in faith, philosophy, literature, and mathematics was taught. It was believed that the main task of the school was to instruct the soul and shape the mind, for this, Christian methods of education were proposed, taking into account the ancient tradition: instruction and conversation, as well as exhortation, advice, warning, excluding authoritarian methods of pressure and coercion. In the learning process, one had to speak in such a way that it was figurative, intelligible, emotional, concrete, visual and fully reveals the content of Christian doctrine. Later in the churches education was required for the clergy to carry out their duties. At cathedrals and monasteries, schools were formed, in which novices entered and learned to read and write at an early age, scriptoriums were opened in monasteries, where they were engaged in rewriting books (Falcasantos, 2019; Evans, 2020).

During the Middle Ages, in addition to church schools for teaching children Christian teachings and basics of professions that satisfy religious needs, schools that trained notaries, solicitors and other professions necessary for economic development were gaining popularity, but only people who had received a license from the bishop could still teach legally. After studying in such schools, a gifted student could go on to study further free arts and after - philosophy, which at that time had several directions: theoretical, practical, mechanical and logical (Stephens, 1927; Weisheipl, 1965).

The first universities appeared in the 12th century and were based on municipal and cathedral schools (Haskins, 2020). It is believed that the first higher school appeared in Italy (IX century) - this was the Medical School in Salerno, which was nicknamed "the city of Hippocrates", patients came here with the hope of being cured, as well as students. People from all over the world were trained here to heal people. In Salerno, the traditions of the healing art of the entire Mediterranean merged, which is why the legend arose that the Medical School was founded by four doctors: the Roman Salern, the Greek Pontius, the Jew Helin and the Arab Adela. Young natives of many European countries traditionally came here to study. When in the XII century the academy was headed by the doctor John of Milan, the educational process was transformed. Emperor Frederick II granted the Salerno school the exclusive right to confer the title of doctor, banning medical practice without a license from this institution (Perkin, 2007).

The first highest legal school was founded in Bologna in 1088, which became the center of studying civil and canonical law. students and teachers, as clerics (representatives of the clergy), enjoyed certain privileges and immunities, but the number of students increased, and they needed additional protection. In 1158, Emperor Friedrich I Barbarossa provided the highest school of Bologna, the privileges necessary for them (Perkin, 2007). The University of Paris was established between 1150 and 1170, recognized by the French king Philipp-August (1200) and Pope Innocent III (1215). In Paris, during the two centuries, the Center for the Study of Arts and Theology was functioning, where studied the outstanding scientists Pierre Abelar and Pierre Lombard. The success of Paris and Bologna led to the need to open universities elsewhere. Hence, for example, around 1167, Oxford arose from one of the many art studios. This was also aided by the quarrel between Henry II and the Pope and the French king, which resulted in many English students returning from France around 1167. Cambridge, on the other hand, emerged as a result of the migration from Oxford after the riots in the cities in 1209. Oxford and Cambridge, supported by the king and the Pope, remained the only universities in England for many years (Haskins, 2020; Perkin, 2007).

The era of renaissance was marked by the flourishing of cities and the growth of crafts and trade, geographical discoveries and the development of new continents, the invention and use of paper, printing, nautical compass, and gunpowder. During the Renaissance, man again became a target and participant in intellectual activities and general progress. The process of making paper for writing (that was optimized in that time) increased the number of books in English, French, Spanish, Italian, German and other languages, which became an expression of the spirit of modern times in Europe. For scientists and thinkers, the

Renaissance is a time of revival of classical knowledge and wisdom after a long period of cultural decline and stagnation. Along with the clergy and nobility, a new class of bourgeois began to acquire great importance in all countries; burghers, artisans, merchants and industrialists became influential in society. The new spirit of change was reflected in the evolution of European states based on the consolidation of national feelings, the Pope and the clergy were gradually deprived of their original secular powers (Radić-Šestić, Dimić, & Šešum, 2012).

One of the main figures in the history of education is the teacher Jan Amos Comenius (1592-1670). He devoted his entire life to humanistic education. During the period of the first bourgeois revolutions at the beginning of the modern era, after generalizing and rethinking the experience of the European education system, the outstanding thinker developed a new pedagogical system based on the Christian value system. Comenius said that people of any age and social status, regardless of gender and nationality, can become educated, considering that university education is one of the important stages in the development of personality. Taking a more liberal approach to teaching than that of his Protestant or Catholic contemporaries, he designed schools for education and training according to the principles of humane world study. However, the most important contribution to education Comenius made by improving the branch of the organization of the educational process. His ideas for an academic year with four quarters separated by vacations, a classroom system, recruiting students only once a year, a curriculum for orderly learning and the issuance of new knowledge based on the previous are still used in global educational practice (Černá, 2019; Lukaš & Munjiza, 2014).

In the 18th century, new socio-economic and intellectual factors of influence on the learning process gained strength. The main reason was the increase in the number and influence of the bourgeois class. All socio-economic processes took place under the influence of technological changes: the appearance of the steam engine, the popularization of factories as the main sources of industry, which became factors of industrialization and the industrial revolution. The education of Europe was also influenced by urbanization and the beginning of the use of mass labor. In public thought, a trend appeared that defends the value of the personality of a citizen, focusing on the well-being of ordinary people, and education was one of the factors of this well-being. All these trends have influenced the progress of educational services (Roberts, 2018). People have the opinion that the state is obliged to take care of public education. At the beginning of the XIX century, in France and Germany, the creation of a public education system began. In Great Britain and the United

States, the prevailing view was that "free schools" should be provided only to poor children, so the public had to be convinced that general taxation was the only adequate way to provide education for all children. New socio-economic changes have led to an expansion of the content of education in public and private schools. From that moment on, in schools, it was necessary not only to teach literacy, mental discipline and instill in children moral qualities, but also to carry out the professional training necessary for mastering new professions needed for society. Schools were still focused on memorization and strict discipline, but student numbers grew rapidly and individual recitation methods began to give way to group methods. Then the Lancaster system appeared (when children who received a layer of knowledge from the teacher helped him teach this knowledge to other children), which solved the problem of the lack of teachers in the process of the rapid development of education, this allowed one teacher, together with adult children, the so-called "monitors", to teach lessons to the younger children in groups (Mesquita, 2012). At that time, it was also proposed to evaluate education as one of the products (services) to create an optimal price-quality ratio (Sallis, 2014). Even in later times some perceived quality as a mere compliance to customer requirements (in the case of education as customers identified parents, government, students, teachers, employers and institutions), making it difficult to determine the quality of education, as different customers are looking for education`s different characteristics (Goddard & Leask, 1992; Jain & Prasad, 2018).

In the twentieth century, due to the increased tension between different social and ideological groups, some difficulties arose in social and industrial development. Additionally, wars had a negative impact on European countries, as a result of which control over most of the colonies, which were one of the factors of economic well-being in that era, was lost. However, along with this, education received the status of an important factor in the development of the nation, which led to attempts to eliminate illiteracy and the construction of schools around the world. Most of the children studied until the age of 16-18, but a significant part of those who graduated from school continued to receive their education in colleges and universities. In connection with the results of the scientific and technological revolution, the requirements for candidates when applying for a job have increased, and the number of students who tried to cover the need for at least part of the necessary knowledge and skills through higher education has increased significantly (Townsend & Friedland, 2016). In addition, in the twentieth century, progressive education grew in popularity, which was characterized as a student-centered, individualized approach to learning, where students sought to acquire information not only through books and

lectures, but also with the help of personal experience gained by interaction with nature and society (Hayes, 2006; Sikandar, 2015).

Now, looking at the entire path taken by educational services, we can say that each era influenced education in its own way, mainly using training and education as factors that allow to form a personality that effectively adapts to the realities we need to face. Education gave people the knowledge and skills, that are necessary to improve their world, which made it possible to advance the progress of mankind, and with this progress came changes in educational processes and ideas. Now we are faced with the XXI century with its new circumstances. However, even now humanity is successfully adapting to them, thanks to developed technologies, and at the same time adapting the forms and methods of teaching to new realities.

1.2 Types of educational services

Every person from the moment of birth until death is in the process of constant learning, as throughout his/her life he learns something new, whether he/she wants it or not. This does not necessarily have to be about learning a science, even learning trivial but useful tips for our daily routine are of significance. In general, in today's world there are more and more popular various educational services, as they give us an opportunity to realize one of our fundamental rights and also fulfill the need for self-realization (Al-Dulaimi, 2016). There is a huge number of creative circles and workshops, language courses and interest clubs, training courses, business communities, hubs and other achievements of the modern educational market.

The concept of education is quite controversial because on the one hand the phenomenon of education can be perceived as a process of specialized training of a person in a science or craft, and on the other hand, it is difficult to deny, that it may have different definitions connected with the process of learning. According to its definition in The Law of Ukraine: "education is a purposeful process of education and training in the interests of man, society, state, accompanied by a statement of achievement by citizens (students) of educational levels (educational qualifications) (President of Ukraine Petro Poroshenko, 2017). Thus, when considering the concept of educational services (as training and educational offerings (Mauro, 2009)) in the dissertation education is perceived as the process of purposeful acquisition of certain habits or skills.

Various business entities can provide educational services, including:

- public educational institutions,
- individuals,
- non-profit organizations,
- private enterprises.

The most common are educational services provided by government agencies (public educational institutions), as most people in the world go through the process of receiving at least primary education in schools. In fact, this type of educational services can be considered as one of the oldest in the modern world, because they existed in ancient times, when the first prototypes of gymnasiums and colleges of the state standard were created (see 1.1).

Individual services have also been around for a long time, even longer than centralized education. For example, historical sources state that officials and scholars of ancient Greece, Rome, and even ancient Egypt used the services of individuals, i.e. scholars, philosophers, and clergy of the time, to educate their children, who were supposed to become rulers or other influential people in society (see 1.1). Of course, schooling, higher education, and home schooling provided by scholars and philosophers in ancient times have evolved over the course of history and are evolving to this day.

Another type of educational service is that provided by non-profit organizations, which include churches (parish schools), community organizations (sometimes with a political bias), and voluntary associations. We owe the spread of this type of service to church schools, which began to exist with the beginning of the active introduction of religious beliefs. This type of teaching was especially popular during the Middle Ages, when church schools and Jesuit colleges were one of the most accessible and widespread sources of knowledge in Europe (Grendle, 2018). In today's world, this type of service is practically disappearing, because, according to experts, every year the percentage of believers who study separately becomes smaller. In the Soviet Union, there were even training courses for propagandists to effectively disseminate the views of the authorities, during religious ceremonies and church attendance, and therefore church schools, were banned (Kuvonch, 2021).

Another common type of educational services at the moment is commercial training conducted by private enterprises. This type of knowledge acquisition is characterized, firstly, by the paid basis of the relationship between the student and the educational

institution, and, secondly, the desire of the person to learn and develop skills (as there shown reediness to pay extra to understand subject deeper). It is interesting to note that today, in contrast to the Soviet Union, even state-owned enterprises in Ukraine and Poland have the right to provide services on a paid basis. These are certain additional services that are not part of those paid for by the state.

The division of educational services does not end with the category of economic affiliation and has a significant number of other categories of classification (see Figure 1).

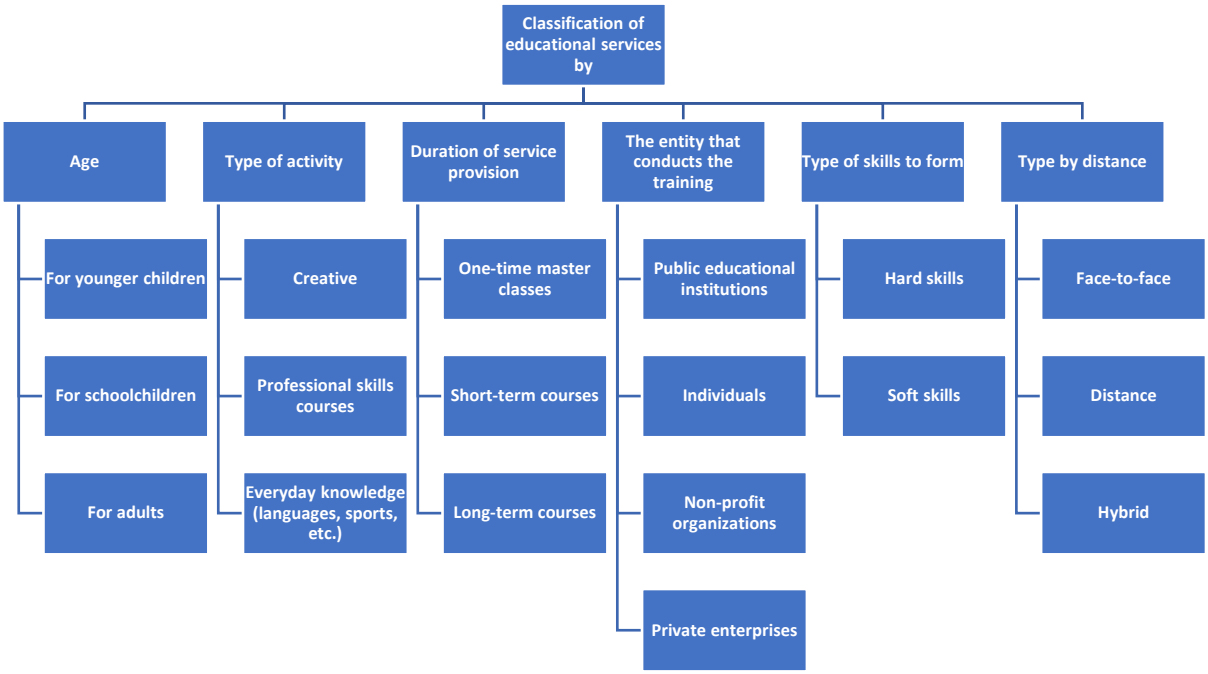

Figure 1. Classification of educational services.

Source: own work.

It is also worth paying attention to certain features of the development of modern education. All over the world, consulting services (that may be seen as part of "private enterprises" branch) are gaining incredible popularity. This trend originated at the end of the last century, when international organizations, such as the Organization for Economic Cooperation and Development, began consulting with governments of underdeveloped countries to stabilize their political and economic situation (Morgan & Volante, 2016).

This trend then spread to the business community in the United States and Western Europe, which in the pursuit of monetary benefits began to share experiences in doing business. Counseling services have become an integral part of successful business, and as successful businessmen and media people in today's world are "mental leaders" and equal to teenagers and young people, their habits have gradually become part of everyday life. The demand created by them generated supply in the market of consulting services. This is how various business schools, IBM, advanced training courses in certain professions, etc. were born (Jigme, Jarinto, & Sutthison, 2018; Cortada, 2018).

On the other hand, the development of this type of service has a negative impact on society, because the Internet and social networks thrive, which is the implementation of certain services by people without qualifications in the field. These include, in particular, such popular astrology, divination, personal training, whose teachers are people who have not achieved almost no success and similar "services", which are aimed solely at satisfying their own financial interests and not the desire to teach others something. In some places, this goes too far and social networks begin to provide "services" for training, for example, gambling (Trafic Masters, 2022), which even in theory can not be a business for anyone but the owner of a casino or other institution (Thyer & Pignotti, 2016).

The transition of education to the online regime has further actualized a trend that has matured for a long time: traditional learning needs to be reformed not only towards the study of information (as such hard skills), but also towards some practical skills, abilities logically, pragmatic thinking and decision making (soft skills) (Schulz, 2008). This issue has long been implemented in the education system of developed countries, especially Japan, Canada and the United States. However, in the post-Soviet space, in particular in Ukraine it is still very low. The reason is that in Ukrainian educational institutions, from preschool to higher, mostly teaching tends to have a very strong theoretical basis, but a very low level of practical validity. It is due to lack of, firstly, staff turnover in Ukrainian schools and universities, secondly, self-education by teachers, and thirdly practical skills in teachers, because, based on the realities of today's Ukrainian education, this is not a common phenomenon (Boiko, 2021; Sydorenko, 2020).

One of the most important aspects for this work is the classification of educational services by the type of education delivery: face-to-face education, distance education and hybrid form.

In general, educational services are divided into different classifications (by age, type of activity, time of provision (frequency), deviation, etc.), however, the most popular is the division into traditional education (public: school, university, kindergarten), commercial courses, sports sections, professional counseling services), non-profit (church-parish, scientific) and those provided by individuals (tutoring, personal training, counseling). At the present stage, it is necessary to identify certain areas of development of the industry: implementing new technologies to education and its transition to the Internet (as now we also have division to face-to-face, hybrid and distance learning).

1.3 Stakeholders of university educational services

One of the main approaches for the evaluation of education is conducting surveys among stakeholders, usually divided into three groups: academic staff, students and external stakeholders (Gaftandzhieva, Doneva, & Jagatheesaperumal, 2023). A common way to group stakeholders in education is to sort them into internal and external stakeholders: internal stakeholders in education are those directly involved in the institution's operations, such as students and teachers, while external stakeholders are those outside the institution who are affected by or have an interest in its performance, such as parents and government bodies (Kuzu, Gökbel, & Güleş, 2013; Kryklii, Kyrychenko, & Savga, 2018; Falqueto, Hoffmann, Gomes, & Onoyama, 2020). However, since universities are somewhat different in structure and purpose from enterprises, their stakeholders and approaches to them may differ, and the degree of differences may also differ depending on the type of university. Private universities, which operate more in a business mode could have a stakeholder structure similar to that of a business company. while public universities are more socially oriented (BJØRKQUIST, 2009; Schüller, Chlebovský, Doubravský, & Chalupský, 2014).

When discussing public universities, you should pay attention to the stakeholders with a slightly different approach. According to research made for the Czech Republic universities the stakeholders of public universities include the Accreditation Commission Czech Republic, alumni, communities, competitors, current students, donors and grant organizations, employers, faculties and employees, government authorities, high schools, local authorities, management, marketing and public relations departments, media, the Ministry of Education, Youth and Sports, parents, and prospective students (Slabá, 2015).

In a business approach, stakeholders could be divided into three groups (Table 1).

Name of the stakeholder's group	Description	Examples
Primary stakeholders	responsible for proposing an evaluation system of work, its implantation or modification	university authorities, student parliament
Secondary stakeholders	groups who are directly affected by decision-making, possibly could be the assessors of the influence of these decisions	faculty members, administrative staff, students
Tertiary stakeholders	groups who are not directly affected by decision-making, but interested in results of work	future employers of graduates

Table 1. Three groups of stakeholders based on their interest.

Source: based on (Schüller, Chlebovský, Doubravský, & Chalupský, 2014; Matalay, 2011; Lester, 2010).

In the study based on a US model of higher education, the following stakeholders were identified (Avcı, Ring, & Mıtchell, 2015): governing entities such as state and federal governments and religious organizations, administration comprising university presidents and senior administrators, employees like faculty and administrative staff, clienteles which include students and parents, suppliers such as high schools and other colleges; communities encompassing local organizations and neighbors, and donors including alumni and foundations. It should be noted that this approach is more suitable for corporate structures, aimed at making a profit.

The study "An exploratory research on the stakeholders of a university" by Mainardes, Alves, and Raposo (2010) identifies the stakeholders of a university as students and potential students, the national government (particularly in legislative matters), teaching staff, companies, business and professional associations, competitor universities, and other stakeholders, each playing a crucial role in shaping the institution's strategic and operational dynamics.

Furthermore, in the book "Identifying Stakeholders at a Portuguese University: Example: Identifying Stakeholders at a Portuguese University", the following list of 21 university stakeholders was proposed: students, teaching staff and researchers, employers, research and development partner companies, national government, municipality hosting the university, non-teaching staff, other universities and higher educational institutions, the university`s surrounding local community, secondary level schools, student families, research and development actors (incubators, technological parks, patent, agencies, research centres, external researches), society in general, senior university management (rectory team, general council, CRUP), professional orders, private financiers (business angels, risk capital firms, investors), business/commercial associations, ex-students, scientific

communities and their publications output, European Union, international students (Mainardes, Alves, & Raposo, 2013). This study demonstrates an example of stakeholder identification and prioritization as part of the stakeholder strategic management process, that is commonly used in business organization. Usually that type of identification requires four steps of stakeholder identification (Figure 2).

Figure 2. Four steps of stakeholder identification.

Source: based on (Mainardes, Alves, & Raposo, 2013; Freeman, 1984; Polonsky, 1995).

In this research based on previously gathered data were chosen stakeholders that are relevant specifically to the distance form of learning in university education, as part of general education in higher institutions: academic staff, students, e-learning departments, IT support departments, employers, university authority, and the Ministry of Education. This form is still under the influence of other stakeholders named previously to the same extent as the traditional form, however the extent of influence of chosen stakeholders differs for distance learning, that is why to achieve the purpose of the study, interviews (for further analysis through a thematic analysis for case study) were conducted with the first five stakeholders. The Ministry of Education 's point of view was assessed based on an analysis of official documents regulating this process of distance education.

2 Introduction to distance learning

2.1 Evolution of distance learning

Distance learning is a type of learning in which the knowledge acquisition process is performed synchronously or asynchronously when the participants in this process are far from each other at the time of their interaction, using various means of communication (Al-Khatir Al-Arimi, Distance Learning, 2014). Learning from a distance means mastering knowledge without the traditional classroom. Each participant of this process sets the goal of their education adapted to his/her needs, as well as their conditions and lifestyle (Dziewulak, 2012). Information and communication technologies (ICT) have provided tools to support distance learning and are perceived as the key factor for facilitating online learning and education in general (Adarkwah, 2021; Paliwoda-Pękosz, Stal, & Wojtowicz, 2015; Stal & Paliwoda-Pękosz, 2019). Especially the Internet has contributed to the broadening of horizons by creating the possibility of accessing a huge number of learning resources available online, something unthinkable and impossible before (Krawczyk, 2020).

The advantages of distance learning include (Pogorilyj, Dudikova, Yakymenko, Poyda, & Koval, 2020; Favale, Soro, Trevisan, Drago, & Mellia, 2020; Markova, Glazkova, & Zaborova, 2017; Sammarro, 2022)): the possibility of choosing the time and place of learning (with the exception of participating in a videoconference or listening to a synchronized online lecture, which take place at a specific time); flexibility; time saving opportunities (the student does not waste time on the way to the university, waiting for a bus or a train); cost-savings (on travel to the university city) and access to informational resources during classes.

To the disadvantages of distance learning belong the following (Nenko, Kybalna, & Snisarenko, 2020; Favale, Soro, Trevisan, Drago, & Mellia, 2020): difficulties in focusing on learning by students; a significant number of tasks needed to be done by students; financial inequality in access to education; technical complexity, and excessive dependence on the technology; conservatism, which resulted in a low level of personal motivation to work with the use of remote technologies; bureaucracy problems; insufficient qualifications of some teachers; reluctance to innovate in teaching and learning. The prominent role of ICT in distance learning has been especially visible in the time of the COVID-19 pandemic, which highlighted the differences between high and low income countries, the latter facing

problems with access to ICT, as well as the teachers' and students' reluctance to use ICT in the learning process (Adarkwah, 2021).

The importance of distance education has been strengthened in the light of the COVID-19 pandemic, since it provides education and contributes to the health and safety of both teachers and students (Łaszczyk, 2020). The introduction of distance learning has become vital in providing education while supporting the isolation of the participants of this process. This situation has generated massive discontent among students, teachers and administrative workers in connection with the unpreparedness of most universities for a mass transition to conducting educational processes in this form (Lindner, Clemons, Thoron, & Lindner, 2020; Nenko, Kybalna, & Snisarenko, 2020; Krawczyk, 2020; Didkivska & Babanin, Insights from the Rapid Transformation to Distance Learning Due to COVID-19 : a Case of a Master of Business Administration Course, 2021). However, even after the end of the pandemic, it seems that educational institutions will remain interested in distance education (Almuraqab, 2020).

The topic of distance learning has been tackled by numerous researchers, who investigated various aspects of distance learning, including students' and designers' perception of Massive Open Online Courses (MOOCs) (Stracke, et al., 2018; Vakaliuk et al., 2020), gender differences (Jung, 2012), and the role of ICT (Das, 2019). Next, the connections of information revolution with distance learning options are discussed.

The first information revolution was the invention of writing. It happened so long ago that there is no way to trace its exact origin. However, we can trace the tool that this revolution provided, namely the manuscripts. The possibility of leaving written information to descendants, firstly, made it possible to create the first written textbooks, and secondly, it reduced the likelihood of distortion of information about the historical past. One of the first "unofficial" cases of distance learning can be considered as teaching monks using scrolls. Some scholars argue that the holy messages of St. Paul sent to temples serve as an illustration of some key distance education regulations (UNESCO, 2000).

Over time, the amount of information and the importance of information flows grew and eventually people faced the insufficient efficiency of the then existing methods of information storage and processing. In the second half of the 16th century, the second information revolution takes place, related to the invention of the printing press. From that moment, the dissemination of written information becomes easier, where newspapers and printed books appear. After the second information revolution, most researchers identify the

first "officially registered cases" of distance learning. Some scholars believe that the first recorded distance learning program dates back to 1728, when Caleb Philips used the Boston Gazette to advertise a shorthand correspondence course. Keystone School began offering accredited correspondence courses in 1974 (Sumner, 2000).

However, people could not limit themselves to the dissemination of data only in writing. The third information revolution was associated with the introduction of electricity, which led to the invention and distribution of radio, television and other electrical devices such as tape recorders, which made it possible to transmit information not only in the form of symbols, but also in audio and video series (Govorovskaya, 2017).

"From 1920 to 1924, the growth of the American radio industry was indeed rapid, from both an educational and commercial point of view… in 1922, educational programs were broadcast by 60 educational institutions. There were between 1,000,000 and 1,500,000 radio receivers in the country at the time, and the audience was probably between 3,000,000 and 4,000,000… period indicates that a significant number of American educators quickly realized the potential value of radio for education." (Hausmann, 1939, p. 2). The same applies to video material. Video lessons in various subjects have appeared on shelves and on television. The most popularity "telecourses" gained until 1972 and were used in educational institutions (e.g. colleges in Florida and California) (Fleming, 1984). However, all of the above methods have a significant disadvantage from the point of view of the teacher-student interaction model, since such interaction is more one-sided (the teacher easily transfers information to students, but there is problem when the student tries to communicate with the teacher). When a student needs, for example, an explanation of the material, he receives an answer to his question after a long time, not to mention the fact that in the context of the classroom system (popularized by Jan Comenius), the distance learning methods described above, used after the first three information revolutions, are difficult to understand for some students (Anderson, 2011).

The fourth information revolution was after the invention of the microprocessor and computers. In addition to simplifying most common work and daily tasks (most tasks can be generated automatically, such as creating drawings, calculating materials) (Kang, Lee, & Baek, 2019), it also opened up the possibility of using computer networks to exchange information, including optimizing the exchange of audio and video sequences, which allowed the transition to a system of transmitting a lot of information for training purposes (Anderson, 2011). Now students during distance learning can quickly and effectively receive information not only from the teacher, but also from each other. Moreover, thanks to the

fourth information revolution and the Internet introduced by it, distance learning has taken a huge step - it has created continuous learning, because the information space and digitization made a new requirement for a successful person in the world: the more educated a person is in the information society, the more adequate will be the image of the real world formed by it, and the better they will be able to adapt to the surrounding world (Elyakov, 2003).

Table 2 shows connections between stages of information revolution previously described and their influence to distance learning.

Stage of information revolution	What has been introduced to distance learning	Reasons
1	• Spreading knowledge through text • Spreading knowledge through drawings	• Invention of writing and its popularization (the result of the information revolution) • Willingness to provide remote learning opportunities • Willingness to disseminate information with minimal distortion
2	• Increasing the number of textbooks • Increasing the amount of information provided by textbook	• Invention of the printing press and popularization of printing textbooks instead of copying them by hand (effect of the information revolution) • Willingness to increase the number of trainees trained • Willingness to increase the amount of transmitted information
3	• Ability to transmit information in the form of audio recordings • Video upload capability	• Invention of audio and video recordings and their popularization (as a result of the information revolution - the invention of electricity) • Desire to transmit information in the form of sound over long distances • The desire to transmit visual information without distortion over long distances • Desire to transmit visual information along with sound
4	• Increasing the amount of information sent in written, audio and video form. • Providing two-way information transfer in real time	• Invention of the Internet, computers on microprocessors and their popularization • Desire to increase the amount of information sent • Desire to reduce communication delays

Table 2. Connection between informational revolution and distance learning improvement.

Source: own work.

In conclusion, it can be said that the history of the development of distance learning is inseparable from the information revolutions, because it was these inventions that provided the tool used at every new stage of distance learning. At the moment, this form of education

is already widespread and, taking into account the trends, there is a high probability that the next information revolution will significantly affect distance learning.

2.2 Electronic distance learning as the current stage of distance learning

A separate sub-type of distance learning that is gaining more and more popularity in the world is e-learning, i.e. electronic distance learning (Misut & Pribilova, 2015). It allows overcoming geographical and time barriers in the lecturer-student relationship. It is particularly important in the case of people who, for various reasons, have difficult access to traditional (face-to-face) forms of education, e.g. working or disabled (Bednarczyk & Rudak, 2008). E-Learning might be perceived as a type of distance learning in which the organizers and participants of the educational process usually conduct individualized interactions, both asynchronously and synchronously, mainly using the Internet and other information and communication technologies (Bykow, 2008). E-Learning can also be defined as the use of computer networking technology (intranet or Internet) to provide information and instructions to individuals (Welsh, Wanberg, Brown, & Simmering, 2003).

Over the last century, it has become customary to believe that humans are the dominant species on this planet, able to do whatever they want, whenever they want. However, the reality of recent years has shown humanity that this is not the case, and that even a single-celled organism in the form of the COVID-19 virus managed to change the lives of millions of people from all around the world. This virus changed people's lives and forced the world to stop and reorganize the established rhythms of people's lives and the organization of work and economic processes. The field of educational services was not an exception, because traditional education in the conditions of the pandemic was impossible, and therefore there was a need for alternative options - distance education, which evolved significantly during this short-term period until the pandemic subsided. That is why it is worth to mention in this work the features of university distance learning in different countries of the world (Blyznyuk, Budnyk, & Kachak, 2021).

To understand the peculiarities in different countries the basic details of the distance education process need to be described. As an example, in the Ukrainian organization of online education there are key differences of foreign analogues of this activity. In Ukraine, there were and still are commonly used group online classes (for example "Google classroom") or creation of MOOC or other technical solutions locally (Vakaliuk et al., 2020; Osova, Vakaliuk, Panchenko, & Didkivska, 2021). The primary reason for this was the fact that the government of the country restricted offline education during the quarantine, and

when it seemed that the disease had receded, and pupils and students would have the opportunity to return to their desks, a new threat appeared – war (since 2014 only at the east of Ukraine and since 2024 full country engaged). Such obstacles forced the population to study remotely (Zaytseva & Grynyuk, 2020).

For comparison, American educational institutions (especially higher education) rarely use tools like "Google Classroom", because they prefer the alternative of Unicraft platform (Radkevych & Radkevych, 2020) or other e-learning platform (Athaya, Nadir, Indra Sensuse, Kautsarina, & Suryono, 2021), which is similar in functionality.

In the international practice of online education, there are also certain trends that are worth paying attention to. First, studies of social interaction and its importance for the effectiveness of learning in the process of distance education during the pandemic (that is, taking into account the need for social distance restrictions) were conducted. The results of the study showed a significant positive effect of social interaction on the effectiveness of online learning in an online environment. However, the full potential of this effect cannot be used in any case during a pandemic, as social distancing reduces its effectiveness (Baber, 2021).

Secondly, researchers found that one of the most important factors of successful distance learning are preparation and motivation, which, to some extent, help overcome difficulties. Various methods of preparation were mentioned from regulating the external environment (like searching for a place with a more stable Internet connection) to adjusting the internal state of readiness for learning (for example, praying) (Muslimin & Harintama, 2020; Çebi, 2023; Ivanova & Vinogradova, 2022).

Thirdly, although distance learning has certain negative aspects that affect the student's concentration, it also has a lot of positive aspects described in chapter 2.1. For example, the fact that during a virtual lesson or lecture, the student has access to a PC or tablet. This access gives an opportunity to search for information briefly, which in itself is quite a useful skill. This also allows to increase the process of self-discovery of the material, that have positive effect for self-determination and self-regulation (Sammarro, 2022).

It is also worth adding that a feature of the European organization of distance learning is the maximum orientation towards the Bologna system of education, in which the teacher is considered only as an auxiliary element and helps in understanding the material, and the student performs the main work independently. This approach makes it possible to reduce

the burden on the teacher, as well as to improve the student's ability to search and analyze materials (Voznesenskaya, 2017).

A distinctive feature of European distance education (which includes Poland) from Ukrainian is the availability of related services when the pandemic began. For example, at the University of Edinburgh, at the disposal of every student since the beginning of quarantine restrictions and the transition to distance learning, a number of electronic programs that helped in the learning process, including online help, chatbots, online libraries, courses, were available. For example, in the United Kingdom and Ireland, 76% of international students were satisfied with their overall learning experience, and 93% of international students were satisfied with online lectures. 93% of foreign students are satisfied with the library services of the university. Additionally, 82% of international students in Europe said they were satisfied with the overall quality of their education. 93% of international students were satisfied with the online classes they attended (Abdul-Rahaman, Terentev, & Arkorful, 2022).

Tool	Percentage in Poland	Percentage in Ukraine
Google Classroom	41%	74%
E-mail	55%	69%
Zoom	85%	16%
Skype	1%	4%
MS Teams	96%	-
Discord	68%	-
E-Learning platforms	51%	-
Viber	-	58%
Web site of institution	-	13%

Table 3. Familiarity of students with distance learning tools used in higher educational institutions.

Source: based on (Nenko, Kybalna, & Snisarenko, 2020; Stecuła & Wolniak, 2022).

On the territory of Ukraine and Poland the practice of online video conferences is quite common, because this type of pedagogical process allows students to consider the material in the most complete way and receive instant feedback if necessary. In both countries research was conducted on familiarity of students with distance learning tools used in higher educational institutions. Table 3 presents a brief comparison of the popularity of tools in Poland and Ukraine (results based on 621 respondents from several universities in Poland and 540 respondents from several universities in Ukraine).

3 Quality of educational services

3.1 The concept of quality

One of the key problems companies are facing (both state-owned and from the private sector) is their adaptation to the modern conditions of a market economy, which are changing quite rapidly these days (pandemics, wars). Solving this problem is a prerequisite for their survival and further development. Today, the market economy imposes completely different requirements on the quality of goods and services produced. The survival of any enterprise at the present time, as well as its fairly stable position in the target market, is determined by the level of its competitiveness. It is Quality that today is an indicator of the authority of the enterprise, contributing to the growth of profits and prosperity (Zeithaml, 2000).

Active improvement of product quality today is a characteristic trend in the work of all the leading companies in the world. However, one should not consider quality in isolation, that is, only from the standpoint of a manufacturer or a consumer. It should be noted that without a clear definition of technical conditions, product certification cannot be carried out, its assessment for compliance must be according to certain requirements. Since the world is changing rapidly, the formation of a new competitive environment has forced the heads of industrial enterprises to pay renewed attention to the efficiency and quality of goods and services produced, since only those companies that can quickly adapt to such conditions can survive in a fierce competition (Karmarkar & Pitbladdo, 1997). Therefore, the quality management system must be flexible, quickly "adjustable" to the changing requirements of the parties interested in the enterprise's activities. Only such a management system can become a useful tool in the hands of the company's management. In this regard, the quality standard needs to be developed and improved through the use of modern technologies focused on effective adaptation to a changing external environment. Thus, the study of the content of quality and the features of the formation of a quality management system is of great interest today (Matej & Gogu, 2017).

Despite the widespread use of the concept of quality and its reformulation in the context of standardization today, this concept actually originated long before the era of industrialization. Thus, the development of standardization in various areas of socio-cultural and economic life created the basis for many of the achievements of the Romans in quality management. For example, standardization touched the formation of legions in the army

system, the sizes and shapes of building materials, units of measurement, structural elements and technological processes. This also helps marketers to meet their customers specific needs more effectively. Unified measurement system for land management, adopted throughout the Empire; standardization of sizes and shapes of bricks and pipes; the introduction of a semicircular arch as a standard architectural form; standardization of technological processes in construction; the introduction of rules limiting the height of houses in Rome are all examples of the successful development of standardization (Kasiri, Cheng, Sambasivan, & Sidin, 2017).

Throughout its centuries-old history, the quality control system in ancient China was formed on the basis of state institutions. The main actors in the quality control system were state administrative entities. In setting quality standards, controlling the production process, as well as examining and evaluating finished products, the dominant role of the state power was the main factor. The depth and extent of such an impact has not often been observed in world history (Zhang, 2000).

In medieval Europe, too, signs of the use of standardization can be seen. For instance, the coins that were minted in European lands for many hundreds of years were of high quality and exquisite design. They retained their value for many years, despite the continued attempts of monarchs to increase their income from mining and coinage by reducing the content of precious metals in coins. The periodic depletion of precious metal deposits had a negative impact on the production of coins; however, the four main silver coins and their derivatives remained the most popular silver currency from the 10th century until the middle of the 18th century. During the production of coins, miners had to constantly solve a huge number of problems in the field of quality management. New mining and production technologies were constantly developed and existing technologies were improved, which ensured both a reduction in the loss of precious metal and the possibility of extracting ore from hard-to-reach places and smelting multicomponent and low-grade ore (Kohn, 1999).

Quality in product development began with attempts to check the quality of products or services in the field of processes (elimination of defects and refinements), in the field of design (testing and non-durability) or in the field of customer service (warranty costs and complaints). The evolution of quality has led to a significant shift in thinking from "responding" to test events to using "templates" of the process in design and production to ensure product quality (Smith, 2001).

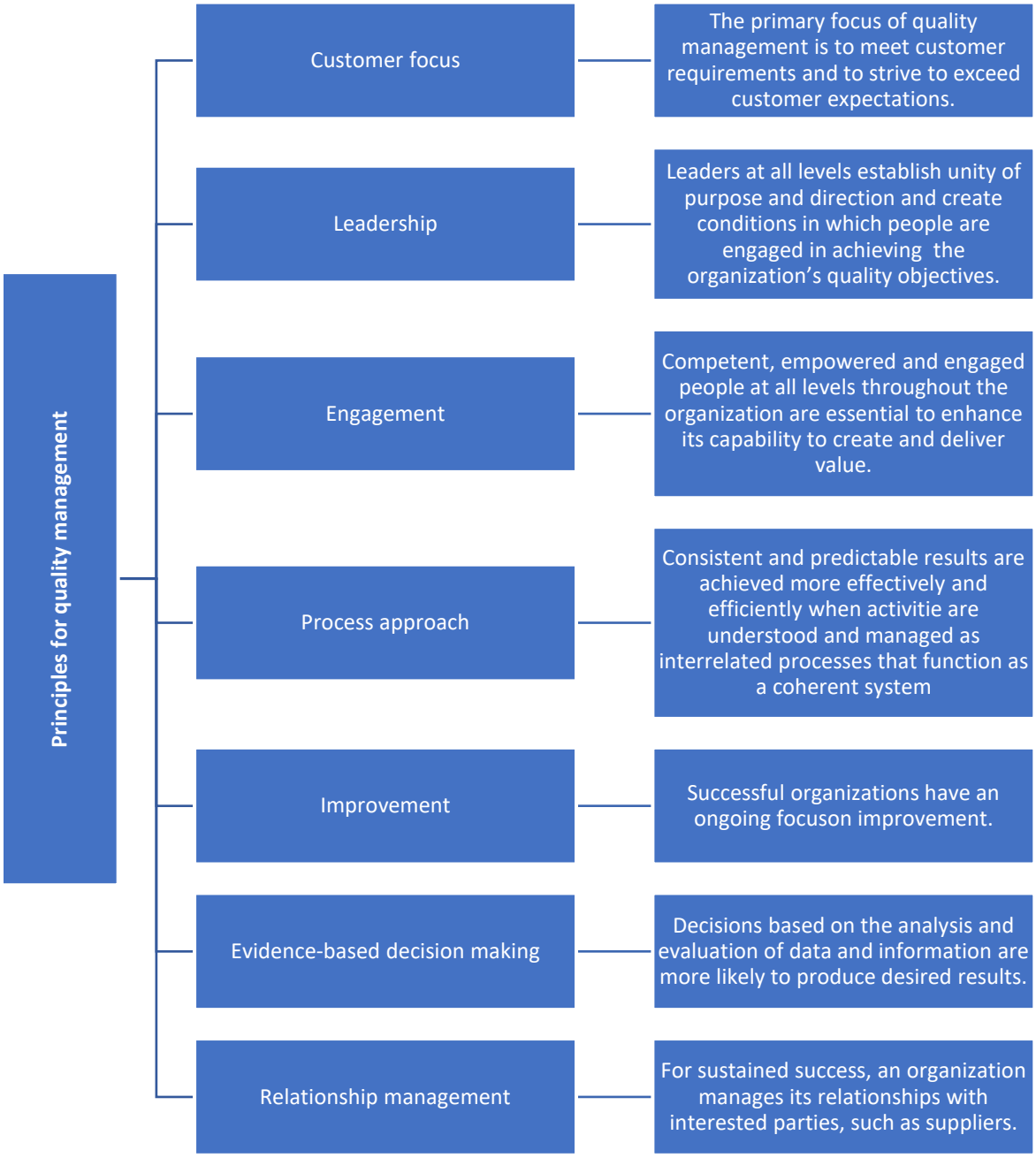

Figure 3. ISO quality management standards principles.

Source: based on (International Organization for Standardization, 2015).

Nowadays, the category of quality is already closely intertwined with standardization and the undoubted leader in the market of quality standards is the International Organization for Standardization (ISO). The most popular among them are ISO 9000 family Quality management that is used for improving quality of products and services (International

Organization for Standardization, 2022). According to their standardization document there are 7 principles for quality management (Figure 3).

In contemporary world literature, we can also encounter various meanings of quality. In this work a definition from ISO 9000:2015, internationally recognized standard, applied also by Polish and Ukrainian researchers in the field of quality insurance, will be used. "Quality" is there defined as a degree to which a set of inherent characteristics of an object fulfils requirements (Pritulska, Antiushko, & Waller, 2017; Chochół & Hnatyszak, 2021; ISO, 2015). This definition is used for this research to evaluate fulfilment of necessary requirements for education.

3.2 Approaches to the quality of educational services

3.2.1 General approaches to the quality of education

Education is currently one of the main tools for national development, which the state offers to society. It should be borne in mind that at this stage of development, quantitative goals (like giving access to education to every child in the world) would not be enough to improve the impact of education without supporting a certain quality standard (Jain & Prasad, 2018). From the point of view of pedagogy, the quality of education is associated with the implementation and development of the educational process, as well as with the choice of teaching aids, educational technologies, teaching materials, with the teacher's professional competence, his/her ability to create a working atmosphere and find an adequate approach towards students (Ratner & Tikhonova, 2019).

The improvement of educational services relates to the concept of the quality of these services. Quality is all the features and properties of a product or service that determine the ability of the product or service to meet the identified and anticipated needs (Hoff, 2016; ISO, 1994). The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines the quality of education as: "a type of education that offers all young people and other learners competences adapted to the specific context in which they live and allowing them to actively participate in social life" (Grudowski & Lewandowski, 2012, p. 399). The quality of education can be defined as the degree of meeting the requirements for the education process, formulated by the stakeholders: students, employees, potential employers, and researchers (Grudowski & Lewandowski, 2012). The quality of education can also be identified as a set of features corresponding to human needs and the interests of society and the country (Toshtemirova, 2020). In turn, the quality of education within the

university could be perceived as the fulfillment of the expectations of the internal and external stakeholders in all areas of the education process (Hnatyszak, 2020).

The term "quality of education" is best applied to the national education system. For example, the assessment of the quality of engineering education can be based on the results of ongoing sustainable development in the country (Solovyev, Petrova, Prikhodko, & Makarenko, 2017). The overall quality of a system often directly depends on the quality of its components, and the national education system usually consists of educational institutions, which may be the main factors of success or failure. In this context, competition between universities has a positive effect on the quality of education, since the financial position of a university depends on the number of students, regardless of the source of its funding. Competition among educational institutions in educational markets (as in any other market) requires a system to adequately target consumers. One of the ways to create a consumer orientation system are the accreditation procedures for educational programs and institutions: official (state), public and public-professional. Therefore, in the era of globalization, optimal accreditation methodologies are needed to study the issues of education quality with its subsequent improvement (Solovyev, Petrova, Prikhodko, & Makarenko, 2017). Measuring and assessing the quality of education should be focused on assessing the impact of the university on the development of the student (not only enriching the knowledge, but also the development of personal qualities), otherwise such an assessment will not truthfully reflect the state of education at the educational institution (Tam, 2001).

A conceptual view at the quality of education could be described by exploring different ways of this topic understanding (Table 4).

Name	**Description**
Quality in a humanistic approach	Learning is a process of social practice; educational programs are not standardized, they adapt to the circumstances and needs of individual students; self-esteem and peer assessment are perceived as ways to develop an understanding of the learning process; the teacher is not an instructor, but a facilitator.
Quality in a behavioral approach	Using standardized and controlled curricula based on established goals; assessment is an objective measurement of learned behavior according to predetermined criteria; tests and exams are central elements of learning; teacher is an expert who controls stimuli and reactions.
Quality in a critical approach	Quality of education that promotes social change; includes teaching methods that encourage critical analysis; active student participation in developing their own learning experiences.
Quality in an indigenous perspective	The importance of education matching the socio-cultural context of the nation and of the learner; all learners have rich sources of prior knowledge gained from a variety of experiences that educators need to gain and develop; learners are important in defining their curriculum; learning must go beyond the classroom through informal learning and lifelong learning.

Quality in adult education	In the adult education tradition experience and critical thinking about learning is an important aspect of quality; radical theorists see students as socially inclined, able to use their experience and knowledge as a basis for social action and social change.

Table 4. Approaches to quality of education.

Source: (Kumar & Sarangapani, 2005; Jain & Prasad, 2018).

Cheng and Ming defined three approaches to the quality of education, focusing on improving this quality (Cheng & Ming, 1997):

- identification strategy for the improvement of an educational institution - the best path to improving the quality of educational services is the analysis of problems preventing the improvement of the quality of education at the university,
- organizational model of learning - assumes that the quality of education is a dynamic concept and its improvement includes the continuous enhancement and development of the participants of the educational process (staff, administration, students), and increasing the evaluation results of the educational institution,
- comprehensive quality management - quality in education can be improved if the educational institution can involve the participants of the educational process to conduct continuous improvement of various internal processes and meet the requirements, needs and expectations of external entities (expectations of the labor market, the political, economic and social situation).

However, when introducing a system for assessing and improving the quality of current education, it is also worth taking into account the opinion of the new generation that we teach, because the faster we can adapt to their needs, the more likely universities are to meet their expectations in the future. In this regard, the introduction of new forms of education is inevitable and is accompanied by a well-founded desire for an optimal assessment of the effectiveness of new educational technologies, as well as their impact on student results and on the satisfaction of all participants in the educational process (Ratner & Tikhonova, 2019).

3.2.2 Approaches to education quality in Europe

Today in the world there is no single system for assessing the quality of education (Jain & Prasad, 2018), but in many countries the assessment of the quality of education is regulated by legal documents issued at the legislative level. In some countries, there are

special institutions that regulate/manage education evaluation systems. For example in Great Britain there are: the Qualifications Curriculum Authority (QCA), in England; the Qualifications, Curriculum and Assessment Authority for Wales (ACCAC); Council for the Curriculum Examinations and Assessment (CCEA) in the Northern Ireland, and the Scottish Qualifications Authority (SQA).

In 2015 an updated document describing The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) was released. Although the ESG is not a document defining and monitoring quality standards in European countries, it forms guidelines for internal and external quality assurance in higher education institutions throughout the European Union. The main purpose of this document is to promote a common understanding of quality assurance among all stakeholders. It covers areas that are vital to the successful quality assurance of higher education, focusing on quality assurance in learning and teaching including the learning environment and related links to research and innovation (European Association for Quality Assurance in Higher Education (ENQA), 2015). These standards could be divided into three parts that are described in Table 5.

Name	Included fields
Internal quality assurance	Standards and guidelines for: policy for quality assurance; design and approval of programs; student-centered learning, teaching and assessment; student admission, progression, recognition and certification; teaching staff; learning resources and student support; information management; public information; on-going monitoring and periodic review of programs; cyclical external quality assurance; reporting
External quality assurance	Standards and guidelines for: consideration of internal quality assurance; designing methodologies fit for purpose; implementing processes; peer-review experts; criteria for outcomes; complaints and appeals
Quality assurance agencies	Standards and guidelines for: activities, policy and processes for quality assurance; official status; independence; thematic analysis; resources; internal quality assurance and professional conduct; cyclical external review of agencies

Table 5. The European Higher Education Area standards for quality assurance.

Source: (European Association for Quality Assurance in Higher Education (ENQA), 2015).

For example, in the Romanian educational system, the concept of quality education was formed under the influence of precedents in the global and European educational services market. According to its normative acts: "quality assurance in education is achieved by means of a group of actions aimed at developing the institutional capacity to elaborate, plan and implement education programs; Thus, recipients become confident that quality standards are met by the education supplying institution. Quality assurance expresses the capacity of a supplying organization to offer education programs, according to the

announced standards. It is promoted in order to lead to the continuous enhancement of education quality." (Sârbu, Ilie, Enache, & Dumitriu, 2009, p. 386).

At the same time, in some European countries, for example, Poland and Croatia, when forming an assessment of the quality of education, scientists prefer to rely on an assessment of five factors: Reliability (compliance of the declared description of the service provided to the real one), Tangibility (compliance of the quality of equipment, for example, physical media with high quality), Responsibility (how much the company's employees are ready to help), Assurance (here the competence of the employee is mainly assessed), and Empathy (how much attention paid to customers is adapted to his individual needs) (Legčević, 2009; Ulewicz, 2014).

3.2.3 Quality of distance learning

One of the requirements affecting the quality of education is considering the didactic potential of innovative methods and digital learning technologies. Therefore, for the formation of a successful and healthy learning environment, it is important to develop and implement appropriate pedagogical (didactic) methods in order to create an innovative communicative educational environment for higher education (Osova, Vakaluik, Panchenko, Didkivska, & Kontsedailo, 2021). Information and communication technologies have provided tools to support distance learning and are perceived as the key factor for facilitating online learning and education in general (Adarkwah, 2021; Paliwoda-Pękosz, Stal, & Wojtowicz, 2015; Stal & Paliwoda-Pękosz, 2019).

Earlier concepts of distance education did not include the mandatory availability of information technology. Hence, the first distance lessons were carried out through the exchange of paper letters (Harting & Erthal, 2005; Willis, 1994). Even after many years, not all scientists were ready to introduce the unambiguous need for information technology into the concept of distance learning (like: distance learning is a type of learning in which the knowledge acquisition process is performed synchronously or asynchronously when the participants in this process are far from each other at the time of their interaction, using various means of communication (Al-Khatir Al-Arimi, Distance Learning, 2014)), but after the beginning of the COVID-19 pandemic, the biggest part of society stopped seeing any difference between distance learning and online learning (Schneider & Council, 2021; Dewi & Wajdi, 2021; Clark, Nong, Zhu, & Zhu, 2021).

As far as the quality of distance learning is concerned, there are a few research works that tackle this issue. For example, Markova and colleagues (2017) perceives the quality of

distance learning as the general satisfaction of students and their attitude towards distance learning. They recommend the usage of the quality audit system proposed by the Sloan Consortium (Lorenzo & Moore, 2002), which distinguishes five pillars of quality: Learning Effectiveness, Student Satisfaction, Faculty Satisfaction, Cost Effectiveness, and Access (Table 6). These pillars have become the key determinants of distance learning quality for the Online Learning Consortium (https://onlinelearningconsortium.org).

Pillar	Description
Learning Effectiveness	Providing high-quality education, which means that students in remote studies should have at least the same conditions compared to full-time students. Taking advantage of the unique opportunities offered by the online environment.
Student Satisfaction	Students are satisfied with interactions with the faculty, the technical support center, and other Students who participate in the educational process. Student satisfaction with the educational process is the most important aspect that affects interest and engagement in classes.
Faculty Satisfaction	The main factors that influence the satisfaction of employees with conducting classes remotely are: technical and information support, awards, and the ability to conduct research related to online teaching and publish the results.
Cost Effectiveness	The preparation of an up-to-date educational offer by universities that would take into account the optimization of the costs of running the course remotely, linked to the costs of development and maintenance of the technical infrastructure.
Accessibility	Support to ensure that all Students can complete their chosen study programme or course. Support areas include academic support (preparing teaching materials and providing access to various sources of information), administrative support (e.g. support in the form of material assistance for people with disabilities) and technical support (support with university services, provision of access to resources and a helpdesk).

Table 6. Five pillars of quality.

Source: (Online Learning Consortium, 2020; Lorenzo & Moore, 2002).

A number of frameworks has been developed that captures the quality of distance learning from different perspectives, e.g. Masoumi and Lindström (2012) proposed a framework for quality assurance in virtual institutions and Stracke (2019) developed a quality framework for open education that is based on the Reference Process Model of ISO/IEC 40180 (ISO, 2017; Stracke, 2019). Furthermore, the International Organization for Standardization (ISO) developed the ISO/IEC 40180:2017 standard that contains the Quality Reference Framework for E-Learning, and the ISO 21001:2018 standard that provides guidelines for managing processes and activities at educational organizations (ISO, 2018; ISO, 2017). An interesting method for evaluating e-learning modules of distance learning was proposed in Serbia. It uses a fuzzy multicriteria approach to break down the process into smaller parts, which are then assessed by experts using descriptive terms and fuzzy numbers, and combines these evaluations by considering their relative importance (Stefanovic, Tadic, Arsovski, Arsovski, & Aleksic, 2010).

However, Esfijani (2018), in the course of a meta-synthesis of approaches to the quality of online education, found that there is a lack of a comprehensive framework that will encompass the various stakeholders of distance learning; the approaches to improving the quality of online education mostly focus on the students' perspective, paying less or little attention to other stakeholders, like administrators and designers (Esfijani, 2018). It should also be noted that the frameworks have been designed mostly based on experiences from Western countries, and do not include the cultural dimensions/differences (Masoumi & Lindström, 2012).

In connection with the growing need for studying the quality of distance education, special attention should be paid to the ISO 29994 document called "Education and learning services — Requirements for distance learning", which finally brings some clarity to this concept and regulates many pressing issues like learning materials available via distance learning, described in the 10th chapter of this document or monitoring and the evaluation of the distance learning services described in the 13th (ISO, 2021).

The topic of distance education and its quality has focused researchers' special attention in the time of the COVID-19 pandemic (Sahu, 2020; Wilder-Smith & Freedman, 2020; Chen, Angela, & Huang, 2022). The introduction of distance learning has become vital in providing education while supporting the isolation of the participants of this process. However, this situation has generated massive discontent among students, teachers and administrative workers in connection with the unpreparedness of most universities for a mass transition to conducting educational processes in this form (Lindner, Clemons, Thoron, & Lindner, 2020; Nenko, Kybalna, & Snisarenko, 2020; Krawczyk, 2020). It seems that even after the end of the pandemic, educational institutions will remain interested in distance education (Almuraqab, 2020). Hence, the investigation of its quality remains an up-to date topic of research.

3.2.4 Distance learning quality from Polish and Ukrainian perspectives

A number of works have appeared in Poland presenting various approaches to introducing methods and techniques of distance learning into the educational process:

- distance learning is one of the indicators of the high level of implementation of vocational education (Dąbrowska, Grządziel, Kaczmarek, Kos-Górczyńska, & Stańczyk, 2013);
- "It allows you to spread knowledge, improve qualifications to people who, for various reasons, could not use traditional education, and nowadays use the vast

resources of professional literature from around the world, which until recently was unimaginable and impossible" (Krawczyk, 2020);

- distance learning methods are used, they have been adapted due to the current epidemiological situation, and the time has come to consider the actual benefits, educational values and risks associated with this form of education (Łaszczyk, 2020).

As far as empirical research on the quality of distance learning in Ukraine is concerned, the results of the research conducted so far indicate negative experiences of students related to distance learning. The following problems have been identified (Nenko, Kybalna, & Snisarenko, 2020; Didkivska, 2020; Prokopenko & Berezhna, 2020; Didkivska & Vakaliuk, 2021):

- insufficient qualifications of some teachers; reluctance to innovate; conservatism, which resulted in a low level of personal motivation to work with the use of remote technologies,
- excessive bureaucracy in implementing distance learning, which, together with the low financing of technology development and the need to modernize courses, did not allow for the creation of a real working model of education,
- lack of appropriate equipment and Internet access for students living in rural areas,
- poor awareness of distance learning,
- lack of teachers' experience in developing teaching materials on their own.

Summing up, the concept of the quality of education has been studied for many years. It is also worth noting that over time, this concept has been modified to better fit the realities of contemporaries. At this stage of development, more attention is paid to the subcategory of this concept - the quality of distance education, since in connection with the COVID-19 pandemic, the need for this type of education has increased significantly.

3.3 To-date approaches to the quality of educational services with the use of distance learning

Distance education has gained popularity during the COVID-19 pandemic. In connection with the growing popularity of this method of teaching, the amount of literature, that tries to define distance learning, as well as systematize the parameters of the quality of

educational services has grown. In March 2021, a literature review was conducted with the usage of elements of a systematic literature review, where the goal was to identify to-date approaches to the quality of educational services with the use of distance learning.

Following the example of classical literature reviews, a question was formulated to that the review had to answer "How has the transition to distance learning affected the quality of education?" The Scopus was chosen as a reliable base of literature, since there is a lot of verified literature in this source. The search keywords in this case were "quality", "distance", "learning", "education" and their various combinations. Google Scholar was used as a source of gray literature, where combinations of words "quality of distance learning" and "quality of distance education" were used. The parameters of publication time (year 2020 and 2021 up to march, when this analysis was made), the presence of information about the study in the article, as well as a clearly expressed position on the impact of at least one quality parameter on the quality of distance education services were chosen as parameters for including an article in the relevant results. Initially, 107 articles from Scopus were selected (out of 1067), as well as 57 articles from more than 3 thousand gray literature on the parameter of attempts to describe distance education, according to a search with a mention of quality and distance education or distance learning. Later, after a thorough analysis of previously selected literature, 39 articles and 12 conference materials were chosen from this list. Sources that were chosen had in them a designation of the parameters of the quality of distance education. The result of this analysis presents (Table 7, first column). It contains quality parameters indicated in the literature grouped by topics, as well as the authors who indicated this parameter.

Later, in March 2024 the narrative literature review was made to investigate if the mentioned parameters are mentioned in up-to-date literature. As a result, almost every parameter were mentioned again (Table 7, second column).

Statement about quality parameter	Where was mentioned (2020-2021)	Where was mentioned (2022-2024)
Technical aspects		
QC (quality control) methods should be used for distance educational software training before and while it`s implication to educational process.	(Bekesiene, Vasiliauskas, Hošková-Mayerová, & Vasilienė-Vasiliauskienė, 2021) (Torda, Velan, & Perkovic, 2020) (Alturkistani, et al., 2020) (Kwon, 2020) (Repeva, 2020)	(Artyukhov, Barvinok, Rehak, Matvieieva, & Lyeonov, 2023) (Morokhovets, Lysanets, Bieliaieva, Stetsenko, & Shlykova, 2022) (Stecuła & Wolniak, 2022) (Unruh, 2024) (Polinkevych, Khovrak, & Trynchuk, 2022) (Gaftandzhieva, Doneva, & Jagatheesaperumal, 2023)
Using computer telecommunications capable	(Kolyada, Shapovalova, Guz, & Melkonyan, 2021) (Bdair, 2021)	(Naumenko & Holovko, 2022) (Artyukhov, Barvinok, Rehak,

to transmit any necessary information to any distance and in a necessary volume.	(Correia, Liu, & Xu, 2020) (Okrepilov, Getmanova, & Khmeid, 2020) (Kapustina, Izakova, & Makovkina, 2020) (Irizarry, 2020) (Vollbrecht, Porter-Stransky, & Lackey-Cornelison, 2020)	Matvieieva, & Lyeonov, 2023) (Flicinska-Turkiewicz, Beczkowska, & Skrobacki, 2022) (Sarilita, Rafisa, Desai, & Mossey, 2024) (Bashir & Warraich, 2023)
The level of protection of personal data of participants in the distance learning process.	(Murillo & Jones, 2020) (Pastor, et al., 2020)	(Bashir & Warraich, 2023)
Level of technical support for teachers should be high.	(Alqurshi, 2020) (Vezne, 2020) (Okrepilov, Getmanova, & Khmeid, 2020)	(Naumenko & Holovko, 2022) (Polinkevych, Khovrak, & Trynchuk, 2022)
Methodological aspects		
Distance learning integration should have positive influence of learning environment (especially important in forming student-lecturer relationship).	(Malau-Aduli, Alele, Heggarty, Reeve, & Teague, 2021) (Bdair, 2021) (Alpert, Young, Lala, & McGuinness, 2021) (Reznikova, Kudinova, Patuykova, Olomskaya, & Dyshekova, 2020) (Kramarov, Khramov, Grebenyuk, & Belyaev, 2020) (Dzhangarov, Hanmurzaev, & Potapova, 2020) (Vollbrecht, Porter-Stransky, & Lackey-Cornelison, 2020)	(Artyukhov, Barvinok, Rehak, Matvieieva, & Lyeonov, 2023) (Flicinska-Turkiewicz, Beczkowska, & Skrobacki, 2022) (Stecuła & Wolniak, 2022)
High quality of learning materials, that has to be created according to distance learning properties (co create optimal cognitive load).	(Bekesiene, Vasiliauskas, Hošková-Mayerová, & Vasilienė-Vasiliauskienė, 2021) (Aleynikova, 2021) (Bokayev, Torebekova, Davletbayeva, & Zhakypova, 2021) (Vazquez A. G., et al., 2020) (Panczyk & Gotlib, 2020) (Murillo & Jones, 2020) (Zitzmann, Matthisson, Ohla, & Joda, 2020) (Longhurst, et al., 2020) (Hodam, Rienow, & Jürgens, 2020) (Patwardharr & Rao, 2020) (Kwon, 2020) (Tikhomirova & Dolgova, 2020) (Kapustina, Izakova, & Makovkina, 2020) (Koutselini, 2020) (Silva, et al., 2020)	(Artyukhov, Barvinok, Rehak, Matvieieva, & Lyeonov, 2023) (Flicinska-Turkiewicz, Beczkowska, & Skrobacki, 2022) (Hung, et al., 2024) (Unruh, 2024) (Shah, et al., 2024)
Availability of the possibility of conducting both theoretical and practical classes at the proper level.	(Mercier, Scholten, Baltensperger, Gremaud, & Dabros, 2021) (Suligar, 2021) (Vazquez A. , et al., 2020) (Deery, 2020) (Yerden & Akkus, 2020) (Hasko, Shakhovska, Vovk, & Holoshchuk, 2020) (Parulla, Galdino, Dal Pai, Azzolin, & Cogo, 2020) (Seck, Diatta, Ouya, Mendy, & Degboe, 2020)	(Stecuła & Wolniak, 2022)
Pre-sorting of students into groups according to their level of knowledge.	(Kolyada, Shapovalova, Guz, & Melkonyan, 2021) (Russkikh, Kapulin, & Moor, 2020)	
The level of preparedness of teachers for distance courses should be high.	(Kolyada, Shapovalova, Guz, & Melkonyan, 2021) (Bokayev, Torebekova, Davletbayeva, & Zhakypova, 2021) (Farooq, Rathore, & Mansoor, 2020) (Hodam, Rienow, & Jürgens, 2020) (Norman, Robinson-Bryant, & Lin,	(Naumenko & Holovko, 2022) (Flicinska-Turkiewicz, Beczkowska, & Skrobacki, 2022) (Unruh, 2024) (Shah, et al., 2024)

	2020) (Kapustina, Izakova, & Makovkina, 2020)	
Control the exams to make adequate assessment of students' knowledge.	(Bdair, 2021) (Malhotra, Gautam, George, Goyal, & Ansari, 2020) (Tikhomirova & Dolgova, 2020) (Artemkina, Shcherbakov, & Artemkina, 2020)	(Naumenko & Holovko, 2022) (Morokhovets, Lysanets, Bieliaieva, Stetsenko, & Shlykova, 2022) (Unruh, 2024) (Shah, et al., 2024)
Adaptability of materials and methods for assessing knowledge and skills to modern realities.	(Vezne, 2020) (Charikov & Yu Fokin, 2020)	(Naumenko & Holovko, 2022) (Morokhovets, Lysanets, Bieliaieva, Stetsenko, & Shlykova, 2022) (Stecuła & Wolniak, 2022) (Sarilita, Rafisa, Desai, & Mossey, 2024)
Organizational aspect		
Level of student support in educational processes (like tutorials or open hours to help with material understanding) should be high.	(Suligar, 2021) (Garg, et al., 2020)	(Naumenko & Holovko, 2022) (Artyukhov, Barvinok, Rehak, Matvieieva, & Lyeonov, 2023) (Unruh, 2024)
The quality of feedback (from both teachers and technicians).	(Kolyada, Shapovalova, Guz, & Melkonyan, 2021) (Murillo & Jones, 2020) (Okrepilov, Getmanova, & Khmeid, 2020)	(Unruh, 2024) (Polinkevych, Khovrak, & Trynchuk, 2022)
Minimizing the negative impact on the ecology of the environment under the influence of distance learning.	(Hosman, Zermeño, & de la Garza, 2020)	
Other		
It is necessary to use an effective motivational system for students and teachers when they are working remotely.	(Tuma, Nassar, Kamel, Knowlton, & Jawad, 2021) (Kramarov, Khramov, Grebenyuk, & Belyaev, 2020) (Isaeva, Malishevskaya, Cherkasova, & Kolesnichenko, 2020) (Borisova, 2020) (Kapustina, Izakova, & Makovkina, 2020)	(Naumenko & Holovko, 2022) (Morokhovets, Lysanets, Bieliaieva, Stetsenko, & Shlykova, 2022) (Shah, et al., 2024) (Elbyaly & Elfeky, 2023)

Table 7. Quality parameters mentioned in up-to-date literature in years 2020-2024.

4 Research methodology

4.1 Settings of the study

4.1.1 Krakow University of Economics

Krakow University of Economics (KUE) is among Poland's leading institutions for economics and business studies. It features three faculties: Economics, Finance, and Law; Management and Quality Sciences; and Public Economy and Administration. These colleges supervised 31 major programs and 92 specializations, all designed to align with current economic and labor market needs. KUE offers various levels of education, including bachelor's, master's, Ph.D., and post-diploma programs, available in both full-time and part-time formats. The university employs around 740 academic staff members, serving a student body of around 13,500. KUE graduates are known for their strong alignment with employer expectations.

International cooperation is a key focus at KUE, with partnerships involving over 200 universities globally. This collaboration includes joint research projects, student and faculty exchanges, and international internships. KUE is a member of several major international organizations, such as the European University Association and the Network of International Business and Economic Schools. The university excels in managing international projects, especially those funded by the EU. KUE's quality assurance policy, established by a 2015 Senate resolution, ensures high standards of education through regular monitoring, faculty development, and infrastructure enhancements. This policy covers evaluating educational quality, class supervision, updating educational offerings, and involving students and other stakeholders in quality management. In recognition of its commitment to research excellence, KUE was awarded the HR Excellence in Research Award by the European Commission on October 5, 2020.

4.1.2 Zhytomyr Polytechnic State University

Zhytomyr Polytechnic State University (ZP) is a leading technical university in Ukraine, with a strong focus on engineering, technology, and applied sciences. It offers a comprehensive range of programs tailored to meet the demands of the modern workforce and industry. ZP's academic structure includes six faculties: Faculty of Mining and Ecology; Faculty of Information and Computer Technologies; Faculty of Mechanical Engineering; Faculty of Economics and Management; Faculty of Public Administration and Law; Faculty

of Civil Engineering and Architecture. These faculties collectively offer 24 bachelor's programs, 19 master's programs, and nine Ph.D. programs. ZP serves approximately 6,000 students, with a significant portion enrolled in full-time studies. The university's faculty includes over 400 academic staff members.

ZP also places a strong emphasis on international cooperation, maintaining partnerships with over 50 institutions globally. This international engagement facilitates numerous opportunities for student and faculty exchanges, joint research projects, and participation in global conferences. Notable collaborations include projects funded by the EU's Horizon 2020 program and Erasmus+ initiatives.

The university is committed to modernizing its educational infrastructure, providing state-of-the-art laboratories, and incorporating advanced teaching methods, including distance learning technologies. ZP's quality assurance system includes regular curriculum updates, feedback from industry stakeholders, and comprehensive evaluations to ensure the highest standards of education. ZP is actively involved in the regional and national innovation ecosystem, contributing to economic development through research and development projects, technological advancements, and industry partnerships. The university's strong focus on practical training and industry collaboration ensures that its graduates are well-equipped to meet the demands of the job market.

4.2 Research methods

The study aims at answering the following research questions:

RQ1: What are the state-of-the-art approaches to ensuring the quality of educational services and the quality of distance learning?

RQ2: Who are the main stakeholders of university educational services in Poland and Ukraine and what are their profiles/characteristics?

RQ3: How to capture the quality of distance learning from the point of view of various stakeholders (e.g. students, academic staff, university administration, accreditation bodies, employers) and take into account the cultural dimension of learning (Polish and Ukrainian perspectives)?

To answer the research questions, a study that involves triangulation of research methods, data sources, and data analysis methods was conducted (Creswell & Creswell, 2018). The preliminary research methodology for this study was presented at The Americas Conference on Information Systems (Didkivska & Paliwoda-Pękosz, 2021). This research

was based on the interpretive research paradigm, which assumed that "access to reality (given or socially constructed) is only through social constructs such as language, consciousness, shared meanings and instruments" (Myers, 2020, p. 45). To understand the cultural context of the phenomenon of distance learning, it focused on "meaning in context". It involved a case study with the use of some ethnographic techniques. This study was conducted at Krakow University of Economics (KUE) and Zhytomyr Polytechnic State University (ZP) following the convenience (for choosing universities), purposive and snowball (for choosing respondents) sampling approaches (Lopez & Whitehead, 2013). The "empirical evidence from real people in real organizations to make an original contribution to knowledge" was used (Myers, 2020, p. 90), and then the data were analyzed through an abductive method (Lipscomb, 2012). The data analysis approach was based on hermeneutics for interpretation, as this method focuses on understanding the meaning of the text and "it requires a researcher to look at an organization through the eyes of the various stakeholders and from many different perspectives" (Myers, 2020, p.241). It involved some elements of grounded theory approach and thematic analysis (data coding, for example) (Yin, 2018; Parker-Jenkins, 2018; Fairhurst & Good, 1991; Bartlett & Vavrus, 2017; Braun & Clarke, 2023; Corbin & Strauss, 1990). Elements of the comparative case study approach were used, for example an analytical framework, proposed by Bartlett and Vavrus (2017), that has already proved useful in the context of ethnographic studies (Gericke, 2020). Table 8 presents the research questions and the related research methods.

Research question	**Research methods**	**Data collection techniques**	**Data analysis techniques**
RQ1, RQ2	Narrative literature review (Rother, 2007), systematic literature review (Briner i Denyer, 2012; Moher, Liberati, Tetzlaff i Altman, 2009)	• Narrative literature review includes a critical analysis of the literature published on the topic. • Systematic literature review includes, among others, the following steps: identification of key words, inclusion criteria definition, searching databases (Scopus, Google Scholar).	• Descriptive and exploratory analysis which allows us to retrieve the current state of knowledge on the quality of distance learning.
RQ2, RQ3	Case studies conducted at KUE and ZP (Yin, 2018; Corbin & Strauss, 1990; Myers, 2020)	• Desk research • Semi-structured interviews with stakeholders of distance learning at KUE and ZP. • In-depth interviews with experts from e-learning departments at KUE and ZP.	• Document analysis – documents concerning education regulation in Poland and Ukraine, guidelines of the accreditation organizations on university and national strategies for the development of remote education and procedures for evaluating the quality of

			teaching, documents concerning distance learning university education at KUE and ZP. • Thematic analysis – identification and examination of themes within data.

Table 8. Research methodology.

4.3 Research procedure

The methodologies of a narrative and systematic literature review were used in chapters 1-3 to obtain information about state-of-the-art approaches to the educational services and their quality in the context of distance learning, for answering RQ1. These methods also contributed to answering RQ2, as they helped to identify approaches to the classification of university education stakeholders mentioned in literature.

To provide insights from KUE and ZP based on official regulations, desk research was conducted to analyze existing regulations, historical responses, and adaptations during crises. This involved reviewing government mandates, university policy (also presented in news website), and academic literature, highlighting how these institutions transitioned to online and hybrid learning models amid crisis events. Additionally, a comparative analysis of official documents and reports from both universities provided insights into their approaches to ensuring educational continuity and quality under challenging circumstances.

The next step was to conduct semi-structured interviews with the main stakeholders that were identified in chapter 1.3, i.e. Students, Academic Staff, E-Learning Department staff, IT Department staff, and Employers. The respondents were chosen from their stakeholder groups using the following sampling techniques: purposive sampling, snowball sampling. Respondents were chosen based on their roles and involvement in the distance learning educational process at two different universities. The study engaged specific groups where individuals were expected to have specialized knowledge about distance learning, such as the e-learning and IT departments. This is indicative of purposive sampling where participants are selected for their unique perspectives or expertise. Employers were chosen based on their direct experience with hiring graduates from the involved universities, thus providing a practical perspective on the outcomes of distance learning. The method of extending invitations by academic staff (for students) and by other participants, such as students who agreed to take part, suggests a form of snowball sampling where initial participants help researchers identify additional potential respondents. Academic Staff

respondents represented different university departments and backgrounds, including the Computer Science Department, Management Department, and Languages.

For data gathering, semi-structured interviews were used as a research tool, leveraging mainly Microsoft Teams for KUE and Zoom and Google Meet for ZP. The platform selection reflected its role in each university's distance learning practices. Interviews with Polish employers and IT-department members were conducted in-person. In the subsequent phases of the research, the distance education quality parameters (outlined in tables), with results of interviews, were incorporated into the distance education quality assessment model at both KUE and ZP. All interviews (Table 9) were conducted with the participant's consent, subsequently transcribed and anonymized to uphold data confidentiality and integrity, aligning with the highest standards of research ethics.

Respondent	**KUE**	**ZP**	**KUE+ZP**
Students	24	27	51
Academic Staff	10	10	20
E-Learning department staff	1	1	2
IT-department staff	4	1	5
Employers	10	3	13

Table 9. Respondent structure.

Questions for these interviews were designed to fit the influence and knowledge of each respondent, which depended on their role in the educational process (see Annex). For example, questions about stakeholders' groups identification were not chosen for groups of tertiary stakeholders (IT-Department and Employers) as they are not directly affected by decision-making but interested in the results of the work (Table 1).

Research started with one of the main stakeholders directly involved in the distance learning educational process - academic staff. Invitations for participation were sent out to academic staff members at both universities until at least 10 from each country agreed to participate. This targeted invitation process ensured the inclusion of a diverse range of perspectives from instructors with varying levels of experience and disciplines, enriching the study's understanding of distance learning from an education provider's viewpoint. The rationale behind aiming for a minimum of 10 participants from each university was to achieve a balance in representation between the two countries, thus enabling a comparative analysis of the academic staff's experiences and perceptions. The data collection process for the academic staff described in research facilitated a streamlined approach to conducting, recording, transcribing, and anonymizing the interviews, maintaining high ethical standards

throughout the research process. Semi-structured interviews were structured around several key questions designed to probe academic staff's insights into various aspects of distance learning (Annex, p.1). Interviews with KUE academic staff were conducted in autumn 2021 – spring 2022. Conducting the interviews with academic staff from ZP was initially planned for summer-autumn 2022 but was eventually carried out in summer-autumn 2023 due to unforeseen circumstances. This delay, while challenging, provided an opportunity to capture reflections on distance learning that may have evolved over time, particularly in response to the ongoing conflict affecting Ukraine. The flexibility in scheduling and method selection ensured that the research could adapt to these circumstances, thus maintaining the integrity and relevance of the findings.

Other stakeholders directly involved in this kind of learning are Students. Academic Staff at both universities extended the invitations, and Students who agreed to take part in this research were invited for an interview. Students were also asked to share invitations with their colleagues from other study groups. This method effectively engaged Students with prior distance learning experience and helped us gain a diverse group of participants that were interested in sharing their insights, enriching the study's depth of understanding.

Data collection timings for interviews with Students varied significantly: autumn 2021 for KUE and late autumn to winter 2023 for ZP (originally planned in spring 2022). This difference meant that Polish participants' reflections were mainly influenced by the pandemic's impact on education, while Ukrainian Students' experiences were additionally shaped by the war, offering a layered perspective on distance learning. Questions directed to Students are presented in Annex, p.2.

Another significant stakeholder in university distance learning, that has great influence on shaping its quality is the E-learning Department. Typically, this department is not staffed by many individuals; however, due to their extensive experience, these personnel are often considered the most knowledgeable in the entire university regarding distance learning, having been familiar with it well before the pandemic made such learning modalities obligatory. To obtain expert opinions, semi-structured interviews (questions for which are in Annex, p.3) were conducted with one representative from the Krakow University of Economics e-learning department (interview conducted in August 2022) and another from Zhytomyr Polytechnic State University (interview conducted in August 2023). The significant difference in the timing of the interview compared to the planned one (a year difference instead of a semester) is due to the continuation of hostilities on the territory of

Ukraine, which led to the repeated postponement of the date of the interview on the Ukrainian side.

Individuals responsible for the methodology, assistance, and communication with Students and teachers concerning distance learning at each university were selected for their relevance in addressing questions about the level of familiarity with this type of education among university participants. The interviews were in-depth and differed from interviews with other stakeholders: they involved fewer participants, yet those interviewed were experts in the field under investigation. Consequently, the interviews took the form of expert opinion interviews, each with a duration approximately 45 minutes (exceeding the average duration for interviews conducted within this research, which was about 15-25 minutes).

In addition to the E-learning Department, the Information Technology (IT) Department represents a pivotal stakeholder in the university distance learning ecosystem, playing a crucial role in facilitating and maintaining the technical infrastructure necessary for effective online education. The research engaged with members of the IT Departments from both KUE and ZP to gain a comprehensive understanding of the technical challenges and advancements in DL. The selection process for IT Department interviewees was based on their direct involvement with distance learning support and implementation. At KUE, four individuals connected with DL implications and support were interviewed, reflecting the broader team's involvement in facilitating DL. In contrast, at ZP, only one interview was conducted with the individual primarily responsible for DL support, highlighting the smaller scale of the IT department at ZP. This approach ensured that insights were gathered from those most intimately involved with the technical aspects of DL at both institutions.

Semi-structured interviews were tailored to explore specific aspects of the IT Department's experience with DL (Annex, p.4). The interviews differed in format and duration to accommodate the participants' contexts and roles. At KUE, interviews were conducted in person, with each session lasting about 15 minutes, whereas at ZP, the interview was conducted remotely via Google Meet and lasted 30 minutes. This variance underscores the flexibility and adaptability of the research approach to different institutional contexts and the challenges posed by external factors, including the delay in conducting the ZP interview from spring 2022 to autumn 2023 due to ongoing hostilities in the region.

The engagement with employers as stakeholders in this study offers a critical external perspective on the efficacy and outcomes of DL from the viewpoint of the labor market. This segment of the research aimed to gather insights from employers who have direct experience

hiring graduates from KUE and ZP, focusing particularly on those who completed their studies through distance learning. For KUE, employer participants were selected randomly from various company stands at a job fair hosted by the university in spring 2022 (where representatives from various companies actively hiring KUE Students and graduates were present), encompassing a broad range of industries. This method ensured a diverse perspective on the readiness and capabilities of graduates who experienced distance learning. In contrast, the approach for ZP involved targeted remote interviews in autumn 2023 with representatives from two IT companies and one general business, chosen due to their historical presence at job fairs and their relevance to the graduates' fields of study. The cancellation of ZP's job fair, where originally interviews were planned to be conducted similarly to KUE, and the subsequent adaptation to remote interviews exemplifies the study's flexibility in overcoming methodological challenges. While this adjustment resulted in fewer employer interviews for ZP, the depth and focus of these discussions offered valuable insights into the perceived value and implications of DL in a conflict-affected region.

Employers were asked to reflect on their experiences with graduates from specific graduation years (those who had experience with DL) and courses, the characteristics of these graduates in comparison to their peers from previous years, the viability of remote learning as a form of employee training, and their visions for the future utilization of DL (Annex, p.5). While the interviews at the KUE job fair were live and brief (about 10 minutes), with some responses recorded and others noted manually (in cases of recording not being allowed), the interviews with ZP's employers were conducted remotely via Zoom, allowing for more in-depth discussions (approximately 30 minutes each).

As the main data analysis technique, thematic analysis was chosen with its six main phases (familiarization with the data, generating initial codes, generating themes, reviewing potential themes, defining and naming themes, producing the report) (Braun i Clarke, 2023). The thematic analysis of interview data involved detailed coding and categorization to unearth recurring patterns and themes for each question mentioned in Annex. The open coding procedure as part of thematic analysis was utilized. Respondents' statements were analyzed to identify the similarities and differences, and then statements were labeled, leading to the creation of categories and subcategories. During axial coding the categories and subcategories identified through open coding were reviewed, verified and merged where it was possible (Corbin i Strauss, 1990).

The thematic analysis focusing on the future creation of the Framework for Quality of Distance Education, utilized a structured approach to interpret and categorize the data gathered from various stakeholders, including Students, teachers, and the IT and e-learning departments. This analysis was enriched by the practical use of comparative axes where necessary, providing a nuanced understanding of distance learning's quality across different dimensions. The thematic analysis had several iterations of self-verification to systematically identify, analyze, and report patterns (themes) within the data. The results of the thematic analysis were meticulously organized into tables and pivot tables. These tables present a quantitative summary of the themes identified from the stakeholder interviews. They show the percentage of the mentions of each topic out of all identified topics for each respondent group (see Chapter 5). This quantitative approach facilitated a clear comparison of perceptions and experiences related to distance learning quality attributes across the two institutions, while the results for other stakeholders were organized qualitatively in tables give an opportunity to reach deeper into the insights and comments of respondents.

The research encountered complications, notably the need to adjust timelines for Ukrainian data collection due to the war. This required a flexible approach to method selection, including, for example, platform choice, ensuring participant accessibility and comfort. In addition, part of the interviews with the Ukrainian side was conducted without camera due to bad Internet connection, and some interviews were cancelled due to air raid alerts, as respondents had to stay in the shelter (and only part of them were supplied with an Internet connection).

5 Results and analysis

5.1 Document analysis

5.1.1 Distance education from the perspective of Ukrainian regulation

Speaking about distance learning in Ukraine, it is worth mentioning the legislative documents that regulate this process. The first such document appeared in 2003 and was called the resolution "On the approval of the Distance Learning System Development Program for 2004-2006." This resolution concerned the creation of the basic rules, regulations, and control bodies. Thus, according to the resolution, it was necessary to develop and approve documents with recommendations for the organization of distance education. This task was assigned to the Ministry of Education and Science of Ukraine and other central bodies of executive power that have educational institutions under their authority. It also concerned the approval of a bank of certified distance courses for the distance learning system, as well as provisions on expertise in the distance learning system, draft standards for distance learning technologies, and proposals for the protection of intellectual property in the distance learning system (Prime Minister of Ukraine, 2003).

The next official document of a similar nature, which focused its provisions only on distance education, was adopted during the pandemic, but references to distance education were also found in other previous bills. One of them was the law "On the Basic Principles of the Development of the Information Society in Ukraine for the years 2007-2015", which related to the digitalization of various structures. In this document it was mentioned that, as part of training a person to work in the information society, the Ministry of Education has to monitor the creation of a distance learning system and ensure, on its basis, the effective implementation and use of ICT at all educational levels for all forms of education (President of Ukraine, 2007).

Another document that mentions distance education is "On the National Strategy for the Development of Education in Ukraine for the period until 2021", in which the distance form of education was considered as the optimal method of providing inclusive education (President of Ukraine, 2013). Thus, the document set the following tasks:

- regulation of the diversification of education organization models, in particular for children living in rural areas, through the creation of educational districts,

regional distance learning centers, branches of basic schools, and family-type preschool educational institutions;

- creation of a distance learning system, including for persons with special educational needs and children undergoing long-term treatment;
- organization of general secondary and out-of-school education by distance learning.

With the beginning of the COVID-19, the first document that gave recommendations on the organization of distance learning in all educational institutions on the territory of Ukraine was the Letter of the Ministry of Education dated March 25, 2020, entitled "Regarding the peculiarities of the organization of the educational process during the quarantine" (Ministry of Education and Science of Ukraine, 2020). It included the schedule of classes in the distance learning regime for the quarantine period. New restrictions significantly influenced learning process in both countries (Dymek, Grabowski, Paliwoda-Pękosz, Didkivska, & Vakaliuk, 2022). However, for Ukraine this experience gave an opportunity to resume education in distance form quickly after the Russian aggression on (Naumenko & Holovko, 2022).

The first mentions of the use of distance learning at ZP date back to 2014, when the educational portal began to be used, but at that time distance learning was more of an element supplementing the usual format than a full-fledged alternative (Zhytomyr Polytechnic State University, n.d.).

5.1.2 Distance education from the perspective of Polish regulation

Speaking about the legal regulation of distance education in Poland, it is worth starting with the first regulations of the European Union (EU). Even before Poland joined the EU in Europe there were some documents that regulated the place of distance learning in European future. In 1992 the "Maastricht Treaty" was published, which indicated the promotion of distance learning development as one of the goals of the community (Publications Office of the European Union, 1992).

Later, in 2004, the document "The New Generations of Community Education and Training Programmers after 2006" was adopted in Brussels, which indicates that the community created by the citizens of the EU should be based on a knowledge economy, using education as the main tool. Distance learning systems were recognized as a natural

platform for cooperation between different universities (Commission of the European Communities, 2004).

If we speak directly about the start of the Polish strategy for distance learning, it is worth noting the document "ePolska Action plan for the development of the information society in Poland for the years 2001-2006" issued by the Ministry of Communications. This document presents steps for the development of an information society that encompasses providing public schools with a computer infrastructure with Internet access, training teaching staff, preparing a database of didactic multimedia materials, developing a lifelong learning system through the use of information society technologies, and developing education in the field of information and communication technologies (Ministerstwo Łączności, 2001).

Later, in 2005, in the document "Act of 27 July 2005 Law on Higher Education" (which was supplemented in 2007), the ministry approved the provisions according to which the conditions for conducting classes in distance form were determined, as well as the appropriate proportion of the time of those classes in relation to the total volume of classes during education. For example, it was established that the number of hours of didactic classes in full-time and part-time forms of education, conducted using methods and techniques of distance learning, cannot exceed 60% of the total number of hours of didactic classes determined by the curricula for individual areas of training and levels of education (Ministerstwo Nauki i Szkolnictwa Wyższego, 2005; Ministerstwo Nauki i Szkolnictwa Wyższego, 2007).

At KUE, the history of distance learning begins with the establishment of the E-Learning Centre in 2006 as part of a University strategy for the creation and real-time control of distance learning forms and methods (Rektor Akademii Ekonomicznej w Krakowie, 2006). In 2009, the strategy of KUE regarding the development of distance education was adopted in the form of a resolution of the Senate (Table 10). The document "Strategy of the Krakow University of Economics in the field of distance learning development" specified that the overriding strategic goal of KUE in the field of e-learning was to create conditions enabling the modernization of the didactic process through the use of acceptable distance learning methods and techniques carried out in the form of e-learning (Senat UEK, 2009).

Types of e-classes that can be conducted at the university	Type description	Percentage of the total number of hours provided for a given subject	Forms of implementation
E-classes supporting the traditional didactic process	providing materials and teaching aids that facilitate the perception of issues discussed during traditional classes	20%	• **E-lecture** - an online course that supports, complements or replaces a traditional lecture (transmission (presentation) of the basic content of the subject via the Internet). • **E-exercises** - an online course that supports, complements or replaces traditional auditorium or project exercises; are aimed at gaining efficiency in mental activities and consolidating and applying theoretical knowledge. • **E-lectorate (e-language classes)** - allows to repeat, update or check the level of language skills obtained by the student. • **E-seminar** - a supporting form, the purpose of which is to deepen knowledge in a selected field of science and to master the research workshop by developing a selected scientific issue under the supervision of the seminar leader.
E-classes supplementing the traditional didactic process	introducing added value to the didactic process in the form of activities that have not been part of classes conducted in a traditional way	40%	
Complementary e-classes	implementation of the assumed didactic goals of the subject simultaneously in a traditional and remote form (thus replacing part of the process traditionally carried out by remote work of students and academic teachers).	60%	
Fully remote e-classes	complete replacement of traditional classes with didactic activities carried out only via the Internet	100%	

Table 10. Types of e-classes that can be conducted at KUE.

Source: (Senat UEK, 2009)

In 2012, the Moodle e-Platform was launched to support the learning process by using distance learning methods and techniques (Rektor Uniwersytetu Ekonomicznego w Krakowie, 2012). Also in 2012, the Regulations of the e-Platform of KUE were introduced.

This document defines the general provisions, resources of the e-Platform, general rights and obligations of users and the basics of the protection of intellectual property resulting from the publication of materials on the platform (Rektor Uniwersytetu Ekonomicznego w Krakowie, 2012). All this experience and regulations helped to handle DL during pandemic with better outcomes (Dymek, Didkivska, Grabowski, Paliwoda-Pękosz, & Vakaliuk, 2023).

5.1.3 Crisis regulations in Ukraine and Poland based on KUE and ZP examples

The government COVID-19 pandemic regulation came into force both in Poland and Ukraine in the middle of March 2020. Then some other regulations were introduced, however to some extent Polish universities had an autonomy to decide what local measure they undertake. In Poland, all schools and universities were closed on the 12th of March (at KUE the document that regulated this was published on 11.03.2020 - https://KUE.krakow.pl/informacje-prawne/akty-prawne/zarzadzenia-rektora/od-2020-roku - "w sprawie zapobiegania rozprzestrzeniania się wirusa COVID19 wśród społeczności KUE"), initially until the 25th of March, but then the closing was extended until the 10th of April, 2020. All classes were held remotely. From the 24th of September, the workshops for first year students were conducted on premise. Students and teachers were subject to a sanitary regime. The rest of lectures and workshops were done online. All classes went online after the announcement of the government regulation that on the 9th November closed all educational institutions, the rule being in-force practically at KUE until the 22nd of September 2021. From the 23rd of September 2021, a hybrid style of teaching was introduced: workshops and specialization lectures for full-time students were carried out on the premises. All lectures for part-time students were conducted online; workshops on premises. This ended on the 17th of December, when all classes and exams went online until the end of February 2022, with just a few days exemption at the beginning of January 2022.

In Ukraine, a similar course of action took place. At ZP on the 12th of March all classes went online and soon intensive courses for lectures were organized entitled "Cloud technologies for distance learning during quarantine". From 16th of June to 30th of June 2020 the loosening of quarantine measures allowed for face-to-face graduation ceremonies. From the 1st of September students of 2-4 year of study started learning in the traditional form; first year students resumed this form of study on the 21st of September. Study on premises ended on the 25th of October and returned only on the 8th of February 2021. On the 3rd of March distance learning was switched on again in connection with the establishment of the "red" level of epidemic danger of the spread of COVID-19 in the Zhytomyr region. The start of a new academic year in September 2021 was conducted in the

traditional form but on the 25th of October distance learning came back into force until the end of February, with about two months of face-to-face learning in December and January 2022 (as there was no opportunity to get access to "internal documents" of the university, all information about dates was taken form the official ZP news web-site at https://news.ztu.edu.ua/).

Summing up, in Ukraine and Poland similar regulations came into force, in a similar time spam. However, in Poland sometimes hybrid learning was introduced (from 2021: online lectures, classroom exercises). It should be noted that the closure of schools and universities both in Poland and Ukraine has gone hand in hand with restrictions on social gatherings and activities of cultural institutions, i.e. philharmonics, operas, theatres, museums, cinemas.

Following the full-scale invasion of Ukraine by Russia in February 2022, the country's higher education system faced significant challenges. The first reaction of many universities, including ZP, was a forced vacation extension (Житомирська політехніка, 2022). The war necessitated the adoption of new laws and regulations aimed at ensuring the continuity of the educational process, supporting students and faculty, and maintaining the quality of education. The Ministry of Education and Science of Ukraine issued Order No. 274 on March 28, 2022, regulating the organization of the educational process under martial law. This order provides guidelines for enrolling school students who had to change their place of study. This helped with establishing remote learning options and ensuring the payment of wages to educators and other educational staff regardless of their current location (that also influenced their enrolment at the university) (Міністерство Освіти і Науки України, 2022).

One of the key laws adopted in 2023 was Law No. 3062-IX, which introduced amendments to various laws to ensure the quality of higher education. This law focused on improving the licensing and accreditation procedures for higher education institutions, which became crucial as many universities had to switch to remote learning or temporarily cease operations due to active hostilities in their regions (Прес-служба Апарату Верховної Ради України, 2023). Additionally, Law No. 2940-IX, enacted on February 23, 2023, outlines the provision of state-targeted support to specific categories of individuals in the fields of vocational (technical), pre-tertiary, and higher education. This law ensures that students who were forced to relocate due to the war can continue their education at other institutions without losing their academic status or access to scholarships and other forms of state assistance (Комітет Верховної Ради України, 2023).

The war compelled educational institutions to quickly adapt to new realities. Many universities implemented remote learning to ensure the safety of students and faculty. ZP, for example, ensured that students could continue their studies regardless of their location by actively using online platforms and resources for organizing classes. The academic calendar was adapted to the new conditions. By the university order of September 4, 2023, a schedule was approved that includes theoretical learning, examination sessions, holidays, and practice periods. This approach ensures flexibility and safety in education for all students' exams (Житомирська політехніка, 2022; Житомирська політехніка, 2023). Dormitories at several universities were repurposed to house internally displaced persons (IDPs), necessitating adjustments in logistical and organizational approaches to campus management (Cedos, 2022), however due to the small size of dormitories at ZP, it offered other kinds of help, for example by forming a base of volunteers from a number of education recipients (Житомирська політехніка, 2022). The government's education recovery plan includes significant investments in modernizing educational infrastructure, creating an accessible digital learning environment, and maintaining high-quality education for all students, especially those affected by the war. Special emphasis is placed on developing remote learning capabilities and providing psychological support to participants in the educational process, which is crucial under the constant stress and uncertainty of wartime conditions (Cedos, 2022). ZP has, as part of this process, implemented several measures to support its students and faculty: opportunities for psychological support, online consultations, international meetings (for example Europe Day: online meeting "Friendly support of European countries and new opportunities for students of Ukraine during the war"), and assistance for internally displaced persons (Житомирська політехніка, 2023; Житомирська політехніка, 2022).

5.2 Academic Staff

5.2.1 Academic Staff's general opinion on distance learning

Table 11 presents the assessment of distance learning by Polish and Ukrainian Academic Staff that is based on 62 identified topics (35 from KUE and 27 from ZP).

Category/subcategory (Academic Staff opinion)	KUE	ZP	KUE+ZP
Opinions on the Positive Aspects	**51,4%**	**74,1%**	**61,3%**
Personal Adaptation to Changes	8,6%	29,6%	17,7%
Flexibility	14,3%		8,1%
Adequate Quality	5,7%	7,4%	6,5%
Efficiency in Certain Subjects	8,6%	3,7%	6,5%
University Adaptation to Changes	5,7%	3,7%	4,8%

Use of Technology		11,1%	4,8%
Institutional Support	2,9%	7,4%	4,8%
Professional Development	2,9%	3,7%	3,2%
Learning Experience	2,9%	3,7%	3,2%
Perspective for Future Education		3,7%	1,6%
Opinions on the Negative Aspects	**48,6%**	**25,9%**	**38,7%**
Limited Interaction	17,1%		9,7%
Lower Quality of Teaching/learning	8,6%	11,1%	9,7%
Efficiency in Certain Subjects	11,4%		6,5%
Personal Adaptation to Changes	2,9%	7,4%	4,8%
University Adaptation to Changes	2,9%	3,7%	3,2%
Maturity of Students and Teachers	5,7%		3,2%
Technical Support		3,7%	1,6%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 11. Academic Staff's general opinion on distance learning.

Prominent among the positive feedback from Polish Academic Staff was an appreciation for the inherent flexibility that distance learning facilitated. An educator noted, "For many reasons, including those arising from other obligations, many people sometimes have problems with participating in some of these (in-person) meetings, but the remote form greatly facilitates participation in such meetings"; PL.T.05. This sentiment was echoed by their Ukrainian counterparts, who also valued the flexibility distance learning provided, but always told about it in their context of Personal Adaptation to Changes and Use of Technology ("…Specifically, we gained the ability to make recordings, which significantly eased the process, making it more comfortable…"; UA.T.06), as it was more relevant during the challenging times of conflict.

The adaptation to technological advances and the integration of digital tools were central to the success of distance learning at both countries. Ukrainian staff highlighted the importance of selecting the right tools for communication, with one instructor reflecting, "Initially, it was quite chaotic, but over time, we reached a unified platform."; UA.T.05, underscoring the evolutionary nature of the process. Interestingly, while the challenges were tangible, so was the recognition of distance learning as an opportunity for growth and professional development. Faculty from Poland perceived this as a chance for enhancing their technical competences: "After the initial phase, in a short period, I think it worked well... from that side, it was good, I believe"; PL.T.04.

Despite the overall positive stance on the flexibility and technological adaptation of universities, Academic Staff also illuminated several challenges. A significant point of

contention for both Polish and Ukrainian educators was the quality of interaction between Student and teacher during classes, which suffered in the absence of face-to-face contact. "Interaction with Students is largely limited, and even when it comes to lectures, I think it's a bit worse than in the traditional form of teaching"; PL.T.03, a faculty member mentioned. Further complicating the landscape was the issue of efficiently delivering certain subjects. A Polish educator candidly stated, "If they are forced, then in certain subjects, such methods are not the most efficient"; PL.T.01. This concern was particularly acute in subjects that required hands-on experiences or direct interaction, which were difficult to replicate virtually. Other possible challenges described by Polish educators were that DL is not effective at all without special requirements, for example the Maturity of Students and Teachers: "…it requires a certain maturity on the part of both Students and instructors, as, on the one hand, the teacher must prepare materials and make them available in such a way that Students can read them and, on the other hand, Students must be able to use these materials appropriately."; PL.T.10.

In conclusion, ZP had a much more positive view overall, especially valuing personal adaptation to changes and the use of technology, while KUE highlighted flexibility. KUE was more critical, particularly about the limited interaction and maturity of DL participants, while ZP was more concerned than KUE about the lower quality of teaching and learning. Still both communities grappled with similar challenges at the beginning but also recognized the potential for improvement and innovation. The move to online platforms, while initially met with hurdles, seems to have ultimately contributed to a greater appreciation for the potential of distance education.

5.2.2 Academic Staff's outlook on good quality of distance learning

In exploring the perceptions of Academic Staff on the quality of distance learning, the study draws upon a rich array of themes (reflects a total of 82 topics, 44 at KUE and 38 at ZP) identified as critical by the Academic Staff, offering a nuanced portrait of the elements they consider essential for high-quality online education (Table 12).

Category/subcategory (Academic Staff opinion)	KUE	ZP	KUE+ZP
Student-Teacher Collaboration in Learning	**61,4%**	**47,4%**	**54,9%**
Interaction	18,2%	10,5%	14,6%
Student Engagement	18,2%	7,9%	13,4%
Didactic Methods	9,1%	13,2%	11,0%
Evaluation	4,5%	10,5%	7,3%
Teacher Engagement	4,5%	2,6%	3,7%

Student-Teacher coordination	2,3%	2,6%	2,4%
Group Work	2,3%		1,2%
Student Attitude	2,3%		1,2%
University Organization	**13,6%**	**13,2%**	**13,4%**
Combining with Face-to-Face	4,5%	5,3%	4,9%
Schedule Optimization	4,5%	2,6%	3,7%
Camera Obligation	2,3%	2,6%	2,4%
Group Size	2,3%	2,6%	2,4%
Technical Aspects	**9,1%**	**15,8%**	**12,2%**
Software Tools	9,1%	13,2%	11,0%
Equipment		2,6%	1,2%
Extra Possibilities	**4,5%**	**10,5%**	**7,3%**
Mental Impact	**6,8%**	**2,6%**	**4,9%**
Psychological State	4,5%	2,6%	3,7%
Lack of Group Identity	2,3%		1,2%
Maintaining Concentration	**4,5%**	**2,6%**	**3,7%**
Safety		**5,3%**	**2,4%**
System Safety		2,6%	1,2%
Health and Well-Being Safety		2,6%	1,2%
Human-centric Mindset		**2,6%**	**1,2%**

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 12. Academic Staff's outlook on the quality of distance learning.

At both KUE and ZP, Academic Staff highlighted the critical role of Student engagement and the teachers' proactive involvement in learning processes. For instance, instructors noted challenges with Student attitudes and engagement during remote sessions ("Attitude and engagement of the Students are necessary here and both of these aspects seem to be the biggest problem with remote classes…"; PL.T.01), emphasizing that these elements are vital for successful distance education. Adapting didactic methods and learning materials to be more interesting (for example more relevant to business needs) and introducing innovative teaching methods with reasonable evaluation was suggested as necessary (e.g. the flipped classroom, wherein Students prepare ahead of the class, thus enabling more interactive and discussion-based online sessions). This might also help with another important aspect on both sides - concentration maintenance.

The organization of distance learning by the universities also plays a significant role in its success according to academics. Topics such as the optimal combination of distance and face-to-face learning ("This is how I imagine an ideal scenario: there would be some in-person classes held in a classroom, for example, introductory classes to begin with, followed by a cycle of remote classes; after that, there would be some good summary meetings in-

person…"; PL.T.06), better scheduling, smaller group sizes for online classes and the logistical aspects of online education, including camera usage, were debated. Camera obligation appeared to be one of most controversial things in this discussion - while some teachers saw the benefit of mandatory camera use in ensuring Student participation, others argued against it, citing technological limitations and privacy concerns (in Ukraine, for example, teachers have worse Internet connection and if every Student had their camera on, it may influence the educational process in a negative way). It is also necessary for the extra possibilities provided by the remote type of learning to be fully used: from offering such classes to Students who already work or live far from the university ("Especially for non-stationary Students, the remote format makes it easier for many Students who combine their studies with professional work, and who often live outside of Krakow, sometimes very far away, to participate in classes… the remote format… facilitates participation in these classes."; PL.T.05) to the creation of a more productive learning atmosphere ("In the classroom, there can always be noise, while remotely, everyone can set up conditions comfortable for them."; UA.T.08). Teachers can also benefit from it: "For example, I prefer conducting lectures exclusively in the remote format; because we have large Student groups - up to two hundred people and when we gather in such large auditoriums, it can be quite noisy, and many Students may have difficulty hearing well - therefore, I believe that the quality of education improves in this format."; UA.T.08.

Teachers at both institutions identified several technical necessities that underpin effective distance learning. The adequacy of software tools, particularly for specialized laboratory classes that require intensive interaction and eventually smaller group settings, was a frequent topic. The discussion also covered the broader infrastructure needs, such as reliable Internet connectivity and appropriate digital platforms, which are foundational to conducting online classes.

Extra possibilities named by Academic Staff were different. Polish respondents focused on general impressions of them and how beneficial they could be for Students ("Especially for non-stationary Students…who combine their studies with professional work, and who often live … very far away, to participate in classes… it significantly facilitates participation in these classes."; PL.T.05). Academic Staff from ZP rather focused on the extra possibilities for themselves, for example the mute option that is part of DL environment functionality can help with the enchantment of the learning atmosphere ("I prefer conducting lectures exclusively in a remote format. Why? Because we have large Student groups - up to two hundred people. When we gather in such large auditoriums, it can be quite noisy, and many

Students may have difficulty hearing well. Therefore, I believe that the quality of education improves in this (DL) format"; UA.T.08).

The mental impact of distance learning on both Students and teachers was a significant concern among the Academic Staff. Teachers noted the psychological challenges associated with remote learning, including the sense of isolation and the difficulty in maintaining a collective group identity. Such factors can affect motivation and engagement, making it crucial for educational strategies to address mental well-being proactively. Furthermore, a human-centric mindset was emphasized as essential for fostering a supportive learning environment. This approach prioritizes the emotional and psychological needs of Students, recognizing that educational success is deeply intertwined with Students' mental health.

Particularly for ZP amidst the ongoing conflict, safety emerged as a paramount concern. Teachers appreciated the safety benefits of remote learning, such as minimizing health risks during the pandemic and ensuring physical safety during military conflict. The secure access to platforms via institutional emails was also highlighted as one of the crucial measures to safeguard both Students and staff from potential external threats.

In summary, both universities paid attention to Student-teacher collaboration, and the technical and organizational aspects. ZP teachers, however, also focused more on technical aspects (mentioning importance of the equipment) and on safety (system safety and health), that may reflect the impact of war. Notably, categories like group work, Student attitude, and lack of group identity were not mentioned by ZP teachers, while mentioned by KUE.

5.2.3 Academic Staff's opinions on distance learning difficulties

In examining the challenges faced by Academic Staff in Poland and Ukraine, the data gathered from their feedback (72 topics, 31 from KUE and 41 from ZP) highlights several key concerns that impact the efficacy of distance learning (Table 13).

Category/subcategory (Academic Staff opinion)	KUE	ZP	KUE+ZP
Technical and Organizational Issues	**16,1%**	**34,1%**	**26,4%**
Technical Problems	9,7%	19,5%	15,3%
Organizational Problems	6,5%	14,6%	11,1%
Communication and Interaction	**38,7%**	**9,8%**	**22,2%**
Lack of Interaction Between Teacher and Students	19,4%	4,9%	11,1%
Lack of Non-Verbal Communication	19,4%	2,4%	9,7%
Lack of Interaction with Peers		2,4%	1,4%
Engagement Issues	**25,8%**	**12,2%**	**18,1%**
Maintaining Engagement	6,5%	9,8%	8,3%
Lack of Identity	16,1%		6,9%

Lack of Control	3,2%	2,4%	2,8%
Assessment and Teaching Concerns	**12,9%**	**19,5%**	**16,7%**
Lack of Control	3,2%	4,9%	4,2%
Lack of Student Feedback	3,2%	4,9%	4,2%
Teacher Unpreparedness		4,9%	2,8%
Difficulties in Judging Teaching Effectiveness	3,2%	2,4%	2,8%
Tasks Not Possible in DL		2,4%	1,4%
Difficulties With Online Grading	3,2%		1,4%
Personal Impacts	**6,5%**	**24,4%**	**16,7%**
Lack of Student Motivation		9,8%	5,6%
Blurring of Personal and Professional Boundaries	3,2%	4,9%	4,2%
Lack of Student Self-Discipline		4,9%	2,8%
Health Issues	3,2%		1,4%
Lack of Teacher Motivation		2,4%	1,4%
Volunteer Work Because of War		2,4%	1,4%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 13. Academic Staff's opinions on distance learning difficulties.

Technical and Organizational Issues are a significant source of frustration. Polish instructors voiced challenges with technical problems and the consequential lack of eye contact, which they felt "starts to somehow detach from reality."; PL.T.08. The situation in Ukraine is complicated by the ongoing conflict, where issues such as "organizational problems" and interruptions due to "alarms and notifications on the phone about possible dangers"; UA.T.01, disrupt the learning process, as described by a Ukrainian teacher.

Communication and Interaction also have influence in distance learning settings. The Lack of Non-Verbal Communication, especially at KUE, such as "body language and emotions"; PL.T.03, and direct interaction between instructors and Students were cited as major impediments by Polish respondents. A faculty member shared the poignant sentiment of speaking "as if talking to oneself,"; PL.T.07, highlighting the difficulty of connecting with an unseen audience. The absence of face-to-face interaction was seen as a significant hindrance, with another instructor noticing the "distance between the instructor and the listeners."; PL.T.07.

Engagement Issues pervade the virtual classroom, with Polish staff expressing frustration over "keeping Students engaged during the classes."; PL.T.04. The loss of identity within the digital realm is tangible, as one teacher described Students as "just like some pictures or names and surnames,"; PL.T.01, emphasizing the impersonal nature of online interactions.

Assessment and Teaching Concerns are foremost in the minds of many instructors, with the Polish Academic Staff expressing difficulties with online grading, articulating it as "a problem" and noting the lack of control in Student engagement during classes. One faculty member from Poland remarked, "We can't see if the class is falling asleep or if they are interested"; PL.T.02, – a challenge that underscores the complexities of gauging Student feedback and teaching effectiveness in a virtual environment.

Personal Impacts also emerge as a concern, where the blurring of personal and professional boundaries due to the integration of work into home spaces causes disconcert for both Polish and Ukrainian educators. Another factor that might influence respondents' opinion in a negative way are the potential and already existing health problems, which might be worsened by the DL format ("What I also feel is primarily a loss of health … my back has really suffered"; PL.T.10). Student self-discipline and motivation are something that has to be controlled personally by the Students themselves, and there are cases where DL is not an appropriate option for Students because of their unreadiness for it ("Lateness to classes, distractions during them, and low activity are all related to a Student's personal discipline. Especially during online courses, high self-discipline is necessary."; UA.T.03. Another respondent from Ukraine also discussed the "insufficient motivation of the Student or the teacher"; UA.T.01, as an impediment to quality education, reflecting that it might be a shared struggle to maintain motivation during DL classes.

In conclusion, both universities identified technical and organizational issues as significant difficulties and shared their concerns about engagement issues, assessment and teaching concerns (that in some cases could be worsened, with negative personal impacts). Notably, categories such as the lack of interaction with peers or lack of motivation and self-discipline were not reported at KUE. Furthermore, volunteering because of war has a unique negative impact that also reflects the Ukrainian reality of obstacles they are forced to study with. Ukrainians, in comparison to Polish respondents, have not reported problems which were often reported at KUE such as lack of identity or health issues caused by DL, as well as problems with online grading.

5.2.4 Academic Staff's opinions on unethical behavior during distance learning

The analysis of the data regarding unethical behavior in distance learning from the perspective of Academic Staff in Poland and Ukraine based on 31 topics (19 from KUE and 12 from ZP) provides a revealing insight into the challenges educators face in maintaining academic integrity and class engagement in an online setting.

Category/subcategory (Unethical Behavior Situations)	KUE	ZP	KUE+ZP
Personally Met	**52,6%**	**66,7%**	**58,1%**
Not Paying Attention	5,3%	33,3%	16,1%
Pretending Class Participation	21,1%		12,9%
Cheating	5,3%	8,3%	6,5%
Interrupting Classes		16,7%	6,5%
Recording Without Permission	5,3%		3,2%
Student Irresponsibility		8,3%	3,2%
Avoiding Switching On the Camera	5,3%		3,2%
Inappropriate Content	5,3%		3,2%
Lying in Bed During Classes	5,3%		3,2%
Imaginary Situations	**36,8%**	**25,0%**	**32,3%**
Never met, Can Not Even Imagine Such a Situation		25,0%	9,7%
Inappropriate Content	10,5%		6,5%
Cheating	10,5%		6,5%
Not Paying Attention	5,3%		3,2%
Pretending Class Participation	5,3%		3,2%
Interrupting Classes	5,3%		3,2%
Situations Heard from Other Sources	**10,5%**	**8,3%**	**9,7%**
Inappropriate Content	5,3%		3,2%
Pretending Class Participation	5,3%		3,2%
Not Paying Attention		8,3%	3,2%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 14. Academic Staff's opinions on unethical behavior during distance learning.

The data reveals that both Polish and Ukrainian educators have personally encountered cases of Students Not Paying Attention. While a significant behavior reported by Polish staff was Pretending Class Participation, the observation that some Students might simply "turn on their devices and walk away or do something completely different"; PL.T.02, at ZP Not Paying Attention was reported more often: "At the beginning, they didn't ask any questions at all. I had the impression that we were a bit left behind…"; UA.T.01. Concerns over Students cheating were also raised, especially during exams where the lack of a physical presence was felt most acutely, with educators questioning whether Students were actually present or "in bed wearing slippers"; PL.T.06. Ukrainian educators reported cheating, wishing they could "see them through the camera… as sometimes I hear someone whispering answers to them."; UA.T.09, to ensure the integrity of the learning process. Polish educators have also personally encountered instances of Inappropriate Content: "Someone once made a joke or something, like turning off the microphone"; PL.T.01. Interrupting Classes was an issue at ZP, with Students challenging the instructor's methods and disrupting the learning environment, sometimes claiming, that "everything we were

discussing is nonsense"; UA.T.03. Finally, ZP reported cases of Student irresponsibility ("I have encountered at least their irresponsibility. I mean cases where Students do not complete assignments on time."; UA.T.02) that could have influenced learning outcomes.

Except real situations, there were also concerns about Imaginary Situations (cases that educators never met but were afraid of) and Situations Heard from Other Sources (for example from mass media or colleagues). Part of such cases mirrored situations from the Personally Met category, but, for example at KUE, where no Interrupting Classes situations were reported, the fear of the possibility of interruptions during classes was still noted as a concern. One of the reported fears was connected with the fact that DL systems such as Microsoft Teams which "allow Students to interfere in some way"; PL.T.01, give potential for disruption.

Despite the challenges, one educator from Ukraine noted an improvement in Students' behavior, stating that "Students have started behaving better and asking more questions during distance learning"; UA.T.01. There were also answers such as "well, personally, I haven't had such issues."; UA.T.10. This indicates a possible adaptation to the online environment, and a move towards more constructive Student behavior.

In conclusion, there is little similarity between educators' perceptions of unethical behavior at KUE and ZP. Educators from both institutions have personally met cheating and situations where Students were not paying attention during classes. However, while both described interrupting classes as an issue, ZP educators have actually encountered it, whilst at KUE it was one of imaginary situations. It should also be noted that in case of situations that were not met personally, it was difficult for ZP teachers to name such behavior (they have only reported cases of not paying attention heard from other sources), while KUE teachers gave a large variety of unethical behavior cases in each category (including, for example, recording of classes without permission, which was fixed at ZP by making regulations that each of them should be recorded officially).

5.2.5 Academic Staff's visions on the future of distance learning

Table 15 presents data about Academic Staff's future visions based on 52 topics identified (31 from KUE and 21 from ZP). Respondents not only share their predictions about DL's place in the future of education, but also their sentiments about it (positive, negative, or hesitation), together with reasons for this sentiment. There is a general consensus between both Polish and Ukrainian staff that distance learning will likely persist (as a main form or a supportive form of education). As one respondent from Poland

remarked, "remote learning can be a supportive form of education, particularly for certain subjects"; PL.T.01, highlighting the potential for distance learning to enhance educational flexibility and adaptability.

Attitude to DL in the future	Attitude explanation	KUE	ZP	KUE+ZP
Distance learning as a main form		**48,4%**	**52,4%**	**50,0%**
Positive		32,3%	38,1%	34,6%
	Convenience and flexibility	9,7%	23,8%	15,4%
	Effectiveness and Efficiency	6,5%	4,8%	5,8%
	Financial Benefit	6,5%		3,8%
	Innovation and Adaptation	3,2%	4,8%	3,8%
	Worldwide Access	3,2%	4,8%	3,8%
	Access to Technology and Resources	3,2%		1,9%
Negative		9,7%	14,3%	11,5%
	Effectiveness and Efficiency	6,5%	14,3%	9,6%
	Interaction	3,2%		1,9%
Hesitation		6,5%		3,8%
	Convenience and Flexibility	3,2%		1,9%
	Innovation and Adaptation	3,2%		1,9%
Distance learning as a supportive form		**48,4%**	**47,6%**	**48,1%**
Positive		45,2%	42,9%	44,2%
	Convenience and flexibility	29,0%	14,3%	23,1%
	Effectiveness and Efficiency	6,5%	14,3%	9,6%
	Innovation and Adaptation	6,5%	14,3%	9,6%
	Financial Benefit	3,2%		1,9%
Negative			4,8%	1,9%
	Effectiveness and Efficiency		4,8%	1,9%
Hesitation		3,2%		1,9%
	Innovation and Adaptation	3,2%		1,9%
Zero distance learning		**3,2%**		**1,9%**
Hesitation		3,2%		1,9%
	Breaking the trend	3,2%		1,9%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 15. Academic Staff's vision on the future of distance learning.

The negative attitudes primarily stem from doubts about the effectiveness and efficiency of distance learning, especially when using distance learning as the main form. Some educators feel that the effectiveness and efficiency of online teaching are lower compared to in-person sessions, particularly where teamwork or practical classes are concerned. Conversely, the positive attitudes towards distance learning are supported by a variety of reasons. The convenience and flexibility it offers are highly valued, as one staff member pointed out that hybrid teaching is a "must-have"; PL.T.02 for universities to remain

competitive. The financial benefits of distance learning were also noted at KUE, especially given the costs of maintaining physical campus operations.

Looking at distance learning as a supportive form, there is a strong inclination towards maintaining a hybrid model that combines the strengths of both in-person and online modalities. The flexibility of such an approach is seen as beneficial, as it accommodates the diverse needs of Students and educators alike. However, there are hesitations regarding the readiness to fully embrace distance learning, with concerns about the necessity of "serious infrastructure, expertise, and experience"; PL.T.01.

The prestige of traditional educational settings still holds significant value for some, as indicated by the view that universities may "advertise that everything is done traditionally, as if they're breaking the trend"; PL.T.02, that is why there could still be universities where only traditional in-class education takes place, with zero distance learning.

Both Polish and Ukrainian staff mostly agree that distance learning will likely continue, either as a primary method or a supplementary form of education (with some exceptions for "traditional" universities), and both showed a large variety of sentiments (as both see advantages, such as convenience and flexibility, and disadvantages such as effectiveness and efficiency connected with that). However, while the Academic Staff at KUE mentioned financial benefits and concerns connected with innovation and adaptation, ZP staff were focused on already mentioned effectiveness and efficiency, that in some cases might be increased in distance education, while in others decreased.

5.2.6 Academic Staff's outlook on the stakeholders of distance learning

Reflecting on the perspectives shared by the Academic Staff (shown in Table 16) based on 85 topics (47 from KUE and 38 from ZP), the landscape of distance learning stakeholders is multifaceted.

Stakeholder	KUE	ZP	KUE+ZP
Students	10,5%	8,1%	18,6%
Teachers	8,1%	7,0%	15,1%
IT-support Departments	7,0%	3,5%	10,5%
Employers	2,3%	8,1%	10,5%
University Management	9,3%		9,3%
Platform/Service Providers	7,0%	1,2%	8,1%
Families of Students	1,2%	4,7%	5,8%
Accrediting Institutions	3,5%	2,3%	5,8%
Staff	2,3%	2,3%	4,7%
Political Authority (National Government Regulations)		4,7%	4,7%

E-Learning Departments	1,2%	1,2%	2,3%
Organizational Departments	1,2%	1,2%	2,3%
Alumni		1,2%	1,2%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 16. Academic Staff's outlook on the stakeholders of distance learning.

At the core of this landscape are Students and Academic Staff. They are described as the driving forces whose active participation is crucial. The Students' impact is substantial, as one staff member from Poland highlighted, "Certainly, Students are stakeholders. They influence what they do and how they do it"; PL.T.02. Due to the Students' dual role of knowledge transmitters and digital adaptors, their academic influence on the educational ecosystem is significant, with another Polish educator noting, "However, I believe the heavier burden rests on the teachers. On the other hand, Students also need to realize that the quality of education depends on their contribution."; PL.T.03. International Programs and their Participating Students also greatly benefit from the distance format: "Additionally, it can facilitate international collaborations and contacts. For example, through programs like Erasmus, universities can establish connections with Students from different countries, allowing for increased international cooperation and knowledge exchange ... In my department, where I teach, we had a fully remote course with over 50 Students from around the world. It was a significant challenge, but I consider it a success."; PL.T.04.

Universities (University Management) are one of decision-making stakeholders for education, in both traditional and distance forms. A Polish academic expressed their opinion on the university's role, saying: "They have the responsibility of supervising the teaching activities and ensuring the proper functioning of the educational process."; PL.T.05, underscoring the institution's integral part in setting the stage for online learning. The roles of Organizational Departments ("There are organizational departments at the institutes…"; PL.T.01) and Accrediting Institutions are more nuanced, but they are seen as parts of an effective educational system for all types of education, including DL: "(University) relationships with stakeholders largely remain unchanged because these are the same people who participate in the accreditation of our educational programs"; UA.T.06. Political Authority (in way of government regulations) and the E-Learning Departments, although not at the center of attention according to Academic Staff, are still among the key figures that shape policy and offer resources that support the educational framework.

The IT-support Departments plays a crucial role by administrating educational platforms, ensuring continuation of the educational process. As one educator put it, a service

provider is "like someone who maintains the platform, supports it, and offers help, right?"; PL.T.01. Platform and Service Providers are pivotal, crafting the virtual spaces where learning unfolds. Their influence is summarized by a Polish respondent: "The software producers have the biggest influence on the quality, apart from the technical issues"; PL.T.06.

Employers are among the stakeholders most interested in outcomes ("Certainly, apart from Students, there are other stakeholders who can benefit from distance learning. One of them is the employer of Students. They can benefit because Students acquire new computer skills during remote learning, which will be useful for their future jobs."; PL.T.04. To be effective, the knowledge Students gain with the help of DL should be relevant to business needs: "We involve representatives of employers who are key to our field of study in the educational process, and they teach additional topics in certain disciplines. Typically, they primarily teach remotely."; UA.T.01.

Alumni are another stakeholder that can have great influence on university reputation ("I believe that the best advertisement for our education system are successful alumni. They can serve as examples for current Students and motivate them…"; UA.T.09).

Beyond the direct academic realm, Families of Students are important, particularly for Ukrainian Students, reflecting the overlap between the personal and academic spheres. "Parents also have a significant influence…"; UA.T.03, noted a Ukrainian staff member, acknowledging the multifaceted support Students require.

In conclusion, both KUE and ZP teachers acknowledged the importance of Students and teachers and as primary stakeholders, emphasizing their crucial roles in the educational process. Both institutions also recognized the importance of service providers and platform providers, but differed in the extent of their emphasis. However, certain categories were emphasized by one university and not the other. For instance, university management was noted only by KUE, while government regulation was highlighted only by ZP. Additionally, categories such as employers and families of Students were more significant for ZP compared to KUE.

5.2.7 Academic Staff's outlook on the skills they gained connected with distance learning

With the transition to distance learning, educators at KUE and ZP have adapted, improved, and even acquired an array of skills that are shown in Table 17 (based on 54 topics, 26 from KUE and 28 from ZP).

Category/subcategory (Gained skills)	KUE	ZP	KUE+ZP
New skills	**80,0%**	**93,1%**	**87,0%**
Tools for the Teaching Process	28,0%	24,1%	25,9%
New Teaching Activities	12,0%	27,6%	20,4%
Teaching Methodology	12,0%	24,1%	18,5%
Remote Communication	4,0%	13,8%	9,3%
Digital Distractions Resistance	8,0%	3,4%	5,6%
Student Evaluation	8,0%		3,7%
Divided Attention	4,0%		1,9%
Chat Control	4,0%		1,9%
Mastery of old skills	**20,0%**	**6,9%**	**13,0%**
Teaching Methodology	16,0%		7,4%
Tools for the Teaching Process		6,9%	3,7%
Remote Communication	4,0%		1,9%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 17. Skills connected with DL gained by Academic Staff since the beginning of the pandemic.

Embracing the necessity for collaboration in the digital realm for the enhancement of New Teaching Activities, one educator noted: "I think that distance learning has brought about some new skills, or rather a habit of engaging in certain activities. Collaboration is one of them..."; PL.T.01. This shift towards collaborative technology tools as one of the Tools for the Teaching Process was further echoed by another respondent, who observed its benefit: "Well, for me, it's more about the technical aspects of using different programs and the various forms of indirect communication, such as file sharing and screen sharing."; PL.T.06. The tools for the teaching process have become a cornerstone in delivering education. One professor shared their newfound reliance on these tools: "Well, first of all, I didn't know any of these communication platforms before, so it was a leap that I had to take..."; PL.T.07. However, the teaching methodology required refinement to suit the new format, with staff needing to "prepare a knowledge test... using the Moodle platform"; PL.T.07, for Student evaluations.

The transition to Remote Communication platforms was not without its challenges. While discussion about new gained skill on academic pointed out, "Certainly knowledge of mechanisms for remote communication. I used them rarely before the pandemic"; PL.T.02.

The constant Digital Distractions that accompany online environments also became a focal point of DL adaptation. One staff member candidly shared: "However, while sitting at the computer you are disturbed by information... Such things naturally result in the involvement in the meeting not being as full as it could be, but I try to fix it."; PL.T.03.

The new teaching activities devised by the educators have transformed the landscape of Student engagement and learning outcomes. As a lecturer revealed, "We are looking for interesting approaches and programs that can engage Students and encourage them to learn. This also motivates us, the teachers, to grow, deepen our knowledge, and provide Students with more information to pique their interest in the subject matter."; UA.T.09. Yet, mastery of old skills remained a basis for some, with an educator asserting, "What I mean is, even before the pandemic, I was already using these tools"; UA.T.01, suggesting that the pandemic only amplified existing competencies.

The result shows that both KUE and ZP teachers gained several new skills and mastered old ones due to distance learning (however in the case of KUE, more cases of old skill mastery were reported). Both groups also improved in using tools for the teaching process, teaching methodology and activities as well as remote communication together with their resistance to digital distractions. However, some skills were only mentioned by one group. KUE teachers reported gains in Student evaluation, divided attention and chat control.

5.2.8 Lessons learned for the framework from Academic Staff

Both ZP and KUE universities reported numerous similarities in their Academic Staff's attitude to DL. Technological adaptation followed by Technical and Organizational problems were significant challenges for both institutions, which had to quickly adjust to new tools and platforms. Even at the later stages, Psychological and Academic Adaptation was still reported as an issue for some educators and Students. Over time, both universities improved their Technological and Organizational Infrastructure, allowing for better conditions for remote learning, but in the future, it is predicted by both that the need for Innovation and Adaptation will stay with us. The knowledge Students receive with the help of any type of education (including DL) should also show its Relevance to Modern Times (and Business Needs).

Considering the Student and Academic Staff's Outlook on the DL process, both universities emphasized the necessity of mutual respect, engagement and coordination. As DL gives Students the Possibility of Autonomy with the necessary Academic Support, it is still their responsibility to stay Focused during classes. They also noted the need of

Organizational Effectiveness and Flexibility (including Schedule Optimization) as well as Official Regulations (including camera regulations) for the creation of an effective learning environment. The Academic Staff also highlighted the importance of Effective Knowledge Gain and Control to maintain educational standards. Both universities implemented various methods to ensure the quality and Equivalence of Educational Outcomes that in some cases could be unachievable with the usage of DL only, which is why both universities have shown their preference for DL as part of blended learning.

Despite these similarities, there were notable differences in the experiences reported by Academic Staff. For example, the attention at KUE was focused on the organizational part, taking into account the relevant advantages and disadvantages for the daily use of DL (such as flexibility of conducting classes, limited interaction or efficiency in certain subjects). Considering the quality of DL and the DL impediments in Poland, methodological and social aspects were also mentioned (such as the importance of group identity, attitude to the educational process, importance of divided attention etc.).

ZP instead focused on technical aspects, while also paying attention to obstacles of the pandemic and war, which give higher priority to the need of specific equipment or system safety. For example, the health aspect connected with DL (that was mentioned by both universities) differed in context. At KUE, it concerned the long-term negative influence on health issues, while at ZP, due to the ongoing conflict, DL was seen as a positive factor for health (as in a crisis situation, like a pandemic or war, one can stay in safer places while still having access to education). ZP also generally had a more positive attitude to DL (even though they have more technical issues or problems with Students' behavior during such classes), due focusing on its positive sides.

5.3 Students

5.3.1 Students' general opinion on distance learning

This analysis identified 126 topics (64 at KUE, 62 at ZP), each one showing one aspect. All aspects were grouped according to the emotional coloring given by the respondent and are presented in Table 18. This is how the division into positive and negative impressions, as well as into the suggestions for improvements was created.

Category/subcategory (Students' opinion)	KUE	ZP	KUE+ZP
Opinions on Positive Aspects	**50,0%**	**75,8%**	**62,7%**
General Positive Impression	12,5%	29,0%	20,6%
Comfort	10,9%	14,5%	12,7%
Comfortable Information Absorption		16,1%	7,9%
Savings	4,7%	8,1%	6,3%
Academic Staff Qualification	4,7%	4,8%	4,8%
Lesson Type Preference	6,3%	1,6%	4,0%
Preferable Distance/Hybrid Learning Mode	4,7%		2,4%
Convenience in Schedule Usage	3,1%	1,6%	2,4%
Technical Aspects	3,1%		1,6%
Opinions on Negative Aspects	**39,1%**	**19,4%**	**29,4%**
Lack of Social Interaction	12,5%	6,5%	9,5%
Uncomfortable Information Absorption	14,1%	3,2%	8,7%
General Negative Impression	4,7%	4,8%	4,8%
Psychological Discomfort	3,1%	3,2%	3,2%
Lesson Type Rejection	1,6%	1,6%	1,6%
Distance/Hybrid Learning mode Rejection	3,1%		1,6%
Improvement Suggestions	**10,9%**	**4,8%**	**7,9%**
Schedule Optimization	6,3%		3,2%
Technical Aspects Optimization	1,6%	4,8%	3,2%
Avoiding Specific Lesson Types in DL	3,1%		1,6%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 18. KUE and ZP Students' general opinions on distance learning.

Positive sentiments towards distance learning were generally more favorable among Ukrainian Students, possibly reflecting the forced adaptation to online education as the only possible method due to the war, compared to the Polish respondents. The notion of comfort in distance and hybrid modes of learning was met in discussions ("That is, now all this has gone online, and Students are quite comfortable using it all, especially those who work…"; UA.S.06, "it's OK because you don't have to leave the house…"; PL.S.10), which might be attributed to the forced isolation during the pandemic and the need for a safe educational environment during the conflict. The quality of teacher engagement and qualification was noted by both cohorts, highlighting the crucial role of instructor initiative and involvement in the virtual learning experience ("In my opinion, the lecturers also engage in their work properly"; PL.S.07). While the needs for the improvement of technical aspects were less frequently brought up by Students in Poland, as Students were rather satisfied ("...it's fine nowadays, because we used only two platforms that are comfortable enough"; PL.S.14), in Ukraine it was a significant problem for some Students to have a stable Internet connection ("… the Student needs a more or less stable connection to join the lectures"; UA.S.09).

Satisfaction in the Convenience in Schedule Usage category was also brought up by Students of both countries: ("I know what time the classes start as scheduled and end as scheduled"; PL.S.03, "In general, it (DL) simplifies the planning of the schedule, because, in principle, it is not necessary for classes to go consecutively"; UA.S.27).

Both Ukrainian and Polish Students often pointed to the importance of information absorption, suggesting its importance in educational delivery and its enhancement with the help of digital platforms. Still, KUE Students reported problems with this aspect ("Of course, it is not comparable to stationary learning due to the fact that I remember most of the lessons while I am sitting or just taking notes there."; PL.S.03), while ZP Students were rather satisfied ("And it is also very good that there are recordings of the lectures, so if someone has technical problems, they can catch up on the material by watching the video. This form suits me."; UA.S.10).

Saving both time and money is also an important aspect mentioned by ZP and KUE Students ("It takes less time than commuting to the university."; PL.S.10, "I have a very positive attitude towards distance learning, because this approach eliminates unnecessary time costs and allows you to focus on the educational process…"; UA.S.18).

The Lack of Social Interaction (especially for the first-year Students) was also mentioned by respondents irrespective of the geopolitical context ("This is followed by communication and socialization. That is, it is difficult for Students to communicate with each other"; UA.S.09, "…it's very bad to introduce remote classes in the first year, because … you don't get to know your classmates…"; PL.S.16).

Improvements in distance learning were a popular topic among Polish Students, who more frequently suggested the need for enhancements, for example with the help of schedule optimization ("It's more convenient when the lessons are really only once every six months so there's no such thing as being busy almost every week 3 days a week Friday Saturday and Sunday"; PL.S.10). In cases of some specific DL lesson types, some Students were trying to avoid them ("…it's better to have practice lessons in the stationary form…" PL.S.01) or even fully reject them ("I believe that DL in some fields of study is unnecessary (medicine for example), because there are a lot of laboratory sessions during these studies that need to be conducted in-person"; PL.S.21). In contrast, fewer Ukrainian Students discussed improvements, focusing on technical aspects optimization, potentially indicating a focus on adaptability under crisis conditions.

In summary, considering the Students' general opinions on DL, positive aspects were more frequently reported by ZP, while at KUE half of responses were about negative aspects and improvement suggestions (for example schedule optimization or avoiding specific lesson types in DL). KUE Students had mixed feelings towards DL, with some saying that it is their preferred option of education, while others strongly opposed it. At the same time, only ZP Students mentioned comfortable information absorption, while KUE Students were instead more satisfied with the technical aspects.

5.3.2 Students' outlook on good quality of distance learning

Table 19 shows Students' points of view on the aspects important for DL.

Category/subcategory (Students' outlook)	KUE	ZP	KUE+ZP
Academic Staff Influence	**38,9%**	**31,1%**	**34,8%**
Engagement	25,9%	18,0%	21,7%
Diversification of Teaching Methods	7,4%	6,6%	7,0%
Providing Feedback	1,9%	1,6%	1,7%
More Personal Consultations		3,3%	1,7%
Technology Use	3,7%		1,7%
Necessary Tools		1,6%	0,9%
University Organization	**20,4%**	**31,1%**	**26,1%**
DL only for Specific Lesson Types	7,4%	13,1%	10,4%
Recording of Lectures	3,7%	16,4%	10,4%
Camera Obligation	3,7%		1,7%
Distance Learning for All Lessons		1,6%	0,9%
Optimization of Expenses	1,9%		0,9%
Smaller Study Groups	1,9%		0,9%
Camera Obligation Elimination	1,9%		0,9%
Technical Aspects	**20,4%**	**8,2%**	**13,9%**
Necessary Tools	11,1%	3,3%	7,0%
Platform Optimization	3,7%	3,3%	3,5%
Quality of Internet Connection	5,6%	1,6%	3,5%
Knowledge Equal to Traditional Form	**1,9%**	**13,1%**	**7,8%**
Schedule	**3,7%**	**4,9%**	**4,3%**
Deadline Control		3,3%	1,7%
DL for All Lessons during One Day	1,9%		0,9%
Break Between Distance and Stationary Lessons	1,9%		0,9%
Fixed Schedule Planning		1,6%	0,9%
Concentration Maintenance	**7,4%**		**3,5%**
Concentration Maintenance During Classes	5,6%		2,6%
Digital Distractions Elimination	1,9%		0,9%
Interaction	**5,6%**	**1,6%**	**3,5%**
Elimination of Communication Issues	1,9%	1,6%	1,7%
Human Interaction	1,9%		0,9%
University Atmosphere	1,9%		0,9%

Practical Lesson with Interactive Tasks	**1,9%**	**4,9%**	**3,5%**
Flexibility During Educational Process	**1,9%**	**4,9%**	**3,5%**

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 19. Students' outlook on good quality of distance learning.

Students at both institutions underscored the pivotal role of Academic Staff's engagement in the educational process, that is also shown in engagement activities for Students. Respondents emphasize the significance of an educator's active involvement in facilitating learning and maintaining Student interest: "I imagine high-quality distance learning as follows: holding a pair of Students in a high-quality video communication environment (Microsoft Teams, Google Meet, Zoom, etc.), each participant in the pair is involved in the training process"; UA.S.24, "The lady who conducts these language classes uses different methods... in fact, thanks to this diversity, this knowledge is easier to assimilate"; PL.S.07. While personal consultations were not always a priority, Ukrainian Students, dealing with wartime constraints, expressed a particular need for direct academic support, highlighting the importance of tailored assistance in remote learning environments.

Organizational aspects of the university, such as the systematic recording of lectures, were cited as essential, offering Students the flexibility to access learning materials at their convenience — an aspect particularly vital for those at ZP who might face unpredictable disruptions. Moreover, the selective suitability of DL for particular types of lessons was noted ("If there's something about programming… everything is on computers anyway... "; PL.S.05, "…as in my specialty… we are already used to exactly such conditions and such conditions are optimal for us…"; UA.S.06), suggesting a discerning approach to online education where the method of delivery is congruent with the nature of the subject matter. It is also an interesting fact that while some KUE Students wanted a camera obligation (as it meant to help Students stay more active during lessons), others said that they should be eliminated because people might feel uncomfortable, and some Students with a weak Internet connection might have problems with attendance to such lessons.

Technical requisites were also central, with Students advocating for the provision of the necessary tools to facilitate an uninterrupted and efficient learning experience. Consistent and reliable Internet connectivity and technical infrastructure are critical for distance education, as noted by the participants. Knowledge Equal to Traditional Form acquired through DL was a theme more pronounced among ZP Students, potentially reflecting a

desire to ensure that the educational outcomes remain uncompromised despite the modalities of delivery.

Students also mentioned the importance of a well-structured schedule ("Not remote classes and then in 15 minutes, face-to-face classes, it was very annoying… you don't have time to get to the university at all so often I just had to go to the university and sit there with a laptop! "; PL.S.08), which underpins the organization of the learning process and aids in managing academic responsibilities.

In parallel, the ability to maintain concentration in a distance learning context was particularly relevant among KUE Students, hinting at the challenges posed by the remote learning environment for Student focus and engagement.

Practical lessons with interactive tasks were valued, especially by Ukrainian Students, reflecting a preference for applied learning that mirrors the more tangible aspects of in-person education. Flexibility emerged as a unique aspect of distance learning, particularly for ZP Students. This adaptability could be an indication of the need to accommodate the circumstances faced by Students in war zones.

In conclusion, both groups emphasized the influence of Academic Staff (on engagement, diversification of teaching methods and providing feedback) and need for better schedules. Only ZP Students mentioned the need for more personal consultations and the necessity of tools, while only KUE Students emphasized on the use of technology. University organization was also important for both, and both specified the need for class recording and DL usage only for specific lesson types (however some ZP Students had the opinion that all educational process should remain in the distance form). KUE Students also named more specific requirements like camera regulations, smaller studying groups and optimization of expenses. They also expressed the requirements of concentration maintenance and a greater need for interaction compared to ZP Students.

5.3.3 Students' opinions on unethical behavior during distance learning

Unethical behavior as identified by respondents (40 topics from KUE, 49 from ZP), was categorized into imagined potentialities, personally encountered situations, and narratives heard from other sources (Table 20). Some partial results of this research, concerning Polish students, have already been published (Didkivska, 2023).

Category/subcategory (Unethical behavior)	KUE	ZP	KUE+ZP
Imaginary situations	**45,0%**	**44,9%**	**44,9%**
Inappropriate Content	15,0%	12,2%	13,5%
Interrupting Classes	12,5%	10,2%	11,2%
Disrespect	2,5%	10,2%	6,7%
Never met, Can Not Even Imagine Such Situation	2,5%	8,2%	5,6%
Not Paying Attention	5,0%	2,0%	3,4%
Cheating	5,0%		2,2%
DDOS Attack	2,5%		1,1%
Personally encountered situations	**22,5%**	**44,9%**	**34,8%**
Not paying Attention	10,0%	12,2%	11,2%
Inappropriate Content	7,5%	10,2%	9,0%
Interrupting Classes	2,5%	12,2%	7,9%
Disrespect	2,5%	10,2%	6,7%
Situations heard about from other sources	**32,5%**	**10,2%**	**20,2%**
Interrupting Classes	12,5%	6,1%	9,0%
Not Paying Attention	10,0%		4,5%
Inappropriate Content	5,0%	2,0%	3,4%
Disrespect	2,5%	2,0%	2,2%
Cheating	2,5%		1,1%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 20. Students' opinions on unethical behavior during distance learning.

Imaginary scenarios - unethical behavior that Students had not personally encountered, but considered possible (for example: "I haven`t encountered it, but it's unethical behavior for me, if it interferes with conducting classes at all, for example… some kind of uncultured talking to lecturers."; PL.S.18) - suggest a heightened awareness or anticipation of misconduct that rarely translates into actual intent or occurrence. Such anticipation underscores the gap between feared disruptions and the reality of online learning environments, where distractions like loss of concentration or inadvertent interruptions due to unmuted microphones are more common than deliberate acts of dishonesty or disruption. Other significant concerns were connected with threats to learning environment itself ("…given the fact that distance learning is conducted with the involvement of Internet technologies, the Student has certain opportunities to conduct a kind of DDOS attack on a Google Meet meeting."; UA.S.20).

Direct experiences and second-hand accounts refer to the varied landscape of distance learning etiquette. Narratives range from Students encountering Inappropriate Content on camera, cases of someone saying something inappropriate to a teacher or off-topic discussions that derail educational objectives, to "interrupting classes" by allowing

unaffiliated individuals to join sessions, creating unwelcome distractions. The phenomenon of "not paying attention," characterized by multitasking or physical absence during online classes ("Sometimes people might be completely ignoring the lessons, and doing other things;"; PL.S.15, "For me, it is often unethical to ignore these activities and, for example, make dinner during this time or play games on the computer"; PL.S.23, "Also, actual absence from the lecture when the online icon is turned on."; UA.S.09) was frequently observed, highlighting challenges in maintaining engagement in virtual settings.

In conclusion, personally encountered situations were the same at both universities (not paying attention, inappropriate content, interrupting classes, disrespect), but more often found at ZP. However, differences can be seen in mentions of cheating and DDOS Attacks, which are concerns mentioned by KUE Students (as situation they can imagine and, in case of cheating, also as something heard from other Students).

5.3.4 Students' outlook on the stakeholders of distance learning

This part of the research is based on 169 identified topics (81 from KUE, 88 from ZP) (Table 21).

Stakeholders	KUE	ZP	KUE+ZP
Academic Staff	24,7%	23,9%	24,3%
Students	21,0%	25,0%	23,1%
University Management	13,6%	15,9%	14,8%
Political Authority (National government regulations)	9,9%	10,2%	10,1%
Flat Mates	9,9%	3,4%	6,5%
Internet Providers	4,9%	5,7%	5,3%
Parents and Families	3,7%	5,7%	4,7%
Student Parliament	2,5%	2,3%	2,4%
Employers	1,2%	3,4%	2,4%
Service and Platforms Providers	2,5%	1,1%	1,8%
Non-Teaching Staff	3,7%		1,8%
Ukrainian Ministry of Defense		2,3%	1,2%
Public Relations Staff		1,1%	0,6%
Group Mates	1,2%		0,6%
IT-support Department	1,2%		0,6%

Note: The table shows the percentage of the mentions of each topic out of all identified topics for each respondent group.

Table 21. Students' outlook on the distance learning stakeholders.

The stakeholders, as identified by the Students, are not only focused on educational hierarchies but also extend into the personal realms of Student life. The most commonly mentioned stakeholders are Academic Staff ("…they themselves must adapt the form of

conducting classes and their content to their skills, to their subject and to the level of knowledge and commitment of the participants…"; PL.S.07, "…because they have a lot of room to maneuver and, on their own, they also have a large number of choices they have to make about how they present their content…"; PL.S.04) and Students, including the Student Parliament ("…because they need to provide themselves with access to remote learning or show their activity during remote teaching..."; PL.S.03). Academic Staff, described as the arbiters of educational content and delivery, hold a pivotal position. Their influence extends beyond mere transmission of knowledge, encompassing the selection and adaptation of digital platforms and the formulation of didactic strategies tailored for virtual environments. Students, on the other hand, are portrayed not just as passive recipients, but as active contributors whose engagement and adaptability are crucial for the success of distance learning.

The study also reveals the significant roles of University Management ("…university authorities decide whether and on what platform we use distance learning and how and what tools we use in general…"; PL.S.19) and Political Authorities ("…they decide whether they (the classes) will be in distance form or not…"; PL.S.05, "they are responsible for the general regulation of it all"; UA.S.08), underscoring their decision-making power in the adoption and regulation of distance learning. Interestingly, the Students' surroundings (such as Flat Mates, Student Parents and Families, and Group Mates) are not directly connected with education, reflecting the personal dimensions of home environments on learning experiences ("your roommates of flat mates could influence your learning… rather in a negative way by disturbing"; PL.S.05). They can either facilitate or hinder the learning process (especially in shared living spaces), showing the difficult nature of personal and educational realms in distance education.

Respondents named external entities such as Public Relations Staff ("…as they increase the number of potential users..."; UA.S.22), Internet Providers and Service and Platform Providers as important stakeholders. Their services were mentioned as necessary for the accessibility and quality of online learning, as was the IT-support Department's help with their maintenance. Employers were also recognized as important for their indirect yet impactful roles in shaping curricular content and aligning educational outcomes with labor market needs. Non-Teaching Staff, as a general description of non-educator employees, were also mentioned several times as stakeholders, but they were not given special attention. It is interesting that among others, the stakeholder least influential for DL according to Ukrainian

Students was the Ukrainian Ministry of Defense (that is not a traditional stakeholder of education) that protects them during DL.

In conclusion, both groups identified Academic Staff, Students, University Management, and Political Authority as key stakeholders. However, Non-Teaching Staff (with the specification of IT-support Departments that also could be included in this category) and Group Mates were mentioned only by KUE Students. Similarly, Public Relations Staff and the Ukrainian Ministry of Defense were unique stakeholders from ZP.

5.3.5 Lessons learned for the framework from Students

ZP University Students generally hold a more positive opinion of DL, mirroring the sentiment of their Academic Staff. This could also be influenced by the war, with DL remaining the optimal educational format during it (Ukrainian Students were showing sights of having been affected by this obstacle, for example by the acknowledgment of the Ukrainian Ministry of Defense as one of DL stakeholders). Conversely, KUE Students view DL as an optional mode of education, with some favoring it and others expressing rejection.

Considering Technological Adaptation (including psychological and academic preparedness), both KUE and ZP Students suggested improvements in technical aspects. However, KUE Students displayed a higher level of satisfaction with these aspects compared to their ZP counterparts.

When it comes to Technological and Organizational Infrastructure, both groups mentioned the general comfort and savings provided by DL, yet a notable difference exists in their satisfaction with information absorption. ZP Students reported higher satisfaction, potentially due to their superior infrastructure, such as the availability of lecture recordings accessible through personal accounts. This functionality, although demanding extra effort from Academic Staff and increasing the server load, significantly benefits Students. KUE Students expressed a desire for similar functionalities.

In terms of Schedule Effectiveness and flexibility, both universities agreed on the importance of convenience in schedule usage. However, KUE Students highlighted the need for schedule optimization, particularly the need for breaks between distance and stationary lessons, or separate days for DL and traditional classes. ZP Students, on the other hand, focused on deadline control and better schedule planning. This reflects the broader theme of Organizational Effectiveness and Flexibility in the university, which is crucial for achieving optimal cognitive load. Students from both universities mentioned the need for a specification of lesson types suitable for DL, and KUE Students mentioned the effectiveness

of smaller study groups. ZP Students also identified the need for more personal consultations, which contribute to a unique opportunity for Student Autonomy Possibility together with much needed Academic Support from staff. Additionally, the Equivalence of Educational Outcomes was a concern for both, with Ukrainian Students paying more attention to this parameter.

A Common Student and Academic Staff Outlook on DL is essential, with both groups emphasizing the importance of qualified Academic Staff who can ensure high levels of Student Engagement and Focus. That requires a diverse Pedagogical Approach for Effective Knowledge Gain and Control, with the usage of various teaching methods. The Official Regulations need was interesting, even controversial. Except for preventing unethical behavior during classes (which, also according to Academic Staff, was met at ZP more often), it can also prevent misunderstandings in how DL classes should be conducted in general. For example, even at just one university (KUE) there were Students who insisted on the need of camera obligations for effective DL, while others mentioned the need for camera elimination.

5.4 E-Learning Departments

5.4.1 E-Learning Department's general opinion on distance learning

The analysis revealed a complex view on the development and challenges associated with distance education and technological advancements. One of the key factors identified at KUE (Table 22) was the evolution of distance learning technologies, which has significantly changed the educational landscape, especially considering the changes in the capabilities of e-learning since its inception in 2006 (chapter 5.1.2). This rapid evolution, according to the KUE e-learning department, underscores the importance of technology in the advancement of distance education, as well as the society's adaptivity to it (especially for direct participants such as Academic Staff and Students). It highlights the need for the continuous improvement and adaptation from all participants in the educational process.

Theme	Summary	Original Answer
Technological aspect		
Evolution of Technology	Technology at KUE has greatly evolved since the introduction of e-learning in 2006. The pandemic in 2020 led to a significant leap in using video conferencing as an educational tool.	"Po pierwsze bardzo zmieniła się technologia na Uniwersytecie Ekonomicznym w Krakowie; rozpoczęliśmy wdrożenie e-learningu w 2006 roku i wydaje się że to było 100 lat temu. "; "Największy taki skok który zaobserwowaliśmy to był rok 2020, początek pandemii, kiedy nagle się okazało, że systemy do wideokonferencji

		dotąd używane w biznesie stały się narzędziem edukacyjnym."
Shift from Asynchronous to Synchronous Learning	The introduction of capabilities provided by video conferencing has changed the outlook on asynchronous work.	"Wprowadzenie tych możliwości jakie daje wideokonferencja całkowicie po prostu wywróciły do góry nogami także myślenie o pracy asynchronicznej."
Importance of Technology	The last 15 years have shown that while much depends on technology, it is not everything.	"Druga rzecz którą te 15 lat nam uświadomiło to to, że bardzo dużo zależy od technologii ale nie wszystko."
Methodological aspect		
Need for improvement	Although a great job was done at KUE promoting the distance form of education (also by the enhancement of teachers' and Students' DL skills), there is still a long way to go.	"Mam przekonanie, że choć wykonaliśmy na naszym Uniwersytecie kawał dobrej roboty promując tą formę kształcenia i ucząc nauczycieli i Studentów w jaki sposób się uczyć to jeszcze długa droga przed nami."
Ineffective Teaching Methods	Quasi-teaching methods, such as only sharing files or practice tasks, are not effective forms of knowledge assessment.	"Odpadają więc wszystkie formy które są kwazi nauczaniem, czyli udostępnianie plików Studentom, materiałów do studiowania, udostępnianie zadań, które mają charakter tylko ćwiczebny nie są formą sprawdzenia wiedzy."
Importance of Teacher Adaptation and Preparedness	Teachers who had experience with remote work and using the Moodle platform for teaching adapted much more easily and effectively during the pandemic.	"Tak jak ja zauważam nauczyciele, którzy mieli doświadczenie z pracą zdalną, wykorzystywaniem platformy Moodle do nauczania, o wiele łatwiej i efektywniej poradzili sobie w trakcie pandemii."
Personal Impacts of DL participants		
Talent and Internet Imagination Needed	Some people do have a natural talent for remote work, while others do not; "Internet imagination" plays a crucial role.	"Są ludzie którzy mają talent do pracy zdalnej i są ludzie którzy takiego talentu czy właściwie takich skłonności zdolności do pracy zdalnej po prostu nie mają... ogromną rolę odgrywa tutaj to co ja nazywam wyobraźnią Internetową."
Challenges of Engagement and Online Fatigue	Remote work leads to a significant drop in concentration, making long lectures and reading slides ineffective in DL.	"Krzywa koncentracji bardzo spada w momencie, kiedy pracujemy zdalnie... mówienie do ludzi przez półtorej godziny czytając własne slajdy, które są na ekranie rzeczywiście jest nieefektywne."

Table 22. KUE e-learning department's general opinion on distance learning (including blended learning) that was conducted at the university.

ZP answers are fully concentrated on the technological aspect, as despite significant achievements and efforts to develop distance learning (especially in the post-pandemic period), ZP identified that there is a need for further changes to optimize this form of education. Especially in Ukraine, where the impact of war has definitely made the enchantment of the quality of distance learning harder (Table 23). ZP e-learning department even emphasises the importance of technology for the existence of the educational process, as this type of education is still forced in Ukraine (due to the war).

Theme	Summary	Original Answer
Technological aspect		
Initial Technical Challenges	Experienced difficulties with organizing distance learning, experimented with various platforms. Eventually settled on Google Meet.	"Коли ми починали, було багато проблем з організацією дистанційного навчання, адже ми експериментували з різними платформами: Google Meet, Zoom, Moodle тощо."
Tools for Tracking Attendance Development	Adapted to using Google Meet, developed a chatbot for tracking attendance.	"Врешті-решт, ми зупинилися на Google Meet... У нас навіть розроблений чатбот, який відстежує присутність студентів та викладачів на парах."
Need for In-person Lab Sessions	Challenges with conducting labs for technical specialties, resolved by allowing in-person lab sessions.	"Єдина проблема, яка може виникнути, стосується проведення лабораторних робіт для технічних спеціальностей..."
Educational Portal Functionality	Maintained learning continuity through the educational portal, ensuring access to lectures and practical tasks.	"Всі онлайн заняття ми дублюємо на освітньому порталі. Тобто і лекції, і практичні заняття, завдання до практичних занять, лабораторних занять вони всі дублюються на освітньому порталі."
Other		
War Impact	Despite interruptions due to the war, quality hasn't significantly suffered thanks to the use of generators, Starlink, and the educational portal for duplicating online sessions.	"На сьогоднішній день так, ці проблеми вони є, але... не можу сказати, щоб сильно постраждала якість."

Table 23. ZP e-learning department's general opinion on distance learning (including blended learning) that was conducted at the university.

In conclusion, the representatives of e-learning departments from both universities identified that a lot was done, but there are still possible ways for improvement. For example, by ensuring the convenience and accessibility for both instructors and Students. Among the critical issues here that need to be addressed are doubts about the effectiveness of certain approaches to distance education (such as traditional methods of just posting educational material on a platform) that lack direct communication and interaction. This underscores the necessity to move away from such "quasi-educational practices"; PL.E.1, and possibly include "in-university lab sessions"; UA.E.1 to ensure the effectiveness of every type of educational activity that needs to be conducted.

Furthermore, it was noted at KUE that technology alone cannot solve all educational problems; the human factor plays a substantial role, particularly in terms of the abilities and motivation to work and learn in this format. The preparation and adaptation of teachers, especially those connected with experience in distance formats and familiarity with platforms like Moodle or Google Meet, are of great significance, again emphasizing the importance of continuous professional development in e-learning competencies.

5.4.2 E-Learning Departments' outlook on good quality of distance learning

During the interviews, several key areas that affect the quality of distance education were identified by both universities' representatives, including the supply of necessary technologies and competencies, pedagogical strategies of the teaching staff, and the psychological adaptation of both teachers and Students to the digital learning environment (Table 24, Table 25).

Theme	Summary	Original Answer
Technological aspect		
Technological Adaptation	It's uncertain what the future holds, technology will evolve and its challenges will evolve with it.	"Nie wiadomo co dalej, bo nie wiadomo jak ta technologia też się będzie rozwijała, jakie w związku z tym będzie stawiała przed nami wyzwania. "
Methodological aspect		
Changing Mindsets Toward Distance Learning	For distance learning to be effective, it must be viewed as equivalent to traditional learning, both at the level of university legislation and mentally.	"Póki nie zaczniemy myśleć o tej formie pracy jako o równoprawnej i to nie tylko na poziomie legislacji uniwersyteckiej..., ale też na poziomie mentalnym, przekonań, i też zaangażowania w nowe formy pracy, do póty ten sposób nauki nie będzie efektywny."
Common Student and Teacher Outlook on how to Work	Distance learning can be an equivalent form of education to traditional classes, provided that both the teacher and the Student know how to work remotely. They have to define the rules of this work, know mutual expectations, and the teacher is an active figure during the educational process.	"Zajęcia zdalne mogą być równoprawną formą kształcenia jak zajęcia tradycyjne pod warunkiem, że obie strony, czyli i nauczyciel, i Student wiedzą w jaki sposób pracować zdalnie. Określą sobie regułę tej pracy, znają wzajemne oczekiwania, a nauczyciel jest aktywną postacią w trakcie procesu dydaktycznego."
Need for Digital Competencies	The development of technology requires learning new skills, including digital competencies and the ability to teach and learn effectively, both on the Students' and teachers' sides.	"Nie wiadomo jak ta technologia też się będzie rozwijała, jakie w związku z tym będzie stawiała przed nami wyzwania, czego trzeba będzie, mówiąc krótko się nauczyć, bo to nie jest tylko kwestia jakby umiejętności posługiwania się narzędziem, czyli nie tylko kwestia kompetencji cyfrowych, ale też i to zarówno po stronie Studentów jak i po stronie nauczycieli, ale też umiejętności uczenia się i też umiejętności nauczania. "
Need for Assignment Innovation	Traditional tasks like presentations for every subject can be monotonous and ineffective.	"Jeśli studenci z każdego przedmiotu na koniec mają przygotować prezentację... to po drugim semestrze studiowania można po prostu umrzeć, bo ile można tych prezentacji przygotowywać, to jest, to są bardzo nudne zadania, one niczego nie uczą."
Effective Integration of Synchronous and Asynchronous Learning	Teachers are working on finding an effective combination of synchronous and asynchronous learning.	"Myślę, że trwają pracę takie głównie koncepcyjne, głównie myślowe w głowach także samych nauczycieli, które mają na celu jakby znalezienie takiego dobrego połączenia pracy synchronicznej z pracą asynchroniczną. "
Personal Impacts of DL participants		

Student Autonomy and Engagement	It's necessary to accept the fact of greater Student autonomy during online work. There is a need for the creation of the conditions necessary for learning, including through interesting tasks.	"Trzeba zaakceptować fakt większej autonomii Studentów w trakcie pracy online, ale też trzeba stworzyć Studentom warunki do nauki między innymi poprzez ciekawe zadania."
Overcoming Stereotypes and Misconceptions	There is a stereotype that distance education is worse than classroom education (which is not supported by any studies).	"Większość nauczycieli czy duża część nauczycieli i Studentów zresztą też powtarzają takie znane wszystkim zdanie, że kształcenie zdalne jest gorsze niż kształcenie w sali... nie jest to poparte żadnymi badaniami, ale faktycznie takie przekonanie, taki stereotyp funkcjonuje."

Table 24. KUE e-learning department's outlook on what the quality of DL depends on.

Except for similarities, there are also differences between these two universities. For example, at ZP "Changing Mindsets Towards Distance Learning" or Overcoming Stereotypes and Misconceptions were not named, as war has already accelerated these processes in Ukraine. At the same time, at ZP more attention is paid to rules of conduct, which are important for mutual understanding and the safety of the educational process.

Theme	Summary	Original Answer
Technological aspect		
Technical Preparation	The university's technical preparedness with microphones, headphones, cameras, and laptops for lending.	"Університет вже підготувався технічно: ми маємо мікрофони, навушники, камери та ноутбуки..."
Resource Accessibility	Ensuring Students have access to necessary resources and materials through the educational portal, despite Internet issues.	"Всі онлайн заняття ми дублюємо на освітньому порталі. Тобто і лекції, і практичні заняття, завдання до практичних занять, лабораторних занять вони всі дублюються на освітньому порталі."
Methodological aspect		
Eliminating the Lack of Personal Interaction by Technology	Attempts to compensate for the lack of personal interaction through technology, acknowledging it as a quality drawback.	"Єдиний недолік - це брак особистісного спілкування, але ми намагаємося компенсувати його за допомогою технологій."
Diverse Presentation Methods	Use of various material presentation methods, including videos and presentations, ensures quality and Student feedback.	"Викладачі використовують різні методи презентації матеріалу, включно з відео та презентаціями..."
Other aspects		
Adherence to Rules of Conduct	Ensuring adherence to rules of conduct by both teachers and Students in the distance learning context.	"Одним з аспектів, який я б хотіла виокремити, є питання дотримання правил трудової поведінки..."

Table 25. ZP e-learning department's outlook on what the quality of DL depends on.

In summary, to ensure high quality of education, the mentioned components require complex interaction, as the absence of even one can significantly decrease the quality of DL.

5.4.3 Questions, problems and highlights reported by lecturers and the E-Learning Departments' reaction

After 2020, both e-learning departments noted a significant increase in highlights connected with distance learning: in inquiries about working remotely and the functionalities of educational software and applications (that also might have direct influence on distance learning). This underscored the necessity to enhance the level of competences connected with essential digital tools, as the rapid shift to online education forced teachers to quickly adapt to various platforms such as Moodle, Zoom, Google Classroom or Microsoft Teams, leading to an increase in requests for assistance. These were not only technical requests but also requests for pedagogical support, as teachers sought advice on rules for conducting distance lessons, or the most effective methods for conducting lectures or exams virtually (Table 26, Table 27). The development of educational materials, including streams and videos or optimizing the use of distance education tools, positively affected the teaching staff's competence. Moreover, the mutual support among teachers to address challenges related to distance education positively influenced the culture of knowledge sharing.

Category	Summary	Original Answer
Technological aspects		
Application Features	Increase in inquiries post-2020, focusing on software/application operation/features (e.g., Moodle, Zoom, Microsoft Teams).	"…zwiększyła się bardzo ilość zapytań i ilość problemów... Co mogę zrobić za pomocą takiej funkcji a czego nie mogę."
Methodological aspects		
Preparation of Instructional Materials	Development and dissemination of training materials, including screencasts and instructional videos.	"przygotowaliśmy nowe materiały szkoleniowe w postaci zarówno tekstów jak i screankastów, takich krótkich filmików instruktażowych."
Trainings	Questions led to training on conducting lectures and exams online, rather than just software usage.	"jak prowadzić wykład za pomocą Zooma ... w jaki sposób zorganizować egzamin ustny, a jak zorganizować egzamin pisemny."
Teaching Methodology	Emergence of questions related to the methodology of using digital tools for teaching.	"zaczęły też pojawiać takie pytania dotyczące metodyki pracy z tymi narzędziami."
Other		
Unhealthy Schedule	Criticism of the decision to maintain a full remote teaching schedule, seen as unhealthy.	"dlatego też no z dużym niezrozumieniem jako zespół przyjęliśmy decyzję władz Uniwersytetu … w tym roku akademickim 2020-2021 o tym że zajęcia mają być wszystkie prowadzone zdalnie, ale według harmonogramu tradycyjnych zajęć, czyli ludzie mieli ciurkiem pod rząd bardzo wiele wykładów i ćwiczeń"
Rapid change in Desires for Traditional/Distance Learning	Mixed feelings about returning to in-person classes, with some longing for remote learning after wanting to go back to the traditional form of learning.	"Ale jak wrócili na zajęcia tradycyjne to zaczęli tęsknić za zajęciami zdalnymi... "

Health Concerns	Reports of deteriorating physical and mental health among faculty members.	"pojawiły się również zgłoszenia od nauczycieli dotyczące pogarszającego się stanu zdrowia zarówno fizycznego jak i psychicznego... bardzo bolą plecy… problemy z żołądkiem, z pogorszeniem stanu psychicznego"
Peer Support	Increased informal peer support and knowledge sharing among the faculty.	"…ludzie sobie nawzajem pomagali... rzeczywiście W jakich zespołach czy katedralnych czy innych układach sobie po prostu pomagają. "

Table 26. Questions, problems and highlights reported by KUE lecturers to the e-learning department.

However, the transition to remote education during the pandemic also brought significant issues, including a marked decline in both physical and mental health, noted by KUE teachers. The negative response to conducting classes remotely, following the schedule of in-person sessions, placed a considerable burden on the health of both teachers and Students. This highlighted the need for more breaks and a general adjustment of the schedule for remote classes as compared to traditional ones. Interestingly, at KUE even teachers who initially preferred entirely in-person teaching were not fully satisfied upon returning to it, finding themselves missing the remote format. This dichotomy underscores the contemporary need for a hybrid model that merges the best aspects of both traditional and distance learning methodologies. However, it is crucial to consider the potential negative effects on the participants' mental and physical health in the educational process.

Category	Summary	Original Answer
Technological aspects		
Communication and Technical Issues	Problems with Internet stability, solved through educational portals and alternative communication methods (email, messengers).	"Так, з інтернетом є трохи проблеми... але знову ж таки ми повертаємося до освітнього порталу..."
Adjusting to Online Tools	Navigating the selection and effective use of online platforms for distance learning.	"На початку було складно, особливо у 2019 році. Але вже у 2021-2022 навчальному році ми вийшли абсолютно підготовлені."
Online Class Attendance Monitoring	Issues with monitoring real participation in online classes, addressed by a chatbot but not fully resolved.	"Ми використовуємо систему чатбота для фіксації відвідуваності, але це не завжди ефективно виявляє формальну присутність."
Other aspects		
Concerns about Lecturers Moving Classes	Concerns about moving classes or inability to conduct remote sessions at specific times.	"Так, викладачі можуть телефонувати, але зазвичай це стосується попередження про перенесення пар..."
Issues of Compliance with the Rules of Labor Conduct	Challenges in ensuring Students' active participation and adherence to rules of conduct during and after online classes.	"Одним з аспектів, який я б хотіла виокремити, є питання дотримання правил трудової поведінки..."

Table 27. Questions, problems and highlights reported by ZP lecturers to the e-learning department.

The problems of Ukrainian teachers reported to the e-learning department after 2022 were more related to minor technical problems or the inability to conduct classes at agreed times, rather than comfort or health influence issues. There is a high probability of the connection of this problem with the consequences of the war. Because of it, they might be more likely to ignore minor issues, including possible health issues, as staying in a crowded place with complicated access to shelter (as it was at the beginning of war) in case of an alarm is more life threatening.

In summary, while KUE Academic Staff needed help rather with the methodological aspects for increasing their DL effectiveness (while also having suggestions for schedule optimization and complaints on other factors), the ZP faculty was rather focused on technical aspects (with occasional problems due to issues with rules of conduct or moving classes to other times).

5.4.4 E-Learning Departments' outlook on the stakeholders in distance learning

Both E-Learning departments named the most important groups of people that have influence on DL and explained their roles (Table 28, Table 29).

Stakeholder	Summary	Original Answer
Students	Students value flexible learning formats and the ability to revisit recorded lectures, treating them like podcasts. This approach makes learning easier but also diverts them from traditional textbooks, highlighting a need to maintain textbook-based learning.	"Interesariuszy jest trzech: studenci... mają bardziej elastyczne formy kształcenia... często te nagrania traktują jak podcasty... odciąga ich od tradycyjnej książki."
Academic Staff	Teachers have their own objectives and styles of teaching. The adaptation to and the adoption of remote teaching environments, whether beneficial or detrimental, heavily depends on the support and conditions provided by the university.	"Na pewno interesariuszami są nauczyciele... w jaki sposób oni sobie przyswoją to nowe środowisko... warunki pracy które zostały stworzone w roku 2020-2021 niekorzystnie wpłynęły na nauczycieli."
University Management	The institution itself, as it navigates the balance between providing the necessary tools (such as laptops) and fostering an environment conducive to the integration of various work formats, aiming for creativity and efficiency in academic work.	"Interesariuszem też moim zdaniem jest sama uczelnia... elastyczne formy pracy powinny wpłynąć w moim przekonaniu... uczelnia mając pracowników, którzy potrafią łączyć różne formy pracy."
Society in General	The broader society, affecting how cities function and the quality of life, emphasizing the importance of understanding technology use.	"Interesariuszem też jest całe społeczeństwo ... nasze życie zmienia się ... społeczeństwo jest bardzo ważnym interesariuszem edukacji zdalnej."

Employers (Labor Market)	Labor market are directly impacted by the evolution of remote work and learning capabilities developed during the education process.	"Nasza praca ... umiejętność pracy zdalnej w zespołach rozproszonych ... "

Table 28. Stakeholders of DL and their perspectives (according to the KUE e-learning department).

For Students, the standout benefit of distance learning lies in its adaptability. They (with the help of the Student Parliament) help shape the educational program for distance learning by expressing their point of view. An interesting change is observed in their preferences for learning resources, with a notable shift to audio-based content, such as podcasts, over traditional lectures. This trend not only reflects the ease and accessibility of newer learning modes, but also shows a gradual move away from traditional study materials like textbooks. They are also connected with their Parents and Families, especially in Ukraine, where first-year Students are usually of a younger age (about 16 years old), while Polish Students starting university education are about 19 years old. Parents can influence Students' choices by helping them to choose better educational programs.

Academic Staff that are responsible for knowledge delivery, facing the transfer to distance learning, highlight the pivotal role of institutional support in forming and developing necessary skills. This situation underscores a need for support strategies, ensuring educators are equipped not only with the latest technology tools but also with effective teaching strategies to navigate the challenges of online education. Meanwhile, University Management have an opportunity to be the first in blending traditional teaching with digital innovations to broaden learning accessibility. However, this comes with the responsibility of providing comprehensive support to ensure the success of distance learning for all involved.

The research also shows the influence of distance learning on the Employers and Society in General. The popularity of remote work and online learning mirrors a larger trend towards digital integration in our lives. This shift has far-reaching effects, from urban planning to improving quality of life and enhancing workforce flexibility, potentially mitigating the migration from smaller towns to major urban centers.

Stakeholder	**Summary**	**Original Answer**
Students	Primary stakeholders, actively shaping and participating in educational programs, expressing opinions and suggestions.	"студенти є основними стейкхолдерами, оскільки вони зацікавлені у здобутті знань та компетентностей. Вони активно беруть участь у формуванні освітніх програм та мають можливість висловлювати свої думки і пропозиції."

Academic Staff	Engage directly with Students, responsible for delivering content and adapting to feedback for quality distance learning.	"Всі ці групи мають вплив на освітній процес загалом. Викладачі звістно..."
Employers	Employers influence educational program development with specific industry needs and recommendations.	"Роботодавці також беруть участь у формуванні освітніх програм і вносять свої побажання та рекомендації. В нас відбувається систематично збори, ми їх так називаємо, круглі столи, стейколдерів, або стратегічні сесії стейколдерів."
Student Parents and Families	More passive, focused on selection of institution, specialty, and financial aspects of their children's education.	"Щодо батьків, то вони, як правило, є більш пасивними стейкхолдерами. Вони зосереджені на виборі навчального закладу та спеціальності для своїх дітей, а також на фінансових аспектах навчання."
Student Parliament	Actively contribute to the educational process, likely facilitating Student feedback and involvement.	"І в нас органи студентського самоврядування активно довечаються до освітнього процесу. Роботодавці також беруть участь у формуванні освітніх програм і вносять свої побажання та рекомендації."

Table 29. Stakeholders in distance learning and their perspectives (according to the ZP e-learning department).

In summary, both e-learning departments expressed similar opinions on the main DL stakeholders (Students, Academic Staff, labor market). Still, several of them were mentioned separately, for example parents, Student government bodies at ZP and the university itself at KUE.

5.4.5 E-Learning Departments' vision on the future of distance learning

Possible future aspects of distance education are shown in Table 30 and Table 31. Currently, the development of distance education can be predicted. This not only concerns technological innovations, but also new pedagogical methods and changes in the social structure, which will primarily affect global cooperation. The features of DL that ensure its popularity even now (flexibility and accessibility from any point in the world) will remain, providing Students with more adaptive paths to education, especially useful for those who have already started their career. Such education will continue to allow them to better balance study with personal life and work. Also, digital materials will become the foundation of the educational process. Still, some elements of traditional education will be preserved (in most cases to ensure a balanced and comprehensive educational environment).

Future Aspect	Prediction Summary	Description	Original Answer (Citation)
Technology Integration	There will be an ongoing need for critical and	The respondent's concern about the uncritical use of technology and its impact on thinking and	"Społeczeństwo jest bardzo ważnym interesariuszem edukacji zdalnej i w ogóle

	reflective engagement with technology in education.	learning underscores the importance of integrating technology in education in a way that promotes critical engagement and understanding.	edukacji. I przez to społeczeństwo też rozumiałabym również przyszłe pokolenie. [...] Ludzie muszą i nauczyciele, i studenci, i uczelnia muszą nauczyć się, jak to wszystko funkcjonuje, żeby móc wykształcić przez młodzież, wśród młodych osób, radzenie sobie, życia z technologią."
Flexibility and Access	Distance learning will continue to offer flexible and accessible education options for Students.	The respondent highlights the value of flexible learning formats and the utility of class recordings, which supports the prediction that these features will remain central to distance learning.	"Dla mnie oczywistą odpowiedzią jest, że studenci mają bardziej elastyczne formy kształcenia, mogą też wracać, jeśli są nagrania z zajęć, to mogą do nich wracać. Często te nagrania traktują jak podcasty, więc łatwiej się im jest uczyć."
Online Content Delivery	Online materials and resources will become standard, but there's a need to maintain traditional study methods.	The mention of online materials becoming a standard, coupled with concerns about moving away from traditional book. Suggestion a future where digital resources are normative but should be balanced with conventional studying approaches.	"Materiały, które są zamieszczane na platformie, to jest dzisiaj w pewnym sensie standard, że już właściwie nie ma nauczyciela, który by nie publikował w Internecie swoich materiałów. [...] Tradycyjnych podręczników i myślę, że praca z podręcznikiem to jest taki obszar, o który trzeba zadbać."
Teacher Adaptation	Teachers will need to adapt to new teaching environments, balancing between traditional and digital methodologies.	The response indicates that teachers faced challenges with the shift to remote work but also suggests a need for flexibility and adaptation in teaching methods, implying that future teaching will require a blend of traditional and digital approaches.	"Nauczyciele, ponieważ no oni też mają swoje cele, większość nauczycieli wie, jakimi chce być nauczycielami, lubi tą pracę. [...] System powinien się, moim zdaniem, bardziej otworzyć, być bardziej elastyczny, bardziej dostosowany do osobowości, ale też umiejętności nauczycieli."
Institutional Change	Universities will need to become more flexible and innovative to accommodate remote learning effectively.	The emphasis on the need for universities to adopt flexible work practices to improve efficiency suggests a broader call for institutional adaptation to support effective remote learning.	"Interesariuszem też moim zdaniem jest sama uczelnia, ponieważ elastyczne formy pracy powinny, w moim przekonaniu, wpłynąć na wydajność tej pracy. [...] Uczelnia mając pracowników, którzy potrafią łączyć różne formy pracy, powinna otrzymać na wyjściu bardziej kreatywne i bardziej wydajną pracę."
Social Impact	The evolution of remote learning will influence social structures, including work life and urban-rural dynamics.	Discussing the impact of remote learning and work on lifestyle and city structures implies that as distance learning evolves, it will have significant effects on societal organization, including the distribution of populations and the nature of work.	"Społeczeństwo ... umiejętność pracy zdalnej ... wpływać też będzie na to, jak i na styl życia... jak będą funkcjonowały miasta. [...] Ludzie albo mieszkają w centrum miasta, i to są najczęściej studenci, rzeczywiście, bo miasta się wyludniają z centrów na obrzeża, przez co ludzie, którzy mają dzieci i tam domy za

			miastem, to tracą bardzo dużo czasu na przejazdy."
Global Reach	Distance learning could open up education to international Students, expanding the university's global footprint.	The mention of distance learning as a means to attract international Students suggests a future in which universities leverage remote education to broaden their Student base globally, emphasizing the potential for educational institutions to reach beyond their traditional geographical limits.	" To też najprawdopodobniej może potencjalnie otworzyć też inne rynki na Studentów z innych z innych krajów Studentów międzynarodowych bo nie każdy chce i ma ochotę i ma pieniądze przyjeżdżać do krajów w którym pół roku jest zimno, prawda jeśli pochodzi z kraju w którym jest ciepło, więc możliwość studiowania na odległość, no być może, że jest w interesie uczelni.
Workforce Preparation	Remote learning prepares Students for a workforce increasingly reliant on digital and remote capabilities.	The response connects the skills acquired through remote learning with the demands of a modern, digital workforce, indicating that distance learning is seen as a key preparatory tool for Students entering a job market that values digital literacy and remote collaboration skills.	"Umiejętność pracy zdalnej w zespołach rozproszonych jest umiejętnością, którą studenci mogą się nauczyć na Uniwersytecie, w bezpiecznych warunkach. I kiedy pójdą na rynek pracy, to nie będą mieli z tym problemu, bo to nie chodzi o obsługę narzędzi, to chodzi o pewną dyscyplinę, umiejętność notowania sobie różnych rzeczy, o samoorganizację swojego warsztatu, samoorganizację swojej pracy."

Table 30. Future of DL (according to the KUE e-learning center).

Another aspect of the impact of distance education on society is the improved possibility of creating international connections between different educational institutions around the world, which will also contribute to the globalization of the educational process. The integration of technology into education will require all participants in the educational process to adapt and critically reflect on distance learning. It will help with the formation of a better understanding not only of the educational material presented in digital learning, but also of critical thinking itself. This will allow more effective work in the modern digital-oriented world. At the same time, distance learning will also prepare Students as future workers for work in modern conditions, which often occur in a digital environment, to which Students will come already having experience of certain remote interaction and digital literacy.

However, it also should be noted that there are still valuable educational components that are impossible to provide in distance format, for example in-person communication. Also, there is the aspect of Students' own decisions on how much attention they pay to the educational process, which is harder for a teacher to influence in a distance form, and without Student engagement, the future of the educational process will be unsuccessful.

Future Aspect	Prediction	Explanation	Original Answer (Citation)
Technology Integration	Increased use of messengers and email.	New systems for easy contact information retrieval for Students and teachers, and providing phone numbers for direct communication via Viber and Telegram.	"У нас використовується маса месенджерів та нова електронна пошта. Ми створили системи, які дозволяють легко знаходити контактну інформацію студентів та викладачів."
Learning Format Based on the Year of Study	Distance learning suitable for senior Students, in person preferred for initial years of study.	Emphasizes the importance of in-person interactions for freshmen to juniors for socialization, communication, and teamwork skills development while recognizes the need for flexibility for senior undergraduates and graduate Students, many of whom are working and require a balance between education and work.	"На мій погляд, для студентів перших трьох курсів більш доцільним буде офлайн навчання в стінах університету.", "Для студентів четвертого курсу бакалавратури та магістратури дистанційне навчання, на мою думку, буде більш відповідним, оскільки багато з них уже працюють і потребують гнучкості у поєднанні навчання та роботи."
Value of In-Person Learning	In-person communication cannot be fully replaced.	Suggests that direct, live communication has irreplaceable value, indicating a belief in the limitations of distance learning to replicate all aspects of traditional learning experiences.	"Це моя суб'єктивна точка зору, але я вважаю, що живе спілкування має незамінну цінність і не повністю замінюється дистанційним навчанням."
Student Engagement	Voluntary attendance and active participation.	Importance of Student motivation and the option to accumulate points over the semester for grades without exams.	"Якщо студент має бажання і цікавість, він відвідує лекції, активно бере участь у практичних заняттях і виконує завдання."

Table 31. Future of DL (according to the ZP e-learning department).

In summary, both universities included in their predictions Technology Integration and Flexibility as the main factors influencing the choice of distance learning in the future. However, while KUE in its predictions concentrated on the global and social impact that the distance learning phenomenon will introduce, ZP concentrated on potential changes and characteristics of distance learning as a process, and the interaction of its direct participants with it.

5.4.6 Lessons learned for the framework from the E-Learning Departments

Both E-Learning departments have shared valuable insights on enhancing DL. One of the primary lessons admitted by both is the significance of Technological and Organizational Infrastructure (ensuring Students have access to the necessary resources on time), that can also be enhanced with Technological Adaptation. For example, ZP has adapted by using tools like Google Meet and developing a chatbot for attendance tracking, showcasing the importance of leveraging technology to support administrative functions. Still, as admitted by KUE, while technology plays a critical role, it is not the sole factor in successful DL.

Another critical role is played by the Common Student and Academic Staff Vision on the DL Process, where both Students and teachers need to understand how to work remotely, know mutual expectations, and set clear rules (for example with the help of Official Regulations) to make DL as effective as traditional learning.

Another critical factor is Organizational Effectiveness and Flexibility, for example in blending synchronous and asynchronous learning, which KUE is actively working on. This flexibility together with Schedule Effectiveness and Flexibility (mentioned by many participants of DL) helps manage the cognitive load and enhances learning outcomes. The Pedagogical Approach for Effective Knowledge Gaining and Control also needs innovation, as traditional tasks like repetitive presentations can become monotonous and less effective. It is also important that the knowledge gained should show Relevance to Modern Times, especially to business needs (ZP, for example, discusses its educational program with potential employers to choose an optimal educational course). Greater Student Autonomy should be accepted, accompanied by providing Academic Support (for example by introducing engaging tasks to maintain interest and focus). All of this, together with the changing mindsets (to view DL as equivalent to traditional learning) and overcoming stereotypes is essential for ensuring the Equivalence of Educational Outcomes.

5.5 IT-Departments

5.5.1 Challenges the IT departments faced connected with distance learning

During the analysis of data from the KUE and ZP IT support department representatives, varied challenges were identified that could be generally divided to Organizational and Technical (Table 32). KUE faced difficulties mainly caused by unsatisfactory staff training, communication, tool implementation and data integration complexities. Concurrently, ZP faced challenges not only due to the pandemic, but also due to the experience of the ongoing conflict even after the pandemic, emphasizing hardware support, financial constraints, and communication tools as pivotal issues.

Uni	Category	Subcategory	Description	ID
KUE	Organizational Challenges	Convincing Stakeholders	Convincing staff and university authorities to adopt the new organizational approach for the 2020/21 academic year was challenging.	PL.IT.04
		Access to Educational Resources	Student and staff access to university resources was hindered, making communication more difficult.	PL.IT.01
		Establishing Standards	Creating and enforcing standards for remote learning. Authorities had to develop and impose communication standards among staff.	PL.IT.04
		Logistics	Logistical challenges in equipment procurement during the pandemic.	PL.IT.01

		Schedule Management	Shifting from physical to virtual meeting schedules posed significant difficulties.	PL.IT.02
		Software Licensing	Purchasing Zoom licenses was an initial challenge.	PL.IT.02
		Training	The number of trainings provided for MS Teams by the E-Learning Center was inadequate at the beginning.	PL.IT.03
	Technical Challenges	Communication Tools	Introducing communication tools previously unused by the University posed a challenge.	PL.IT.01
		Hardware Support	Hardware support for instructors was crucial, given the market scarcity during the pandemic.	PL.IT.03
		Data Integration	Coordinating data across various systems created by different departments was challenging.	PL.IT.03
		Equipment Availability	Purchasing equipment was problematic due to shortages when the pandemic hit.	PL.IT.01
ZP	Organizational Challenges	Convincing Stakeholders	Persuading university authorities to invest in new technical solutions, faced challenges, especially when server strain was observed.	UA.IT.01
		Financial problems	Budget constraints limited the allocation of funds for necessary server upgrades, amidst other competing needs on the same server infrastructure.	UA.IT.01
	Technical Challenges	Communication Tools	The initial weeks were marked by uncertainty about adopting new communication tools for large-scale online gatherings.	UA.IT.01
		Hardware Support	Managing server load during large online gatherings with cameras was particularly challenging without robust server infrastructure.	UA.IT.01

Table 32. Challenges faced by the IT department connected with distance learning.

It is interesting that the IT departments at both universities met difficulties of an organizational nature related to convincing stakeholders (mainly university management) to invest in new technological solutions, as well technological challenges connected with the establishment of efficient communication tools and facilitation of the necessary hardware for teachers. Still, there were significant differences – while ZP had problems with limited funds, at KUE reported problems with logistics in equipment procurement (due to equipment unavailability in stores due to pandemic), creation and enforcing standards for remote learning, schedule management, data coordination across various systems, software licensing and staff training.

5.5.2 IT Departments' general opinion on distance learning

Focused analysis of feedback from the IT department at KUE and ZP gives significant insights into the parameters that shape the quality of distance learning (Table 33).

Uni	Sentiment	Category	Description	ID
KUE	Negative	Adaptation to Changes	The technical preparation of the University is rated as average. Licenses for remote collaboration software are in place, but that's only a part of the necessary tools.	PL.IT.03

		Learning Experience	Generally, remote learning seems to be a worse solution for Students than traditional, in-person education.	PL.IT.01
		System Integration	The integration of MS Teams and USOS was done independently and is not ideal, adding more steps in data processing, which increases the chance of errors. Still left a lot of manual work.	PL.IT.03
	Positive	Adaptation to Changes	Transitioning to remote learning was a significant challenge, but overall, we managed well.	PL.IT.01
			Courses and platforms like Teams for meetings are set up, and groups are prepared. All issues are resolved promptly.	PL.IT.02
			The level of satisfaction with remote learning is satisfactory, and both teachers and Students seem to have a positive attitude towards it.	PL.IT.04
		Technical Support	Technical support for remote learning is very well organized. The e-learning center takes care of this.	PL.IT.02
			The technical preparedness of the University is average, with necessary software licenses purchased for remote team collaboration.	PL.IT.03
ZP	Positive	Optimal for Critical Situations	Given the current situation in the country, remote education is essential.	UA.IT.01
		Technical Support	Technical support during distance learning is simply irreplaceable.	UA.IT.01

Table 33. IT department's general opinion on distance learning.

At KUE, the feedback highlights different experiences, ranging from concerns over the learning experience and system integration to positive adaptations and reliable technical support. Notably, negative sentiments focused mostly on the problems involved in integrating essential software tools like MS Teams and USOS without synergy with already used tools.

Conversely, the positive feedback shows the resilience and adaptability of educational institutions in facing these challenges. The reports of technical support and the swift adaptation to changes reveal a proactive position towards maintaining educational services at both universities. While respondents at ZP generally provided positive opinions, the duality of feedback from KUE demonstrates a critical moment in distance learning: while the technical infrastructure and support have shown significant progress, the essence of pedagogy and Student engagement in a virtual setting demands further improvement and integration.

5.5.3 New technical solutions implemented for distance learning

Table 34 presents the technological integration actions taken by the IT departments at KUE and ZP to support the distance learning infrastructure. KUE started a comprehensive

adaptation of its digital didactic platforms, significantly augmenting Moodle's multimedia and communication possibilities to enhance the didactic architecture. For example, transitioning from Zoom licenses to Microsoft Teams (which is a platform with greater possibilities for education). Furthermore, the university's resolution connected with data synchronization, facilitated the integration of MS Teams with institutional scheduling. It was also noted that the provision of hardware to lectures, notably laptops, was an important step made by the university for DL facilitation.

Uni	Category	Description	ID
KUE	E-Learning Platforms Enhancements	The e-learning platform was updated with video, audio, and online solutions, significantly expanding its capabilities.	PL.IT.01
		Continued enhancement of Moodle for material posting, affirming its essential role in the e-learning ecosystem.	PL.IT.02
		Organization of Moodle and video conferencing tools (Zoom, Teams) to facilitate remote learning.	PL.IT.04
	New Communication Tools	Initial purchase of Zoom licenses transitioned to Microsoft Teams for better collaboration and communication.	PL.IT.02
		Emphasis on organizing e-learning and video conferencing platforms for efficient remote learning.	PL.IT.04
	Data Synchronization	Challenges in synchronizing data across different systems were addressed for MS Teams and scheduling.	PL.IT.03
	Hardware Support	Laptops were purchased for instructors to facilitate remote teaching via Zoom/MS Teams.	PL.IT.03
ZP	E-Learning Platforms Enhancements	Update of the e-learning platform with video, audio, and online solutions using open-source software.	UA.IT.01
	Server Change	Rented a server in Germany to maintain the educational process during power outages, enabling account and password synchronization.	UA.IT.01

Table 34. New technical solutions introduced for distance learning.

ZP had similar needs during the pandemic, but due to the lack of time and finances, technical decisions were forced to be based on using open-source software. In times of war, another important technical decision was made - the renting of a server abroad. It was a countermeasure against potential infrastructural fragility during the war— aimed at mitigating disruptions due to electricity and Internet instability.

5.5.4 IT problems reported by staff connected with distance learning

Table 35 offers an overview of the IT problems reported by staff during the implementation of distance learning. Both IT departments dealt with account access issues, for example inaccessible Microsoft 365 accounts or complete account blockages. Staff at KUE reported Communication Tool Issues, for example in the initiation of Zoom meetings, that, after the migration to the new platform, transformed into the inability to seed team members on MS Teams, often due to system misassignments. The increased number of login

attempts also overloaded the server, causing delays in class start times, which were eventually reduced by increasing server capacity. Scheduling was also problematic, as there were errors in class timetables or classes organization, such as setting up study groups. Another challenge, frequently addressed by faculty was the use of new communication tools, as both faculty and Students faced challenges in using these tools due to lack of training, which affected both communication and class management.

Uni	Lectures Problem	Description	ID
KUE	Account Access Issues	Frequent issues included a lack of Microsoft 365 account or account blockages.	PL.IT.03
	Communication Tool Issues	Main issues were related to starting Zoom meetings.	PL.IT.02
		The most common issue was, 'I can't see my team on MS Teams,' often due to misassignments in the system.	PL.IT.03
	Authentication System Overload	Handling a large number of logins was a problem, causing server overload and class delays, which was resolved by increasing server capacity.	PL.IT.04
	Schedule and Class Schedule Errors	There were errors in schedules and issues with organizing classes, including creating study groups.	PL.IT.02
	Tool Usage Difficulty	Handling of the tools was problematic as neither lecturers nor Students were trained on them, affecting communication and class management.	PL.IT.01
ZP	Account Access Issues	The main issue was forgetting passwords, preventing login.	UA.IT.01
	System Overload	Initial server strain with many meeting participants, which eased when video was turned off.	UA.IT.01

Table 35. IT problems reported by staff connected with distance learning.

At ZP, the staff faced issues mostly with account access, as many forgot their passwords, leading to login difficulties. They also experienced server overloads, particularly during meetings with high participation, which were mitigated when video was disabled.

5.5.5 List of potential improvements

Table 36 shows proposed suggestions from the IT departments at KUE and ZP aimed at the enhancement of the quality of distance learning (from the technical point of view). This list includes a variety of propositions: from financial and software improvement to suggestions for methodological improvement.

Uni	Lectures Problem	Description	ID
KUE	Expanding technical support and training	Training for both employees and Students on the tools used in university is crucial.	PL.IT.01
		The first step is to expand technical support and training for employees.	PL.IT.03
	Choosing one platform	Choosing and standardizing one platform has been essential to avoid confusion.	PL.IT.01
	Dedicated remote teaching spaces	Introducing dedicated spaces on campus for remote teaching equipped with the proper technology is suggested.	PL.IT.03

	Full utilization of MS Teams	MS Teams offers more possibilities for exams, posting materials, remote work, and subgroup work.	PL.IT.02
	Improvement in learning evaluation methods	The major issue is the unverified learning outcomes, highlighting the system's biggest weakness.	PL.IT.04
	Improving communication between Students and staff	Improving communication between Students and employees could enhance the learning experience.	PL.IT.01
	Remote configuration and access tools	Tools allowing IT remote configuration and access to computers would be highly beneficial.	PL.IT.01
	Software improvements	MS Teams lacks integration with university systems (like USOS, schedules), necessitating updates and better integration.	PL.IT.03
	Standardizing equipment for lecturers	Investing in and standardizing the equipment used by lecturers is necessary.	PL.IT.01
ZP	Financing the full utilization of the educational platform	After Google transformed Hangouts into Google Meet for video conferencing, the only remaining issue is the cost: $4 per month per teacher.	UA.IT.01

Table 36. List of potential improvements.

One of the most important steps in the KUE strategy is the augmentation of technical support and training for both faculty and Students to ensure the effective utilization of educational tools. A unified platform is offered to mitigate confusion during digital pedagogic (didactic) activities. The institution also identifies the full exploitation of Microsoft Teams' capabilities as a possible improvement, extending its usage for effective examinations, material dissemination, remote lab classes, and subgroup activities. A revision of learning evaluation methods is considered to address the concerns about unverified learning outcomes. Enhanced communication between Students and staff and equipment standardization is offered to foster a more cohesive and interactive learning environment.

ZP focuses on the economic aspect of the suggested technological extension, particularly the purchase of the full version of Google Meet for video conferencing. Full utilization of this tool could make a significant influence on educational outcomes but brings up the need for an additional financial commitment that might be too expensive for a university during the war.

5.5.6 Lessons learned for the framework from the IT Departments

The IT departments at KUE and ZP provided valuable insights into the framework for enhancing DL. Technological Adaptation was a major focus. At KUE, the technical preparation at the beginning was rated average, as the integration of MS Teams and USOS was not ideal, leading to increased manual work. Despite the challenges, KUE managed the transition to remote learning well, with good levels of satisfaction among teachers and Students. On the other hand, ZP faced uncertainty in adopting new communication tools and

struggled with server load during large online gatherings without robust infrastructure, but also managed to fix that.

In terms of Technological and Organizational Infrastructure, both universities made significant improvements. KUE updated its e-learning platform with video, audio, and online solutions, and enhanced Moodle for material posting, establishing it as an essential tool. ZP also upgraded its e-learning platform using open-source software and rented a server in Germany to maintain educational processes during power outages, ensuring account and password synchronization.

The aspect of Organizational Effectiveness and Flexibility was addressed by KUE through the creation and enforcement of remote learning standards, which were crucial for effective communication among staff, and in the future might become part of Official Regulations. However, Schedule Effectiveness and Flexibility posed difficulties for KUE, particularly in shifting from physical to virtual meeting schedules.

At KUE the Pedagogical Approach for Effective Knowledge Gain and Control was also highlighted by the need for improved learning evaluation methods, as unverified learning outcomes were identified as a significant weakness.

Overall, the experiences of KUE and ZP underline the importance of robust technological and organizational strategies in enhancing DL frameworks. Establishing standards, improving infrastructure, and adapting to changes are critical for maintaining educational quality and effectiveness.

5.6 Employers

5.6.1 Employers' experience with graduates

The data gathered in Table 37 shows respondents' characteristics in terms of their experience in hiring graduates of KUE and ZP who have experienced DL.

Uni	Engaged with Recent Graduates	Field of Study	Description	ID
KUE	No	No info	Did not hire any KUE graduates in the last two years.	PL.P.04
	Yes	No info	Engaged with Students from KUE, especially those who completed their internships and studied remotely.	PL.P.01
			Employed such graduates but can't specify the fields.	PL.P.03
			Works with such graduates but cannot disclose their fields.	PL.P.05
		IT	Conducted Student internships in 2020 for Students, both in applied informatics.	PL.P.08

			Dealt with individuals who completed an IT bootcamp during 2021-2022.	PL.P.09
		Management	Respondent completed a Master's degree in Management at KUE, experienced two years of remote learning as a graduate.	PL.P.07
		Psychology, Accounting and Control, Finance and Accounting, Economics	Engaged with graduates from the last two years in fields like economics, finance, accounting, and psychology…	PL.P.10
		Economics, Finance and Accounting, Management	Many Students and graduates from economics, finance, accounting, and management, with around 17 applications.	PL.P.06
		Finance	Currently working with someone from a finance-related field.	PL.P.02
ZP	Yes	IT, PR, Marketing, Accounting, Management	Over the past five years, mainly worked with IT specialties but also with PR specialists, marketers, and various managers, mainly from the IT department but also from others.	UA.P.02
		IT, Linguistics, Engineering	Typically, software engineering specialty, but also other technical fields like computer engineering and some non-technical fields like linguistics.	UA.P.03
		IT, Cyber Security	Primarily IT specialties, including engineering and software, with cyber security among them.	UA.P.01

Table 37. Employer characteristics.

Polish companies hired graduates of IT, Management, Economics, and Finance courses. Ukrainian respondents mostly had experience with graduates of IT and related courses.

5.6.2 Differences between distance learning graduates versus previous graduates who studied in the traditional form

Data in Table 38 reveals a generally positive sentiment towards the adaptability of distance learning graduates to remote work environments, with no great differences in knowledge and skills reported for Polish graduates. Interestingly, the engagement level of these graduates appears to be the same as in previous years, a factor seemingly unaffected by the mode of learning.

Uni	Difference in Knowledge and Skills	Sentiment Category	Distance Learning Graduates Characteristics	Description	ID
KUE	No	Positive	Different generation - same knowledge and skills	No wide difference observed. Distance learning hasn't significantly impacted the development of their skills.	PL.P.10
				No noticeable difference in knowledge and skills. However,	PL.P.01

			Better at adapting to remote work	distance learning Students adapt better to remote work later on.	
				No significant difference in knowledge, but recent graduates are more accustomed to online communication and meetings.	PL.P.09
			The same level of engagement	Company work is unique, attracting energetic and engaged individuals regardless of their study mode.	PL.P.02
				Can not comment on knowledge as it is not assessed, but distance learning Students are as engaged as Students from previous years.	PL.P.03
			High level of knowledge	First-time interns showed a high knowledge level, unsure if due to study mode or recruitment process.	PL.P.08
	Yes	Negative	Higher demands, lower skills	Higher financial expectations don't match their knowledge or skills. Expect work to be 100% remote like their studies.	PL.P.05
			Lower knowledge	Knowledge is better acquired on-site. Distance learning not suited for practical exercises.	PL.P.07
ZP	No	Positive	Different generation - same knowledge and skills	Distance learning hasn't had a strong impact. Generation theory suggests minor differences between millennials and younger generations.	UA.P.02
			DL provides relevant experience for some positions	For IT and programming fields, distance learning makes little difference as Students adapt from one online platform to another.	UA.P.02
			Skills are the same as before	Have not noticed any difference in skill or knowledge levels compared to hires from 3-4 years ago.	UA.P.01
			Trainees are now slightly younger	Trainees appear younger post-distance learning, noticed after comparing hundreds from the previous year.	UA.P.01
				No significant difference now, but it may become an advantage, especially for technical fields, as many offices also adopt remote work.	UA.P.01
	Yes	Positive	Higher level of knowledge	Collaboration with companies and ZP openness reduces new graduate adaptation time.	UA.P.02
			DL provides relevant experience for some positions	Technical fields, especially those already operating on remote platforms, don't benefit from offline methods. Students lose out on gaining real-world technical skills.	UA.P.03

Table 38. Differences between graduates who experienced DL versus previously hired graduates who studied in the traditional form.

Polish employers generally reported a mix of sentiments, with some expressing concerns over mismatched salary and position expectations regarding skills and work modalities for graduates that expressed a preference for remote roles. Ukrainian employers

noted that distance learning provided relevant experience for certain positions and did not mark a notable change in the skill sets of graduates from previous years. Generally, while technical fields showed an advantage in adapting to the digital shift, some employers voiced concerns over a lack of real-world practical exercises for skill development due to the remote nature of learning.

5.6.3 Distance Learning effectiveness for employee training

As presented in Table 39, both Polish and Ukrainian employers confirm the time-saving and cost-effective aspects of DL, underscoring its ability to educate employees in professional development without necessitating physical presence.

Uni	DL Usage	Reason for Effectiveness	Description	ID
KUE	Yes	Time efficiency	Remote learning is a cost-effective and time-saving option for professional development. Saves commuting time, reduces costs, and maintains quality of knowledge transfer.	PL.P.10
			Remote courses offer convenience and time savings, avoiding the need to leave the work environment.	PL.P.09
			Distance learning offers time savings for those looking to advance in their field.	PL.P.05
		Provides good knowledge if well-organized	Quality remote courses led by skilled instructors are effective.	PL.P.08
	Yes (Hybrid)	Improves soft skills	Remote sessions are good for soft skills, but certain experiences require in-person interaction.	PL.P.03
			Most employee training is remote, especially for soft skills, though the mode can depend on the specific training.	PL.P.07
		Time efficiency	Remote work saves commuting time, though direct interaction may sometimes be preferable.	PL.P.04
			Blended learning complements traditional education by eliminating the need for physical presence at all classes.	PL.P.01
		Good for additional training courses	Hybrid learning, combining initial in-person training with remote courses, is optimal.	PL.P.06
		Prepares for reality; live interactions necessary for full understanding	Hybrid form has been most effective, combining convenience with deep understanding.	PL.P.02
ZP	Yes	Time efficiency	The switch to online learning platforms freed up time that would otherwise be spent commuting. Saves time, especially during the pandemic.	UA.P.02
		Reaches more people	The pandemic-induced shift to online learning allowed for a broader educational reach without decreasing effectiveness.	UA.P.02
	Yes (Hybrid)	Reaches more people	Online courses reach more people but lack the benefits of face-to-face interactions for full effectiveness.	UA.P.01

		Good for additional training; some certifications require in-person assessment	Most professional development courses are online, with certain certifications conducted in-person where necessary.	UA.P.03
		Increases stability of learning, misses personal connections	Online learning offers stability but lacks the personal connection crucial in work, training, and cultural integration.	UA.P.01
		Online interaction is currently the most viable option	Remote work has been a necessity, with a mixed format potentially offering a more optimal solution.	UA.P.01
		Provides good knowledge; mixed format is ideal	Online courses are valuable for professional development, with a hybrid format enhancing effectiveness through workshops and in-person training.	UA.P.03

Table 39. DL effectiveness for employee training.

On the one hand, the hybrid model, integrating remote sessions with in-person interaction, is noted as the optimal option for enhancing soft skills and preparing employees for real-world engagements. On the other hand, Ukrainian employers emphasize that the widespread use of DL is a positive factor, claiming that the transition to online platforms during the pandemic did not affect the effectiveness of training.

However, while recognizing the efficiency of DL and hybrid formats in accommodating busy schedules and expanding accessibility, employers highlight the lack of personal connection and the potential problem in achieving full understanding without face-to-face interactions.

5.6.4 The scope of distance learning usage in the future

As it presented in Table 40 Polish respondents seem to prefer DL as an addition to traditional methods (as part of a hybrid format). This, according to them, can mitigate the geographical and time limitations typically associated with on-site education.

Uni	Future Scope of DL	Parameters for DL Usage	Description	ID
KUE	As part of a hybrid form (for some types of teaching)	Rather as a supplement, additional training	Partial replacement of on-site learning, with a focus on using DL as a complement.	PL.P.02
			Hybrid model preferred, emphasizing the need for live interaction for clarification and explanation.	PL.P.04
			Suggests a hybrid or similar form, highlighting the convenience of saving commute time.	PL.P.04
			Advocates for DL, especially where workshops are not necessary, to save time and resources.	PL.P.10

		In combination with in-person exercises and in cooperation with businesses	Advocates for a hybrid model with in-person exercises, especially in cooperation with businesses.	PL.P.01
	For some fields of study	As an available alternative to live teaching	Stresses DL as an option, especially for international Students to avoid the stress of studying abroad.	PL.P.08
			Suggests a broad application of DL wherever possible, excluding manual exercises.	PL.P.09
		Better system of verification and assessment needed	DL to be used with Student attendance control and a more robust verification system. Not all fields are suitable.	PL.P.03
	Online for foreign Students	As an available alternative to live teaching	Highlights DL as beneficial for foreign Students, offering them a choice and reducing stress.	PL.P.08
	As a possible alternative choice for Students	As an available alternative to live teaching	Emphasizes DL as an option, allowing for Student choice in how they wish to study.	PL.P.08
	Usage with taking into account the risks	Very cautiously	Warns about the risks (such as dishonesty) in remote learning.	PL.P.05
	When universities experience external limitations (pandemic, energy crisis)	As an available alternative to live teaching	Points to external factors like pandemics and energy crises as drivers for DL, usage with certain limitations.	PL.P.07
ZP	As part of a hybrid form	In combination with in-person exercises	Discusses the digitalization of education, showing a disparity in digital adoption among universities.	UA.P.03
		In combination with in-person exercises and in cooperation with businesses	Reflects on a positive experience with a hybrid model that combines remote work with intensive in-person sessions and actual experience brought by employers.	UA.P.01
	For some fields of study	As an available alternative to live teaching	Points out the advantages of DL for a globalized company, allowing for scalability and overcoming distance barriers.	UA.P.02

Table 40. The scope of distance learning usage in the future.

Ukrainian responses underline a similar trend towards hybrid education, but with an additional focus on the role of digital education in business collaborations. The responses suggest that such collaborative models not only facilitate educational outreach but also

provide a framework in which practical skills can be provided through direct interaction with industry professionals.

5.6.5 Lessons learned for the framework from Employers

The differences between graduates who experienced DL versus previously hired graduates who studied in the traditional form suggest that while distance learning can prepare graduates for the digital workplace, there is a nuanced impact on practical skills acquisition. The diversity in employer experiences and expectations underscores the need for a multifaceted approach to evaluating and integrating distance learning outcomes into future educational and workforce development strategies. Here, Organizational Effectiveness and Flexibility was a key factor noted by both groups. KUE employers emphasize the time efficiency of remote learning, noting that it saves commuting time and reduces costs while maintaining the quality of knowledge transfer. ZP employers similarly appreciate the time savings and the broader educational reach facilitated by online learning, especially during the pandemic.

The feedback on the effectiveness of employee training suggests a growing recognition of hybrid models as balanced approaches to professional development, combining online stability with the tangible benefits of in-person workshops and training. Respondents in both countries agreed that DL will be one of the key aspects of future employee education, however because some work activities require in-person contact, it will rather be used as part of hybrid education. In this context, the Pedagogical Approach for Effective Knowledge Control is required to be good. For example, KUE employers stress the importance of well-organized remote courses led by skilled instructors. There is also a need for a better verification and assessment system to ensure that all the necessary fields are adequately covered to provide the Equivalence of Educational Outcomes. KUE employers generally find no significant difference in knowledge and skills between distance learning and traditional graduates, although distance learning Students tend to adapt better to remote work environments. ZP employers also note that DL modules provide relevant experience for technical fields, and that the skills of DL graduates are comparable to those of traditional Students. Still, those learning materials must show Relevance to Modern Times (Business Needs) that, as reported by ZP, is easier to achieve with the help of DL.

The insights gathered on the scope of DL usage in the future suggest that employers connected with both universities value DL for its potential to enhance educational efficiency and as a strategic alternative during unforeseen disruptions. However, they also express a

need for caution, particularly with regards to the integrity of the learning process in a fully remote setting – suggesting selective applications of DL.

5.7 Discussion of results

5.7.1 Quality and stakeholders of distance learning (RQ1 and RQ2)

To answer RQ1, a literature review was conducted. As a result, we managed to identify the main factors that influence the quality of distance learning (Table 7) in order to use this data as an instrument for forming the quality parameters in distance learning, shown in Figure 4.

In this research aimed at answering RQ2, we analyzed the stakeholders of university educational services based on literature and the results of interviews. The findings from the literature were compared with interview data collected from academic and e-learning department staff and Students. In literature, there was not enough sources that identify stakeholders specifically for distance education, that is why literature named in Table 41 has examples of stakeholder identification for higher education in general. In the interviews column, we have the results based on answers specifically for distance learning in higher education.

Internal/ external	Stakeholder	Literature (based on 1.3)				Academic Staff interviews		Student interviews		E-Learning departmen t interviews	
		(Mainardes, Alves, & Raposo, 2013)	(Avcı, Ring, & Mıtchell, 2015)	(Slabá, 2015)	Other	KUE	ZP	KUE	ZP	KUE	ZP
I	Students	+	+	+	+	+	+	+	+	+	+
I	Academic Staff	+	+	+	+	+	+	+	+	+	+
I	Non-Teaching Staff	+	+	+	+	+	+	+	+		
I	University Management	+	+		+	+		+	+		
I	IT-Support Department*					+	+	+	+		
I	E-Learning Department*					+	+				
I	International Programs and their Students	+				+					
I	Organizational Departments*							+	+		
I	Student Parliament*							+	+		
I	Group Mates*								+		
E	Employers	+		+	+	+	+	+	+	+	+

E	Student Parents and Families	+	+	+		+	+	+	+		+
E	National Government	+	+	+			+	+	+		
E	Business/Commercial Associations	+		+					+	+	+
E	Service and Platform Providers					+	+	+	+		
E	Municipality Hosting the University	+	+	+							
E	Other Universities and Higher Educational Institutions	+		+						+	
E	The University's Surrounding Local Community	+	+	+							
E	Accreditation Commission			+		+	+				
E	Internet Provides*							+	+		
E	Secondary Level Schools	+		+							
E	Flat Mates*							+	+		
E	Society in General	+								+	
E	Private Financiers	+		+							
E	Scientific Communities	+		+							
E	Donors		+	+							
E	Alumni	+					+				
E	Research and Development University Partner Companies	+									
E	Research and Development Staff	+									
E	Professional Orders	+									
E	European Union	+									
E	Political Authority (Presidents and Administrative Leadership)		+								
E	Media			+							
E	Public Relations Staff								+		

*Note: *stakeholder groups can be identified as a subcategory of other named stakeholders, but were named separately in the interviews.*

Table 41. Stakeholders of university educational services based on the literature and the results of interviews.

A notable similarity across both literature and interviews is the recognition of Students and Academic Staff (Teaching Staff and Researchers) as key stakeholders. Both groups consistently identified these stakeholders, underscoring their central role in the educational process. However, differences emerged in the categorization of non-teaching staff. While literature generally grouped them under Non-Teaching Staff, interview respondents from both Poland and Ukraine preferred to specify this category further, for example into the E-Learning Department and IT-support Department. This shows the specific roles these departments play in their outlook on supporting distance education, which might not be that important in the traditional settings. Another interesting divergence is seen with categories such as the Student Parliament, Group Mates and Flat Mates. In literature, these stakeholders might be broadly included under the Student or Student Parents and Families categories. However, interviews have shown that Students felt it was important to distinguish the Student Parliament due to their decision-making power, and Group Mates due to their direct involvement in collaborative learning activities. Flat mates were specified among Student Parents and Families because living together can affect one's study environment. This nuanced view from Students highlights the unique challenges and influences of these relationships in a distance learning context.

The study also showed that while literature acknowledges broad categories like Service and Platform Providers, interviews specified Internet Providers as critical, reflecting the essential role of a reliable Internet connection in online education. Moreover, Employers and National Government were consistently recognized across both sources, indicating their overarching influence on educational services.

For better utilization in further research, the stakeholders were divided to internal and external ones. Internal stakeholders are involved in the daily operations and activities of the educational institution. Among them are Students, who are the primary focus of educational programs (and as Group Mates support each other in their educational process), as well as Teaching Staff and Researchers, who provide teaching and carry out research. Non-Teaching Staff support the institution through various administrative and maintenance roles. The IT-Support and E-Learning Departments provide essential technical services that facilitate learning and administration. Senior University Management makes strategic decisions to guide the institution. International Programs and their Students (that are involved in the educational process) contribute to the diversity and global engagement of the institution.

External stakeholders are not directly involved in daily operations but have significant interest and influence on the educational process. Employers seek well-educated graduates

while Student Parents and Families care about the quality of education their children receive. The National Government sets educational standards and policies. Business Associations, Service and Platform Providers and the Municipality partner with the institution for mutual benefit. Other Universities and Higher Educational Institutions might collaborate or compete, affecting standards and opportunities. The University's Surrounding Local Community benefits socially and economically from the institution. Accreditation Commissions ensure the institution meets the required standards. Internet Providers support educational infrastructure by providing the necessary connectivity and online infrastructure for the institution. Secondary Level Schools prepare Students who will eventually attend higher educational institutions. Flat Mates share living spaces with Students, indirectly supporting or disturbing them. Society in General benefits from educated citizens. Private Financiers and Donors provide crucial funding. Research and Development Staff, Scientific Communities and Research and Development University Partner Companies collaborate on projects with the university. Professional Orders maintain standards of professions inside of professions group and together with Alumni provide connections that enhance the institution’s reputation and networks. The European Union and Presidents and Administrative Leadership influence strategic directions, policies and regulations. Media shape public perception and attract prospective Students, while Public Relations Staff help promote the institution and attract Students and partnerships.

5.7.2 Quality parameters (RQ3)

Identification and comparison of the up-to-date factors that determine the quality of distance learning in higher education from the point of view of different stakeholders presents Table 42.

Quality Parameter	Description	Mentioned by
Technical aspects		
Technological Adaptation (also as part of psychological and academic preparedness)	Highlighting the need for comprehensive technical support and training for both faculty and Students to effectively use educational tools. Preparing for future technological developments and the evolving challenges they bring to distance learning.	E-Learning Department, IT Department, Academic Staff, Students
Technological and Organizational Infrastructure	Expanding on the provision of essential tools, reliable Internet connectivity, and addressing the financial and technical preparedness for remote teaching.	Academic Staff, Students, E-Learning Department, IT Department
Methodological aspects		
Common Student and Academic Staff Vision on the DL process	Emphasizes active involvement of Academic Staff and mutual understanding of remote work expectations between Academic Staff and Students.	Academic Staff, Students, E-Learning Department

Organizational Effectiveness and Flexibility (that leads to Optimal Cognitive Load)	The importance of flexible access to materials, selective application of distance learning modalities, and integration of synchronous and asynchronous learning, that will also lead to an optimal cognitive load. Standardizing the usage of a single platform to avoid confusion and fully leveraging its capabilities for teaching, learning, and evaluation.	Academic Staff, Students, E-Learning Department, IT Department, Employers
Pedagogical Approach for Effective Knowledge Gain and Control	The utilization of varied teaching methods and innovative assignments to adapt to different learning styles and enhance engagement.	Academic Staff, Students, E-Learning Department, Employers, IT Department
Equivalence of Educational Outcomes	Ensuring comparable educational outcomes between distance and traditional learning, alongside shifting mental beliefs towards the equivalence of distance learning.	Students, Academic Staff, E-Learning Department, Employers
Psychological and Academic Adaptation	Addressing stereotypes about distance learning and enhancing digital competencies for effective adaptation to digital environments.	Academic Staff, E-Learning Department
Relevance of education to modern times (business needs)	Distance learning is seen as providing the relevant experience.	Academic Staff, Employers
Engagement and Focus from Academic Staff and Students	Strategies to maintain Student concentration and engagement, minimizing distractions in remote learning environments.	Academic Staff, Students, E-Learning Department
Organizational aspect		
Student Autonomy Possibility with Academic Support for Students	Acknowledging and fostering greater Student autonomy in online learning, while creating engaging learning conditions with the necessary support.	Students, Academic Staff, E-Learning Department
Schedule Effectiveness and Flexibility	The significance of a structured yet adaptable schedule for managing responsibilities and accommodating various situations.	Academic Staff, E-Learning Department, Students, Employers, IT Department
Official University Regulations (including camera regulation)	Creation of Official Regulations relevant for DL to prevent misunderstandings that lead to unethical behavior. For example, Camera Regulation should consider not only potential improved performance of DL participants, but also be based on the technical capabilities of the equipment. Regulations should be clear to all DL participants to avoid disputes regarding the organizational obligations.	Academic Staff, Students, E-Learning Department, IT Department

Table 42. Quality parameters' summary based on the analysis of the results.

A further step is in the discussion is the comparison of this data to the results of literature review (Table 7) and document analysis (5.1).

Comparative analysis based on official documents from KUE and ZP (5.1) shows differences and similarities between data from the two universities. For example, the regulatory framework for distance education at KUE is heavily influenced by EU directives, national policies, and university-specific strategies. Early documents like the Maastricht Treaty and subsequent EU programs laid the groundwork for a robust distance education system, while ZP's distance education regulations are rather based on national legislation, beginning with the

2003 resolution and evolving through various digitization and educational strategies. Recent war-related regulations have also shaped their approach. KUE's implementation of distance education began with the establishment of an E-Learning Centre and strategic adoption of various e-class formats. The university adapted to COVID-19 by shifting to online learning and later implementing hybrid models, while ZP started integration of distance learning based on national regulation later in comparison to EU countries, and enhanced it during the pandemic. The war necessitated further adaptations, including extended vacations, remote learning protocols, and flexible academic calendars. Crisis response at both universities was rapid: during the pandemic, both quickly moved to online classes (later adopting hybrid models). Both responses were structured, with clear timelines and phases depending on government regulations. However, ZP in Ukraine is still in crisis (because of the war that started straight after the pandemic), which also influences support systems. ZP ensured educational continuity through flexible measures, focusing on Student and faculty support and leveraging technology for uninterrupted education, while KUE built its support systems on strategic planning, technological investments, and clear guidelines for Students and faculty.

Figure 4 shows a unified outlook on these quality parameters, based on stakeholders' opinion analysis (Table 42), document analysis (5.1), and literature review results (Table 7). Next, factors that were identified as quality parameters for distance learning, together with the suggestions of the responsible stakeholders and propositions of evaluation, are used for the creation of the framework.

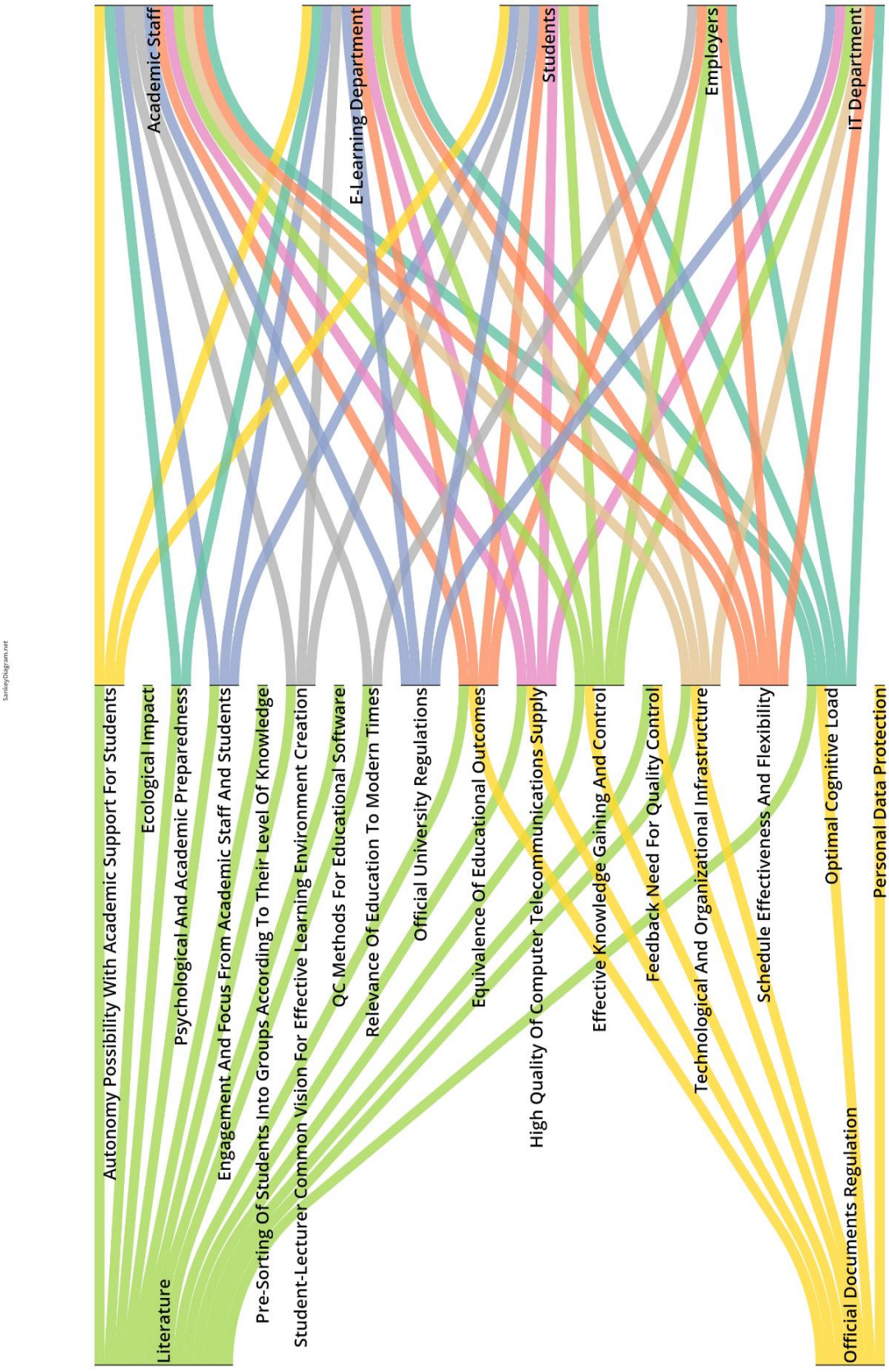

Figure 4. Parameters that should be included in the Framework for shaping the quality of distance learning (on the left side – parameters met during literature review and document analysis, on the right side – respondents that mentioned the parameters).

6 Framework for shaping the quality of distance learning

6.1 Framework proposition

Based on parameters described by literature, official regulations and DL stakeholders' opinions, we have aspects to evaluate in a Framework for shaping the quality of distance learning (Table 43). They are described below.

Quality Parameter	Responsible Stakeholder	Evaluation Method
Technical aspects		
High Quality of Computer Telecommunications Supply	University Management, Academic Staff, Technical Support, IT Services, Internet Providers, Students, State	Internet service performance based on user logs, speed tests, user feedback surveys
Technological and Organizational Infrastructure	University, Technical Support, E-Learning Department	System performance reviews, user feedback surveys, maintenance logs
Personal Data Protection	University Management, Technical Support, Service Providers	IT Department feedback (security audits, data breach monitoring), user feedback surveys
QC Methods for Educational Software	E-Learning Department, Technical Support	User feedback surveys, IT Department feedback
Methodological aspects		
Optimal Cognitive Load (based on Organizational Effectiveness and Flexibility)	Academic Staff, E-Learning Department	Student feedback surveys, academic performance monitoring
Effective Knowledge Gain and Control	Academic Staff, E-Learning Department, Students	Employers' surveys, Student feedback surveys, academic performance monitoring
Materials and Methods Relevant to Modern Times	University Management, Employers, Academic Staff, Students	Curriculum relevance review, Employers feedback surveys
Pre-sorting of Students into Groups According to their Level of Knowledge	University Management, Academic Staff	Academic performance monitoring, Student and Academic Staff feedback
Psychological and Academic Preparedness	University Management, Academic Staff, E-Learning Department, Students	Academic Staff feedback surveys, Student feedback surveys
Equivalence of Educational Outcomes	University Management, Academic Staff, E-Learning Department, Students	Academic results comparison, curriculum consistency evaluation, Employers feedback surveys, Student feedback surveys
Student-Lecturer Common Vision for Effective Learning Environment	Academic Staff, Students	Academic Staff feedback surveys, Student feedback surveys
Engagement and Focus from Academic Staff and Students	Academic Staff, Students	Academic Staff feedback surveys, Student feedback surveys
Organizational aspect		
Autonomy Possibility with Academic Support for Student's	Academic Staff, University Management, Students	Student feedback surveys

Feedback Need for Quality Control	University Management, Academic Staff, E-Learning Department, Students	Feedback surveys (with regular feedback cycles and focus groups)
Official University Regulations for DL	University Management, Academic Staff	Feedback surveys
Schedule Effectiveness and Flexibility	University Management	Feedback surveys
Ecological impact	University Management	Assessment of environmental impacts

Table 43. A proposition of a framework for shaping the quality of DL.

High Quality of Computer Telecommunications Supply directly affects the accessibility and effectiveness of distance learning, as reliable and fast Internet connectivity is essential for successful online classes, access to educational materials, and interaction between Students and Academic Staff. High-quality telecommunications services also include technical support and ensuring the system runs smoothly to minimize technical issues that can disrupt the learning process. This parameter is especially important for Ukrainian respondents, as the conditions for conducting distance classes at ZP included the consequences of missile attacks and hacker attacks, causing interruptions in both Internet and electricity. The responsibility for the High Quality of Computer Telecommunications Supply is divided among multiple stakeholders. The University Management, that purchase this supply, should choose the most optimal options and ensure that its money is spent on high-quality products. IT Services that were chosen and Technical Support at the university ensures infrastructure is in place. Academic Staff and Students rely on stable Internet connections (facilitated by Internet Providers) and have to deal with the quality control of this parameter on their own at the place they had chosen for DL. Internet service performance based on user logs (Akhigbe, 2020) and speed tests (Hawthorne, 2020) can provide objective measures of service quality, while user feedback (Birch-Jensen, Gremyr, & Halldorsson, 2020) could capture the experiential aspect. By addressing issues highlighted in these evaluations, stakeholders can work together to maintain a high level of telecommunication infrastructure at the university level and in DL learning places.

Technological and Organizational Infrastructure includes all technical means and resources necessary for conducting distance learning, such as online learning platforms, software, hardware, as well as support and maintenance of these systems. A reliable infrastructure, as well as the previous parameter, ensures uninterrupted access to educational materials and classes, as well as support for technical issues that needed to be enhanced as part of technological and organizational adaptation for effective DL at the university. The University Management and Technical Support teams have similar roles here - to ensure that

infrastructure is consistently reviewed, maintained (and adapted to DL if necessary). System performance reviews (Ma & Wang, 2023) offer data on the operational efficiency of the infrastructure, that can be effectively analyzed and evaluated by Technical Support teams, while user feedback surveys can provide insights into end-user satisfaction and issues. Maintenance logs (Yu, Sheng, & Zhang, 2023) can also help track and schedule necessary updates or repairs, that must be conducted with university agreement and financing. The E-Learning Department can utilize information about infrastructure to optimize platform usability, ensuring that organizational and technological barriers do not hinder the learning process.

Personal Data Protection, that is also connected with Technological Infrastructure, is critical for maintaining Student trust and complying with regulations. It includes measures to prevent leaks and unauthorized access to the personal information of Students and Academic Staff. This is important for ensuring the confidentiality and security of data in the distance learning process. Data protection measures include the use of encryption, multi-factor authentication, and regular security audits. Although respondents did not mention this parameter, it plays a vital role in complying with regulatory requirements and standards, as well as in preventing leaks and cyber-attacks that can harm the university and its participants. The University Management, in collaboration with Technical Support and Service Providers, have to conduct regular security audits and monitors for data breaches. User feedback can help to identify if there are any concerns or issues related to data security. By ensuring a high level of data protection measures, the university can safeguard personal information, which is crucial for maintaining the integrity and trustworthiness of DL.

QC Methods for Educational Software are crucial to ensure that the tools used in DL meet the necessary standards as it can have direct influence on the quality of Technological Infrastructure. They ensure its effectiveness and compliance with standards. This includes testing, evaluation, and certification of the software used for distance learning. Reliable quality control methods guarantee that the educational resources used meet the specific requirements and standards. Quality control of software helps to avoid technical problems and ensures the stable operation of educational platforms. The E-Learning Department and Technical Support teams usually rely on IT Department feedback and user feedback surveys to identify software issues and areas for improvement. Regular QC checks help maintain software functionality and usability, ensuring that it effectively supports the learning process. Addressing any problems promptly enhances the reliability and user satisfaction of the DL platform.

Optimal Cognitive Load means that educational materials and assignments should be distributed in a way that Students can absorb them without overload, which also promotes better comprehension of information, leading to high academic results. This is important for maintaining Students' concentration and motivation throughout the learning process. Optimal cognitive load also prevents Student burnout (which occurs in case of overload) and the rapid loss of interest in the subject (if the load is insufficient). It`s monitoring might involve Academic Staff and the E-Learning Department, who implement instructional designs. Through Student feedback surveys it will be easy to understand the Students' perception of their cognitive load. By subsequently using academic performance monitoring, these perceptions can be correlated with actual performance outcomes. The University Administration can control and optimize this load not only for Students, but also for other staff by creating **Schedule Effectiveness and Flexibility**. It ensures that classes are organized and predictable, aiding in better time management and reducing stress for Academic Staff as well as for Students who may be juggling various commitments such as part-time jobs, family responsibilities, or different time zones. According to respondents' opinion it is important to avoid traditional and DL classes at the same day. It is also important to take into account the negative influence on Academic Staff and Students' health of several DL classes back-to-back without a break (these breaks have to be longer compared to breaks between traditional classes). The level of satisfaction by schedule can also be checked with the help of feedback surveys (Alderman, Towers, & Bannah, 2012).

Effective Knowledge Gaining and Control is important in verifying Students' achievement comparing to intended learning outcomes. It involves systematic monitoring and assessment of Students' performance. This allows timely identification of gaps in Students' knowledge and skills, adjustment of the learning process, and provision of necessary support. Effective knowledge gaining and control includes using various assessment methods, such as tests, exams, projects, and practical assignments that would show high effectiveness specifically in DL format. Academic Staff (with the help of E-Learning Department) design assessments that have to be effective for knowledge-check in DL, while Students have an opportunity to provide direct feedback on these assessments. Employers' surveys (Finley, 2021), also can be helpful, as they offer an external validation of the knowledge and skills acquired by Students, aligning academic performance with industry expectations, which leads us to the next quality parameter.

Materials and Methods Relevant to Modern Times are crucial for preparing Students for current and future challenges in their professional careers. This includes adapting

curricula to modern scientific and technological advancements, as well as applying interactive and innovative teaching methods. This makes graduates more competitive in the job market, as they possess the necessary competencies and are ready to tackle modern professional tasks. The use of modern teaching methods, such as project-based learning, gamification, and the use of digital technologies, makes the educational process more interesting and effective. Regular monitoring of academic performance (Waheed, et al., 2020) also enables the identification of learning gaps and ineffective teaching methods that can be fixed in further iterations of such courses. This feedback loop (Meikleham & Hugo, 2020) ensures that instructional methods and materials remain effective and relevant, thereby maintaining high educational standards and improving the employability of graduates.

Pre-sorting of Students into Groups According to their Level of Knowledge allows Academic Staff to adapt educational materials and methods to the needs of each group. This promotes a more personalized approach to learning, where Academic Staff can devote more attention to the specific needs of Students, increasing **Psychological and Academic Preparedness** of everyone who participate in DL. This preparedness includes the readiness of DL participants to work in a remote format and the ability to effectively use modern technologies for education. This is especially important for Academic Staff and includes skills in managing virtual classrooms, creating and using digital educational resources, and maintaining Students' motivation and engagement in an online environment. Psychological preparedness also helps to cope with the challenges of distance learning and maintaining a high level of professionalism. Even if Pre-sorting of Students into Groups According to their Level of Knowledge with the help of academic performance monitoring on previously gained knowledge could solve the problem of academic preparedness, still both Students and Academic Staff should have a psychological self-check first by themselves to decided if they are ready for this type of learning. It is their responsibility to choose a different method of education if they are not. The E-Learning Department can also create those tests for self-check (as they are already experienced in the problems Students and Academic Staff might find during DL) and assess readiness of both, through feedback surveys, identifying areas where additional support is needed. The university can then implement support systems, such as consulting services and preparatory courses, to address such issues.

Equivalence of Educational Outcomes means that all Students (both traditional and distance learners) achieve the same academic standards. This is crucial for ensuring fairness and equal opportunities for all Students. Unified standards of education guarantee that every Student has equal opportunities for successful course completion. As well as promoting

fairness, it helps to overcome stereotypes that distance education is a less effective form of learning. Equivalence of outcomes also allows employers to be confident in the competencies of graduates, increasing their chances for successful employment. Ensuring this equivalence between traditional forms of education and DL is crucial for maintaining the integrity and credibility of the university's academic programs, solving the problem of DL biases. The university, along with Academic Staff and the E-Learning Department, should make a comparative analysis of academic results from both traditional and DL modes. This involves evaluating the consistency of the curriculum (Chochół & Hnatyszak, 2021) to ensure that even if this format differs in their methods - learning objectives and effectiveness are still the same across different formats. Employers' surveys can provide an external perspective on whether graduates from both modes possess comparable skills and knowledge, while academic outcomes comparison (Ababneh, Al-qdah, & Almutairi, 2023) and Student surveys offer insights into their learning experiences. By identifying and addressing any discrepancies through this comprehensive evaluation, the university can ensure that Students, regardless of the mode of instructions, achieve equivalent educational outcomes.

Student-lecturer Common Vision for Effective Learning Environment Creation implies a shared understanding of learning goals and methods between Students and Academic Staff. This includes joint setting of goals, approaches to learning, and assessment criteria. Such collaboration helps create a more harmonious and productive learning environment where each participant feels their importance and responsibility. Such shared outlook minimizes misunderstandings and conflicts, contributing to a more effective learning process and better academic results. Evaluation of whether a common outlook for an effective learning environment was created requires feedback surveys from both Students and faculty to help identify mismatches in expectations and perceptions. Academic Staff can then adjust their instructional methods and strategies to better align with Students' needs and preferences.

Engagement and Focus from Academic Staff and Students promotes active interaction and creates an interactive and productive learning environment where everyone has the opportunity to express their ideas and receive feedback. Academic Staff who are actively engaged in the learning process can better adapt their teaching methods to the needs of Students, creating more interactive and engaging lessons. Students, in turn, are more likely to actively participate in such classes, are more motivated and interested in learning, which improves their performance and encourages Academic Staff to pay more attention to them.

This parameter can be checked with the help of surveys from Academic Staff and Students, which provide insights into the levels of engagement and areas where focus may be lacking. By addressing these areas, Academic Staff can implement strategies to increase Student participation and maintain their attention. In addition, by collecting data from Student feedback surveys Academic Staff and the university can pinpoint areas where Students face academic challenges (that directly influence their interest end engagement).

Autonomy Possibility with Academic Support for Students includes more options of individual work assistance in the learning process, providing additional resources, consultations, and mentoring. This can include study groups, individual consultations with Academic Staff, access to learning materials, and online resources. Support from Academic Staff helps Students cope with academic workload and overcome academic difficulties, which increases their performance and motivation. This creates more favorable conditions for learning and contributes to Students' success in their studies. While Academic Staff and the university is responsible for organizational part (for example providing hours for individual consultations), Students need to stay focused and engaged, working on many materials on their own. Students' satisfaction with the existing autonomy and support level must be checked using feedback surveys. Their insights can help in designing targeted support mechanisms, such as tutoring programs, mentoring, and access to supplementary learning resources which also plays a part in creating an effective learning environment.

Feedback Need for Quality Control plays a crucial role in maintaining and improving the quality of the educational process. It includes regular assessments and comments from Students and Academic Staff, which help identify the strengths and weaknesses of educational programs and methods. Feedback should be constructive and timely to effectively influence the learning process. It also allows the university to constantly improve its educational programs and methods. During QC not only official requirements provided by the ministry of education should be met. Continuous and systematic feedback provided by different stakeholders is essential for the quality control of DL. The University Management, Academic Staff, E-Learning Department, Students, and Employers - all contribute valuable perspectives that help shape and enhance DL. Regular feedback cycles and focus groups involving these stakeholders provide comprehensive insights into the strengths and weaknesses of DL. Academic Staff and the E-Learning Department can adapt instructional methods based on Student and Employer feedback, ensuring that the content remains relevant and effective. The University Management can use this data to make informed decisions about resource allocation and support services. Employer feedback

ensures that the skills and knowledge imparted are in line with industry needs. By systematically gathering and analyzing this feedback, the university can implement targeted improvements that enhance the overall quality of education and especially DL, ensuring it meets the evolving needs and expectations of all stakeholders.

Official University Regulations for DL, that will clarify rights and responsibilities for each participant of DL can help with the creation of a common vision. For example, the often mentioned by respondents' camera usage regulation. Its obligation could be an essential parameter for ensuring the quality of DL (as it can foster more interactive and engaging virtual classroom environment, enhancing Student participation and attentiveness) as well as burden in cases of high server load or unstable Internet connection. That is why these regulations must consider the technical capabilities of Students' and Academic Staff equipment and be clearly communicated to all participants to avoid disputes regarding the obligations of camera usage. Those regulations provided by University Management (at scale of university) and Academic Staff (at scale of separate classes) at the beginning of educational process will help to exclude misunderstanding, while the satisfaction level of those regulations could be checked with the help of feedback surveys.

Ecological impact, as a parameter in the framework for shaping the quality of distance learning, considers the environmental footprint of digital education, including energy consumption, electronic waste, and carbon emissions associated with online infrastructure and device usage. Integrating this parameter ensures sustainable practices and promotes awareness of environmental responsibilities within educational institutions and among Students. For example, it could be checked using an assessment of environmental impacts.

For the framework, we need to use specific evaluation methods, to get information about the state of each quality parameter to enhance them separately for the general enhancement of the DL quality at university. For the evaluation, we propose methods described in literature:

- Internet service performance based on user logs (Akhigbe, 2020),
- speed tests (Hawthorne, 2020),
- maintenance logs (Yu, Sheng, & Zhang, 2023),
- monitoring of academic performance (Waheed et al., 2020),
- academic outcomes comparison (Ababneh, Al-qdah, & Almutairi, 2023),

- curriculum consistency evaluation (Chochół & Hnatyszak, 2021),
- assessment of environmental impacts (Genta, Favaro, Sonetti, Fracastoro, & Lombardi, 2022),
- user feedback surveys, including users' feedback on technological infrastructure users feedback (Birch-Jensen, Gremyr, & Halldorsson, 2020),
- direct participants of the educational process feedback surveys (Alderman, Towers, & Bannah, 2012),
- employers' feedback (Finley, 2021), all of them for achieving better results with the feedback loop (Meikleham & Hugo, 2020),
- system performance reviews (Ma & Wang, 2023).

However, to give an impact coefficient to each parameter, further research with stakeholders is needed.

6.2 Discussion of possible framework applications

The framework identified quality parameters in DL, influential stakeholders, how they could exert influence, and proposed methods for evaluating quality parameters with the help of stakeholders. Further steps that need to be made for effective usage of this framework at each university (presented in Figure 2) are the following: determining how important each stakeholder is, determining the level of satisfaction with the expectations of each group based on identified quality parameters, and finally, making administrative changes and prioritizing according to stakeholder interests. At each university, results of this prioritization may differ.

This model can be useful for improving the quality of distance learning at universities. It can be applied in areas described below.

Evaluation and Monitoring. The model provides clear parameters and suggests methods for evaluating these quality parameters, allowing universities to regularly monitor and assess the effectiveness of distance learning. This helps to identify problems quickly and implement necessary corrections. For example, one commonly suggested method in this framework for controlling several quality parameters simultaneously is stakeholder surveys, such as those among Students. Universities can implement feedback systems for Students after each course, tracking several important parameters in one survey. This enables rapid response to their needs and improves educational materials. Moreover, considering that any

framework can become outdated as technologies and needs change over time, conducting such surveys allows tracking this process and timely updating the framework to include new aspects named by stakeholders.

Academic Planning. Using the framework also allows university administration to more accurately identify weak spots in the distance learning system in the specific university and develop strategies to address them, thus enhancing the quality of education. For instance, if assessment results show that Students are dissatisfied with technical support, the administration can invest in improving infrastructure and training technical staff.

Increasing Stakeholder Engagement. By determining the importance of each stakeholder group and their satisfaction levels, universities can better understand the needs and expectations of Students, faculty, and other participants in the educational process. This will increase their engagement and satisfaction, and help develop more inclusive and effective educational programs. For example, regular surveys and meetings with employer representatives can identify professional development prospects for Students and make changes to the curriculum, ensuring that graduates are more competitive in the job market.

Policy and Standards Development. The framework can help in developing internal policies and standards for distance learning based on scientifically grounded data and recommendations. This ensures a high level of educational services. For example, standards for online courses can be created based on the framework, including requirements for content quality, teaching methods, and Student knowledge assessment.

Adaptation to Specific Conditions. The importance of this model lies in its ability to adapt to the specific conditions of each university, as the prioritization of stakeholder needs is done by the university itself, taking into account different needs and priorities of stakeholders. This makes it a universal tool for improving distance learning. For example, at ZP at this time, considering ongoing military actions, technical issues have a higher priority than organizational conditions, compared to KUE, where respondents paid more attention to organizational aspects. The framework allows these differences to be considered and develop appropriate improvement strategies for each university.

Overall, the proposed framework might be useful for enhancing university educational services with the use of distance learning, developed with consideration of Polish and Ukrainian perspectives, allowing universities to effectively respond to the challenges and needs of the modern educational environment.

Conclusions

The study aimed at the development of a framework for improving the quality of DL, considering perspectives from various stakeholders and cultural contexts. To achieve this, the research focuses on four goals: exploring current educational quality approaches, identifying stakeholders, examining factors affecting distance learning quality, and creating a framework of shaping its quality for Poland and Ukraine.

Chapter 1: Overview of educational services provides a comprehensive examination of the evolution and variety of educational services. The historical perspective highlights the ancient roots of education, tracing its origins from tribal teaching and oral traditions to the structured educational institutions of Mesopotamia, Egypt, Greece, and beyond. The chapter emphasizes the continuous transformation of educational methods and objectives, influenced by cultural, technological, and socio-political changes. Modern educational services encompass a broad spectrum, including public institutions, private enterprises, non-profit organizations, and individual educators, each adapting to contemporary needs and challenges. Additionally, the chapter discusses the diverse stakeholders involved in university education, categorizing them into internal and external groups, with varying degrees of influence and interest, particularly in the context of distance learning.

Chapter 2: Introduction to distance learning analyzes the evolution, types, and significance of distance learning (especially during the COVID-19 pandemic). Distance learning, which involves acquiring knowledge without traditional classroom settings, has evolved significantly with the advent of information and communication technologies. Historically, distance learning's roots can be traced back to written manuscripts and early correspondence courses, evolving through radio, television, and eventually the Internet. The chapter also highlights both the advantages (for example flexibility, time-saving, cost efficiency) and disadvantages (like technical difficulties, lack of personal motivation, financial inequalities) of distance learning mentioned in literature. The COVID-19 pandemic underscored the importance of this mode of education, necessitating a swift adaptation to online platforms. Various studies are discussed, emphasizing the critical role of social interaction, preparation, and motivation in the success of online education. Additionally, the chapter compares different global approaches to distance learning, noting specific trends and tools used in countries like the USA, UK, Poland and Ukraine, and their impacts on Students' experiences and satisfaction.

Chapter 3 addresses the concept of **quality of educational services,** emphasizing its significance in the modern market economy and its impact on the competitiveness and sustainability of educational institutions. The chapter outlines the historical evolution of quality, tracing its origins from ancient standardization practices in Rome and China to contemporary quality management systems like ISO standards. Various definitions and approaches to educational quality are explored, for example in Europe quality assurance is guided by the Standards and Guidelines for Quality Assurance in the European Higher Education Area, which includes internal and external quality assurance and agency standards. The chapter also shows approaches to the quality of distance learning, particularly those that were highlighted by the COVID-19 pandemic. Quality parameters for distance learning are identified with the help of the literature review (elements of systematic literature review are used). Additionally, the chapter discusses the specific challenges and strategies related to distance learning quality in Polish and Ukrainian contexts, reflecting on empirical studies and the integration of innovative methods and technologies to enhance educational outcomes.

Chapter 4 outlines the research design and methods with the main focus on the comparative case studies at KUE and ZP. The chapter describes the settings of both universities, highlighting their structures, programs, and international collaborations. KUE is renowned for its economic studies and strong international partnerships, whereas ZP focuses on engineering and technology, with significant involvement in regional innovation ecosystems. Comparative case studies and thematic analysis are central to the methodology. The data collection includes document analysis, in-depth interviews with stakeholders, and both, traditional and systematic literature review to explore the quality of distance learning. The chapter details the sampling techniques, data collection processes, and the adaptation required due to challenges like the COVID-19 pandemic or the war in Ukraine. The research aims to provide new insights into distance learning in Poland and Ukraine, define quality from multiple perspectives, and develop a framework for enhancing distance learning quality. It seeks to improve educational services, adjust learning to local conditions, and optimize resources and technologies at KUE and ZP.

Chapter 5 Results and analysis presents a detailed examination of the findings from the comparative case studies conducted at KUE and ZP, covering multiple perspectives on distance learning. The analysis includes Document Analysis of Ukrainian and Polish regulations and crisis responses, examining their impact on KUE and ZP. Insights from Academic Staff reveal their general opinions, outlooks of quality, challenges, unethical

behavior, future expectations, stakeholder roles, and skills gained. Students share their general opinions, outlooks of quality, unethical behavior, and perspectives on key stakeholders. The E-Learning Department provides views on the overall conduct of distance learning, quality determinants, lecturer challenges, stakeholder perspectives, and future predictions from experts in that field. The university IT Department discusses their general opinion, challenges faced, new solutions, reported issues, and potential improvements. Employers offer feedback on their experience with graduates, characteristics of distance learning graduates, the effectiveness of distance learning in employee training, and future scope. The chapter concludes with an analysis synthesizing the data from all stakeholders, identifying common themes and significant findings, and a discussion interpreting the results in relation to existing literature and implications for possible policy and practice.

Chapter 6 proposes a **framework for shaping the quality of distance learning** at universities, based on parameters identified through literature, regulations, and feedback from stakeholders. The framework assigns specific quality parameters to responsible stakeholders and suggests evaluation methods for each parameter to ensure continuous improvement. Key quality parameters include Technical (High Quality of Computer Telecommunications Supply, Technological and Organizational Infrastructure, QC Methods for Educational Software, Personal Data Protection), Methodological (Optimal Cognitive Load (based on Organizational Effectiveness and Flexibility), Effective Knowledge Gaining and Control, Materials and Methods Relevant to Modern Times, Psychological and Academic Preparedness, Pre-sorting of Students into Groups According to their Level of Knowledge, Equivalence of Educational Outcomes, Student-Lecturer Common Vision for Effective Learning Environment, Engagement and Focus from Academic Staff and Students) and Organizational (Autonomy Possibility with Academic Support for Student's, Feedback Need for Quality Control, Official University Regulations for DL, Schedule Effectiveness and Flexibility, Ecological impact). The framework emphasizes the importance of continuous feedback and regular monitoring, with methods such as Internet uptime monitoring, system performance reviews, user feedback surveys, academic performance monitoring, curriculum relevance reviews, and security audits. It is designed to adapt to specific university conditions, aiming to improve DL quality through evaluation, academic planning, stakeholder engagement, policy development, and responsiveness to changing needs.

The theoretical implications of this research include providing new insights into the distance learning outlook from the perspective of distance learning stakeholders in Poland

and Ukraine, considering their socioeconomic development influenced by pandemic (and war in the case of Ukraine). By defining the quality of distance learning from multi-stakeholder and cultural perspectives, this study offers a new understanding of how educational frameworks can fit different socio-cultural contexts. Practical implications of this research include providing universities with a comprehensive framework to evaluate and enhance the quality of their distance learning programs. By systematically addressing identified quality parameters and involving key stakeholders, universities can improve the effectiveness, engagement, and satisfaction associated with their distance learning offerings, ultimately enhancing Student outcomes and institutional reputation.

This study has several limitations, including the timing of data collection, which varied significantly between KUE and ZP due to external factors such as the COVID-19 pandemic and the ongoing conflict in Ukraine, potentially affecting the comparability of results. Additionally, the sample size of Ukrainian stakeholders was also affected. Sample size particularly for certain stakeholder groups like the e-learning and IT departments, was small, which may limit the generalizability of the findings.

Future research should focus on testing and refining the proposed framework by prioritizing each quality parameter based on stakeholder feedback specific to each university. This could involve conducting detailed surveys and focus groups with all relevant stakeholders. By assessing the importance and satisfaction levels of each parameter from these stakeholders' perspectives, researchers can identify the most critical areas for improvement. Additionally, longitudinal studies could track changes in stakeholder priorities and satisfaction over time, providing insights into the evolving needs and effectiveness of distance learning. Comparative studies across multiple universities, both within and outside of Poland and Ukraine, would help validate the framework’s applicability and adaptability to different contexts and educational environments. This approach would ensure that the framework remains dynamic and responsive to specific institutional and cultural conditions, ultimately leading to more tailored and effective distance learning solutions.

Acknowledgement

ChatGPT was used for a draft translation from Ukrainian into English.

References

Ababneh, I., Al-qdah, M., & Almutairi, A. (2023). Comparison of Academic Results during Conventional and Online Modes of Learning: A Case Study of Two Groups of Saudi University Students. *Sustainability, 15*(7), 5799. doi:https://doi.org/10.3390/su15075799

Abdul-Rahaman, N., Terentev, E., & Arkorful, V. (2022). COVID-19 and Distance Learning: International Doctoral Students' Satisfaction With the General Quality of Learning and Aspects of University Support in Russia. *Public Organization Review*, 1-11.

Adarkwah, M. A. (2021). "I'm not against online teaching, but what about us?". *Education and Information Technologies, 26*(2), 1665-1685.

Akhigbe, B. (2020). Users' Satisfaction with Internet Service Performance-Based on User Log. *IPTEK The Journal for Technology and Science, 31*(3), 279-294. doi:http://dx.doi.org/10.12962/j20882033.v31i3.5236

Alderman, L., Towers, S., & Bannah, S. (2012). Student feedback systems in higher education: a focused literature review and environmental scan. *Quality in Higher Education, 18*(3), 261–280. doi:https://doi.org/10.1080/13538322.2012.730714

Al-Dulaimi, Z. (2016). Education, Educational Services and their Quality. *Journal of Marketing Management*, 58-66. doi:10.15640/jmm.v4n1a6

Aleynikova, D. (2021). Teaching lawyer intercultural professional communication during the COVID-19 pandemic. *XLinguae, 14*(1), pp. 170-181.

Al-Khatir Al-Arimi, A. (2014). Distance Learning. *Procedia - Social and Behavioral Sciences, 152*, 82-88.

Almuraqab, N. (2020). Shall Universities at the UAE Continue Distance Learning after the Covid-19 Pandemic? Revealing Students' Perspective. *International Journal of Advanced Research in Engineering and Technology, 11*(5), 226-233.

Alpert, J. B., Young, M. G., Lala, S. V., & McGuinness, G. (2021). Medical Student engagement and educational value of a remote clinical radiology learning

environment: creation of virtual read-out sessions in response to the COVID-19 pandemic. *Academic Radiology, 28*(1), pp. 112-118.

Alqurshi, A. (2020). Investigating the impact of COVID-19 lockdown on pharmaceutical education in Saudi Arabia – A call for a remote teaching contingency strategy. *Saudi Pharmaceutical Journal, 28*(9), 1075-1083.

Alturkistani, A., Lam, C., Foley, K., Stenfors, T., Blum, E., Van Velthoven, M., & Meinert, E. (2020). Massive open online course evaluation methods: systematic review. *Journal of medical Internet research, 22*(4).

Anderson, T. &. (2011). Three Generations of Distance Education Pedagogy. *International Review of Research in Open and Distributed Learning, 12*(3), 80-97. doi:10.19173/irrodl.v12i3.890

Artemkina, I., Shcherbakov, V., & Artemkina, Y. (2020). Journal of Physics: Conference Series. *Testing for general and inorganic chemistry in the MOODLE system, 1691*, p. 012114.

Artyukhov, A., Barvinok, V., Rehak, R., Matvieieva, Y., & Lyeonov, S. (2023). Dynamics of interest in higher education before and during ongoing war: Google Trends Analysis. *Knowledge and Performance Management, 1,* pp. 47-63. doi:10.21511/kpm.07(1).2023.04

Athaya, H., Nadir, R., Indra Sensuse, D., Kautsarina, K., & Suryono, R. (2021). Moodle Implementation for E-Learning: A Systematic Review. *6th International Conference on Sustainable Information Engineering and Technology 2021,* 106-112.

Avcı, Ö., Ring, E., & Mıtchell, L. (2015). Stakeholders in US higher education: An analysis through two theories of stakeholders. *Bilgi Ekonomisi ve Yönetimi Dergisi, 10*(2), pp. 45-54.

Baber, H. (2021). Social interaction and effectiveness of the online learning–A moderating role of maintaining social distance during the pandemic COVID-19. *Asian Education and Development Studies, 11*(1), 159-171. doi:https://doi.org/10.1108/AEDS-09-2020-0209

Bartlett, L., & Vavrus, F. (2017). Comparative Case Studies: An innovative approach. *Nordic Journal of Comparative and International Education, 1*(1), pp. 5–17.

Bashir, F., & Warraich, N. (2023). Systematic literature review of Semantic Web for distance learning. *Interactive Learning Environments, 31*(1), pp. 527-543. doi:10.1080/10494820.2020.1799023

Bdair, I. (2021). Nursing Students' and faculty members' perspectives about online learning during COVID-19 pandemic: A qualitative study. *Teaching and Learning in Nursing*, pp. 220-226. doi:https://doi.org/10.1016/j.teln.2021.02.008.

Bednarczyk, I., & Rudak, L. (2008). Podatność przedmiotów akademickich na e-nauczanie. In M. Dąbrowski, & M. Zając (Ed.), *Podatność przedmiotów akademickich na e-nauczanie* (pp. 132-139). Warszawa: Fundacja Promocji i Akredytacji Kierunków Ekonomicznych. Retrieved 08 15, 2020, from http://e-edukacja.fundacja.edu.pl/: http://e-edukacja.fundacja.edu.pl/czwarta/_referaty/sesja_IIb/11_e-edukacja.pdf

Bekesiene, S., Vasiliauskas, A. V., Hošková-Mayerová, Š., & Vasilienė-Vasiliauskienė, V. (2021). Comprehensive Assessment of Distance Learning Modules by Fuzzy AHP-TOPSIS Method. *Mathematics, 9*(4), p. 409.

Birch-Jensen, A., Gremyr, I., & Halldorsson, A. (2020). Digitally connected services: Improvements through customer-initiated feedback. *European Management Journal, 35*(5), 814-825.

BJØRKQUIST, C. (2009). *Stakeholder Influence in Higher Education: Old Ideas in New Bottles.* Karlstad: Karlstad University.

Blyznyuk, T., Budnyk, O., & Kachak, T. (2021). Boom in Distance Learning During the Coronavirus Pandemic: Challenges and Possibilities. *Journal of Vasyl Stefanyk Precarpathian National University, 8*(1), 90-98.

Boiko, A. (2021). Innovative Development of Non-Formal Education in Ukraine: Definition of Soft Skills. *Theoretical and Methodical Problems of Children and Youth Education, 25*(1), 22-33.

Bokayev, B., Torebekova, Z., Davletbayeva, Z., & Zhakypova, F. (2021). Distance learning in Kazakhstan: estimating parents' satisfaction of educational quality during the coronavirus. *Technology, Pedagogy and Education*, pp. 1-13.

Borisova, E. (2020). Journal of Physics: Conference Series. *Students in the digital format of the educational process of the higher educational institution: Risks and advantages, 1691*, p. 012075.

Bowers, C. (1993). *Education, cultural myths, and the ecological crisis: Toward deep changes.* New York: Suny Press.

Braun, V., & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and be (com) ing a knowing researcher. *International journal of transgender health, 24*(1), pp. 1-6. doi:https://doi.org/10.1080/26895269.2022.2129597

Briner, R., & Denyer, D. (2012). Systematic Review and Evidence Synthesis as a Practice and Scholarship Tool. *Handbook of evidence-based management: Companies, classrooms and research*, 112-119.

Bykow, W. (2008). Дистанційна навчання (Edukacja zdalna). In W. Kremen (Ed.), *Енциклопедія освіти України (Encyklopedia)* (pp. 191 – 193). Kijów : Jurinkow Inter.

Candy, P. (2002). Lifelong learning and information literacy. *Retrieved October, 20*(2004), 1-16. Retrieved from https://www.researchgate.net/profile/Philip-Candy/publication/268299706_Lifelong_Learning_and_Information_Literacy/links/55d4eb9308ae6788fa352834/Lifelong-Learning-and-Information-Literacy.pdf

Çebi, A. (2023). How e-learning readiness and motivation affect Student interactions in distance learning? *Education and Information Technologies, 28*(3), pp. 2941-2960.

Cedos. (2022, 9 22). *Cedos – незалежний аналітичний центр*. Retrieved from Середня та вища освіта у проєкті Плану відновлення України: можливості і ризики: https://cedos.org.ua/researches/serednya-ta-vyshha-osvita-u-proyekti-planu-vidnovlennya-ukrayiny/

Cedos. (2022). *Cedos - незалежний аналітичний центр.* Retrieved from Освіта і війна в Україні (24 лютого — 1 квітня 2022): https://cedos.org.ua/researches/osvita-i-vijna-v-ukrayini-24-lyutogo-1-kvitnya-2022/

Černá, M. (2019). International Conference on Blended Learning. *Johann Amos Comenius and His Legacy at the Information Age.* (pp. 46-56). Cham: Springer.

Charikov, P., & Yu Fokin, S. (2020). Study of the Student progress monitoring system of a university department for a distance learning system based on a Web portal and for OLAP samples using to automate analysis. *Journal of Physics: Conference Series, 1515*(2).

Chen, Y., Angela, A., & Huang, L. (2022). Development of distance education in Chinese higher education in perspectives of accessibility, quality and equity under COVID-19. *Asian Education and Development Studies, 11*(2), pp. 356-365.

Cheng, Y., & Ming, T. (1997). Multi-models of quality in education. *Quality assurance in Education*, 22-31.

Chochół, A., & Hnatyszak, O. (2021). *Model Wewnętrznej Oceny Jakości Kształcenia Na Uczelni.* Warsaw: Polskie Wydawnictwo Ekonomiczne S. A.

Clark, A., Nong, H., Zhu, H., & Zhu, R. (2021). Compensating for academic loss: Online learning and Student performance during the COVID-19 pandemic. *China Economic Review, 68*, 101629.

Commission of the European Communities. (2004). *Communication from the Commission the New Generation of Community Education and Training Programmes after 2006.* Retrieved from Communication from the Commission the New Generation of Community Education and Training Programmes after 2006: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2004:0156:FIN:EN:PDF

Compayré, G. (2015). *The history of pedagogy.* Routledge.

Corbin, J., & Strauss, A. (1990). Grounded Theory Research Procedures, Canons, and Evaluative Criteria. *Qualitative Sociology, 13*(1), 3-21.

Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology, 13*(1), pp. 3-21.

Correia, A., Liu, C., & Xu, F. (2020). Evaluating videoconferencing systems for the quality of the educational experience. *Distance Education*, 429-452.

Cortada, J. (2018). Change and continuity at IBM: Key themes in histories of IBM. *Business History Review, 92*(1), 117-148.

Creswell, J., & Creswell, J. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches (5th edition). Sage.*

Das, K. (2019). The Role and Impact of ICT in Improving the Quality of Education: An Overview. *International Journal of Innovative Studies in Sociology and Humanities, 4*(6), 97-103.

Dąbrowska, A., Grządziel, H., Kaczmarek, M., Kos-Górczyńska, I., & Stańczyk, A. (2013). *Standardy jakości kształcenia zawodowego.* Warszawa: Krajowy Ośrodek Wspierania Edukacji Zawodowej i Ustawicznej. Retrieved from https://docplayer.pl/11332613-Standardy-jakosci-ksztalcenia-zawodowego-szkola-zawodowa-szkola-pozytywnego-wyboruwyboru.html

Deery, C. (2020). The COVID-19 pandemic: implications for dental education. *Evidence-Based Dentistry,* 46-47.

Delpit, L., & White-Bradley, P. (2010). Educating or Imprisoning the Spirit: Lessons From Ancient Egypt. *Theory Into Practice,* 283-288.

Dewi, M., & Wajdi, M. (2021). Distance learning policy during pandemic COVID-19. *EDUTEC: Journal of Education and Technology, 4*(3), 325-333.

Didkivska, S. (2020). Аналіз змішаного навчання та ефективність його компонентів під час впровадження в освітній процес закладів вищої освіти (Analiza blended learningu i efektywności jego elementów w realizacji procesu kształcenia na uczelniach) . In N. Astrahan, T. Vakaluk, & L. Vojnalovych (Eds.), *Теоретичні основи та прикладні аспекти вивчення дискурсу (Podstawy teoretyczne i stosowane aspekty badania dyskursu)* (pp. 141-158). Żytomierz: Politechnika Żytomierzska.

Didkivska, S. (2023). Unethical Behaviour in Distance Learning : Polish Student Perspectives. *Social Entrepreneurship Review*, pp. 18-28. doi:http://dx.doi.org/10.15678/SER.2023.3.02

Didkivska, S., & Babanin, V. (2021). Insights from the Rapid Transformation to Distance Learning Due to COVID-19 : a Case of a Master of Business Administration Course. *Knowledge, Economy, Society : Business Development in Digital Economy and COVID-19 Crisis*, pp. 145-154.

Didkivska, S., & Paliwoda-Pękosz, G. (2021). AMCIS 2021 Proceedings. *Towards A Comprehensive Framework for Shaping Distance Learning Quality of University Educational Services*, (pp. 1-5).

Didkivska, S., & Vakaliuk, T. (2021). Insights From Ukrainian Students on Distance Learning During the Covid-19 Pandemic. *Innovation Management and Sustainable Economic Development in the Era of Global Pandemic : Proceedings of the 38th International Business Information Management Association Conference (IBIMA)*, p. 2168359932.

Dymek, D., Didkivska, S., Grabowski, M., Paliwoda-Pękosz, G., & Vakaliuk, T. (2023). Students' Perception of Online Learning During the COVID-19 Pandemic : Polish and Ukrainian Perspectives. *Information Technology for Management : Approaches to Improving Business and Society*, p. 2168373446.

Dymek, D., Grabowski, M., Paliwoda-Pękosz, G., Didkivska, S., & Vakaliuk, T. (2022). Students' Online Behaviour in the Time of the COVID-19 Pandemic : Insights from Poland and Ukraine. *Proceedings of the 17th Conference on Computer Science and Intelligence Systems*, p. 2168359932.

Dzhangarov, A., Hanmurzaev, H., & Potapova, N. (2020). Journal of Physics: Conference Series. *Digital education in the coronavirus era, 1691*, p. 0121133.

Dziewulak, D. (2012). Kształcenie na odległość w wybranych państwach europejskich. *Analizy BAS, 18*, 1-11.

Elbyaly, M., & Elfeky, A. (2023). The Efficiency of Online Learning Environments In Fostering Academic Motivation. *European Chemical Bulletin, 12*, pp. 6622-6628.

Elliott, J., & Tsai, C. (2008). What might Confucius have to say about action research? *Educational Action Research, 16*(4), 569-578.

Elyakov, A. D. (2003). Modern information revolution. *Sociological research*, pp. 29-38. Retrieved from http://ecsocman.hse.ru/data/653/831/1219/3-Elyakov_29-38.pdf

Esfijani, A. (2018). Measuring quality in online education: A meta-synthesis. *American Journal of Distance Education, 32*(1), pp. 57-73.

European Association for Quality Assurance in Higher Education (ENQA). (2015). *Standards and Guidelines for Quality Assurance in the European Higher Education.* Brussels, Belgium.

Evans, D. (2020). Australian Biblical Review. *The first christians of Athens*, 68.

Fairhurst, A., & Good, L. (1991). The ethnographic case study: An experiential approach to teaching retail management. *Developments in Business Simulation and Experiential Learning: Proceedings of the Annual ABSEL conference, 18*.

Falcasantos, R. (2019). A School for the Soul: John Chrysostom on Mimēsis and the Force of Ritual Habit. *The Garb of Being*, 101-123.

Falqueto, J., Hoffmann, V., Gomes, R., & Onoyama, M. (2020). Strategic planning in higher education institutions: what are the stakeholders' roles in the process? *Higher Education*(79), 1039-1056.

Farooq, F., Rathore, F., & Mansoor, S. (2020). Challenges of online medical education in Pakistan during COVID-19 pandemic. *Journal of the College of Physicians and Surgeons Pakistan, 30*(1), 67-69.

Favale, T., Soro, F., Trevisan, M., Drago, I., & Mellia, M. (2020). Campus Traffic and e-Learning During COVID-19 Pandemic. *Computer Network, 176*, 1-9.

Finley, A. (2021). *How College Contributes" to" Workforce Success: Employer Views on What Matters Most.* Washington: Association of American Colleges and Universities. Retrieved from https://files.eric.ed.gov/fulltext/ED616977.pdf

Fleck, R., & Hanssen, F. (2009). "Rulers ruled by women": an economic analysis of the rise and fall of women's rights in ancient Sparta. *Economics of Governance, 10*(3), 221-245. doi:https://doi.org/10.1007/s10101-009-0059-x

Fleming, A. J. (1984). *Comparison of freshman composition courses by telecourse and on-campus sections.* Doctoral dissertation, Oklahoma State University: Doctoral dissertation, Doctoral dissertation, Oklahoma State University State University. Retrieved from https://shareok.org/bitstream/handle/11244/18809/Thesis-1984D-F597c.pdf?sequence=1

Flicinska-Turkiewicz, J., Beczkowska, A., & Skrobacki, R. (2022). Key Factors Of Student Satisfaction With Distance Learning In The Situation Of The Covid-19 Pandemic On The Example Of A Polish University. *Journal of e-Learning and Higher Education*, pp. 1-16. doi:10.5171/2022.268774

Forkner, C. (2012). Higher Education in China, Iran, and Italy: Diverse Systems from Common Beginnings. *Global Education Journal, 2*.

Freeman, R. (1984). *Strategic management: a stakeholders approach.* Boston: Pitman.

Gaftandzhieva, S., Doneva, R., & Jagatheesaperumal, S. (2023). Approaches and Tools for Quality Assurance in Distance Learning: State-of-play. *International Journal of Advanced Computer Science and Applications, 14*(8), pp. 242 - 253. doi:10.14569/IJACSA.2023.0140827

Garg, M., Eniasivam, A., Satterfield, J., Norton, B., Austin, E., & Dohan, D. (2020). Rapid transition of a preclinical health systems science and social justice course to remote learning in the time of coronavirus. *Medical Education Online, 25,* 1812225.

Genta, C., Favaro, S., Sonetti, G., Fracastoro, G., & Lombardi, P. (2022). Quantitative assessment of environmental impacts at the urban scale: the ecological footprint of a university campus. *Environment, Development and Sustainability,* 5826–5845. doi:https://doi.org/10.1007/s10668-021-01686-5

Gericke, E. (2020). The value of ethnography and the comparative case study approach in VET research – exemplified by the project "VET cultures in a European comparison". In M. Pilz, & J. Li (Eds.), *Comparative Vocational Education Research.* Wiesbaden: Internationale Berufsbildungsforschung. Springer VS.

Goddard, D., & Leask, M. (1992). *The search for quality: Management in education.* London: Paul Chapman.

Govorovskaya, O. A. (2017). Wpływ rewolucji infoermacyjnej na jakość szkolnictwa wyższego. Perejasław-Chmielnicki, Ukraina. Retrieved from https://docplayer.ru/32410087-Informacionnyy-obraz-zhizni.html

Grendle, P. (2018). *Jesuit Schools and Universities in Europe, 1548–1773: Brill's Research Perspectives in Jesuit Studies.* Netherlands: Brill. doi:10.1163/9789004391123

Grudowski, P., & Lewandowski, K. (2012). Pojęcie jakości kształcenia i uwarunkowania jej kwantyfikacji w uczelniach wyższych. *Zarządzanie i finanse,* 394-403.

Harting, K., & Erthal, M. (2005). History of distance learning. *Information technology, learning, and performance journal, 23*(1), 35.

Haskins, C. (2020). *The Rise of Universities Kindle Edition.* Custom History.

Hasko, R., Shakhovska, N., Vovk, O., & Holoshchuk, R. (2020). CEUR Workshop Proceedings. *A mixed Fog/Edge/AIoT/robotics education approach based on tripled learning, 2616,* pp. 227-236.

Hausmann, J. F. (1939). Radio in education. In J. F. Hausmann, *Federal Writers' Project (Pa.).* (pp. 2-7). Philadelphia. Retrieved from https://catalog.hathitrust.org/Record/006585413/Cite

Hawthorne, S. (2020). *Impact of Internet Connection on Gifted Students' Perceptions of Course Quality at an Online High School.* Boise: Boise State University.

Hayes, W. (2006). *The Progressive Education Movement: Is it Still a Factor in Today's Schools?* Rowman & Littlefield Education.

Hnatyszak, O. (2020). *Wewnętrzna ocena jakości kształcenia w szkole wyższej.* Praca doktorska, Uniwersytet Ekonomiczny w Krakowie.

Hodam, H., Rienow, A., & Jürgens, C. (2020). Bringing earth observation to schools with digital integrated learning environments. *Remote Sensing, 12*(3), 345.

Hoff, S. A. (Ed.). (2016). *Iowa Administrative Bulletin* (12 ed., Vol. 39). Retrieved from Iowa Administrative Bulletin.

Hosman, L., Zermeño, M., & de la Garza, L. (2020). SolarSPELL assessment: Impact of a solar-powered digital library as a teaching-learning resource on climate change. *Sustainability (Switzerland), 12*(16), 6636.

Hung, C.-T., Wu, S.-E., Chen, Y.-H., Soong, C.-Y., Chiang, C.-P., & Wang, W.-M. (2024). The evaluation of synchronous and asynchronous online learning: Student experience, learning outcomes, and cognitive load. *BMC Medical Education, 24*(1), p. 326. doi:10.1186/s12909-024-05311-7

International Organization for Standardization. (2015). *Quality management principles.* Geneva: ISO Central Secretariat.

International Organization for Standardization. (2022, 11 17). *ISO International Standards*. Retrieved from ISO: https://www.iso.org/home.html

Irizarry, B. (2020). Becoming a dentist from home: Online dental education during the Covid-19 pandemic. *Dental Hypotheses, 11*(4), 126-128.

Isaeva, T., Malishevskaya, N., Cherkasova, L., & Kolesnichenko, A. (2020). E3S Web of Conferences. *University faculty motivation to Students' distant evaluation, 210*, p. 18071.

Işbilen, A., & Karaduman, A. (2014). Primary Education in Ancient Athens and Today. *International Journal on New Trends in Education and Their Implications, 5*(4), 42-48.

ISO. (1994). ISO 8402:1994. *Quality management and quality assurance — Vocabulary*. Geneva: International Organisation for Standardization (ISO).

ISO. (2015). *ISO 9000:2015.* Retrieved from Quality management systems — Fundamentals and vocabulary: https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-4:v1:en

ISO. (2017). ISO/IEC 40180:2017. *Information technology — Quality for learning, education, and training — Fundamentals and reference framework.* Geneva: International Organisation for Standardization (ISO).

ISO. (2018). ISO 21001:2018 2018. *Educational organizations — Management systems for educational organizations -Requirements with guidance for use.* International Organisation for Standardization (ISO).

ISO. (2021). ISO 29994. *Education and learning services — Requirements for distance learning*. Geneva: ISO copyright office.

Ivanova, N., & Vinogradova, M. (2022). Students' Educational Motivation Features in the Context of Distance Learning. *ARPHA Proceedings, 5*, pp. 675-693. doi:10.3897/ap.5.e0675

Jain, C., & Prasad, N. (2018). Quality in Education—Concept, Origin, and Approaches. *Quality of Secondary Education in India*.

Jigme, K., Jarinto, K., & Sutthison, P. (2018). Opportunities and challenges for business consulting in entrepreneurial ventures; Interviews conducted in the e-commerce startups in Thailan. *Chulalongkorn Business Review, 41*(159), 54-85.

Jingpan, C. (1990). Confucius as a Teacher: Philosophy of Confucius with Special Reference to its Educational Implications. *Foreign Languages Press*.

Jung, I. (2012). Asian learners' perception of quality in distance education and gender differences. *International Review of Research in Open and Distributed Learning, 13*(2), pp. 1-25. doi:10.19173/irrodl.v13i2.1159

Kang, S. O., Lee, E. B., & Baek, H. K. (2019). A Digitization and Conversion Tool for Imaged Drawings to Intelligent Piping and Instrumentation Diagrams (P&ID). *Energies*(12). doi:doi:10.3390/en12132593

Kapustina, L., Izakova, N., & Makovkina, E. (2020). E3S Web of Conferences. *Higher education services market: New trends in sustainable development*, *208*, p. 09016.

Karmarkar, U., & Pitbladdo, R. (1997). Quality, class, and competition. *Management Science, 43*(1), 27-39.

Kasiri, L., Cheng, K., Sambasivan, M., & Sidin, S. (2017). Integration of standardization and customization: Impact on service quality, customer satisfaction, and loyalty. *Journal of Retailing and Consumer Services, 35*, 91-97.

Kennell, N. (1995). *The Gymnasium of Virtue: education & culture in ancient Sparta.* North Carolina: Univ of North Carolina Press.

Kohn, M. (1999). Medieval and early modern coinage and its problems. *Dartmouth College, Department of Economics Working Paper, 99*(02), 1-34.

Kolyada, N., Shapovalova, L., Guz, Y., & Melkonyan, A. (2021). Distance Learning of a Foreign Language-Necessity or Future. *International Journal of Emerging Technologies in Learning, 16*(4).

Koutselini, M. (2020). Quality assurance of e-learning within higher education: The philosophical and operational framework. *Academia (Greece)*, 132-144.

Kramarov, S., Khramov, V., Grebenyuk, E., & Belyaev, A. (2020). E3S Web of Conferences., *210*, p. 18024.

Kramer, S. (1949). Schooldays: A Sumerian composition relating to the education of a scribe. *Journal of the American Oriental Society, 69*(4), 199-2015.

Krawczyk, M. (2020). Nauczanie po pandemii. Nowe pytania czy nowe odpowiedzi na stare pytania? *Nauczanie medycyny po pandemii*, (pp. 51-59). Warsaw.

Kryklii, O., Kyrychenko, K., & Savga, L. (2018). The Role of Internal and External Stakeholders in Higher Education System in Ukraine. *Business Ethics and Leadership, 2*(1), 32-43.

Kulganov, V., Nikolajeva, E., & Junackevych, P. (2021). *History of pedagogy and education. Textbook for universities. Third Generation Standard.* Saint Petersburg.

Kumar, K., & Sarangapani, P. (2005). *History of the quality debate.* UNESCO. EFA global monitoring report.

Kuvonch, P. (2021). Policy of the Soviet Government on Training and Professional Development of Personnel in the Field of Propaganda (On the Example of Fergana Region). *International Journal of Innovative Analyses and Emerging Technology, 1*(7), 76-79.

Kuzu, Ö., Gökbel, H., & Güleş, H. (2013). Developing sustainable relations with internal and external stakeholders in universities: vision and mission views. *Procedia-Social and Behavioral Sciences, 113*, 281-289.

Kwon, E. (2020). Review of online learning in physical education teacher education (PETE) program. *Journal of Physical Education and Sport, 20*(6), 3560-3568.

Legčević, J. (2009). Quality gap of educational services in viewpoints of Students. *Ekonomska misao i praksa, 2*, 279-298.

Lester, D. (2010). *Developing an Effective Instrument for Assessing the Performance of Public University Presidents.* New Mexico: The University of New Mexico.

Lindner, J., Clemons, C., Thoron, A., & Lindner, N. (2020). Remote Instruction and Distance Education: A Response to COVID-19. *Advancements in Agricultural Development, 1*(2), 53-64.

Lipscomb, M. (2012). Abductive reasoning and qualitative research. *Nursing Philosophy, 13*(4), 244-256.

Longhurst, G., Stone, D., Dulohery, K., Scully, D., Campbell, T., & Smith, C. (2020). Strength, Weakness, Opportunity, Threat (SWOT) Analysis of the Adaptations to Anatomical Education in the United Kingdom and Republic of Ireland in Response to the Covid-19 Pandemic. *Anatomical Sciences Education*, 301-311.

Lopez, V., & Whitehead, D. (2013). Sampling data and data collection in qualitative research. *Nursing & midwifery research: Methods and appraisal for evidence-based practice*, 140.

Lorenzo, G., & Moore, J. (2002). *The Sloan Consortium Report to the Nation: Five Pillars of Quality Online Education.* Retrieved 08 14, 2020, from http://www.edtechpolicy.org/ArchivedWebsites/Articles/FivePillarsOnlineEducation.pdf

Lukaš, M., & Munjiza, E. (2014). Education system of John Amos Comenius and its implications in modern didactics. *Život i škola: časopis za teoriju i praksu odgoja i obrazovanja, 60*(31), 32-42.

Łaszczyk, J. (2020). Edukacja zdalna- szansa czy konieczność? *Nauczanie po pandemii. Nowe pytania czy nowe odpowiedzi na stare pytania?*, 65-73.

Ma, P., & Wang, C. (2023). Research on the Construction of Information System Stability Guarantee Capability. *2023 IEEE 22nd International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom)*, 2087-2091. doi:10.1109/TrustCom60117.2023.00289.

Mainardes, E., Alves, H., & Raposo, M. (2010). An exploratory research on the stakeholders of a university. *Journal of Management and strategy, 1*(1), pp. 76-88. doi:10.5430/jms.v1n1p76

Mainardes, E., Alves, H., & Raposo, M. (2013). *Identifying Stakeholders in a Portuguese university: a case.* Covilhã: Ministerio de Educación. doi:10-4438/1988-592X-RE-2012-362-167

Malau-Aduli, B., Alele, F. O., Heggarty, P., Reeve, C., & Teague, P. A. (2021). Key elements of effective postgraduate GP educational environments: a mixed methods study. *BMJ open, 11*(2).

Malhotra, R., Gautam, D., George, J., Goyal, D., & Ansari, M. (2020). Conducting orthopaedic practical examination during the Covid-19 pandemic. *Journal of Clinical Orthopaedics and Trauma, 11*, 448-455.

Markova, T., Glazkova, I., & Zaborova, E. (2017). Quality issues of online distance learning. *Procedia-Social and Behavioral Sciences, 237*, 685-691.

Masoumi, D., & Lindström, B. (2012). Quality in E-learning: A Framework for Promoting and Assuring Quality in Virtual Institutions. *Journal of Computer Assisted Learning, 28*(1), 27-41.

Matalay, H. (2011). The Influence of stakeholders on developing enterprising graduates. *International Journal of Entrepreneurial Behaviour and Research, 17*(2), 166-182.

Matej, A., & Gogu, M. (2017). Adaptive management and the new challenges of higher education. *ICERI2017 Proceedings*, pp. 8179-8186. doi:10.21125/iceri.2017.2195

Mauro, M. (2009). *Iowa Administrative Bulletin.* Retrieved from https://www.legis.iowa.gov/docs/aco/bulletin/09-23-2009.pdf

Meikleham, A., & Hugo, R. (2020). Understanding informal feedback to improve online course design. *European Journal of Engineering Education, 45*(1), 4-21.

Mercier, V. B., Scholten, U., Baltensperger, R., Gremaud, L., & Dabros, M. (2021). Distance Teaching in Chemistry: Opportunities and Limitations. *CHIMIA International Journal for Chemistry,, 72*(1-2), pp. 58-63.

Mesquita, L. (2012). The Lancasterian monitorial system as an education industry with a logic of capitalist valorisation. *Paedagogica Historica, 48*(5), 661-675.

Ministerstwo Łączności. (2001, 6 14). *ePolska Plan działań na rzecz rozwoju społeczeństwa informacyjnego w Polsce na lata 2001 - 2006.* Retrieved from Strategie rozwoju społeczeństwa informacyjnego w Polsce: https://historiainformatyki.pl/dokument.php?nrar=15&nrzesp=1&sygn=XV/1/3&handle=1593

Ministerstwo Nauki i Szkolnictwa Wyższego. (2005, 9 1). *Ustawa z dnia 27 lipca 2005 r. Prawo o szkolnictwie wyższym.* Retrieved from Internetowy System Aktów Prawnych: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20051641365

Ministerstwo Nauki i Szkolnictwa Wyższego. (2007, 9 25). *Warunki, jakie muszą być spełnione, aby zajęcia dydaktyczne na studiach mogły być prowadzone z wykorzystaniem metod i technik kształcenia na odległość.* Retrieved from Akty Prawne: https://www.prawo.pl/akty/dz-u-2007-188-1347,17383529.html

Ministry of Education and Science of Ukraine. (2020, 3 25). *Letter from the Ministry of Education and Science of Ukraine regarding the peculiarities of the organization of the educational process during the quarantine.* Retrieved from Ministry of Education and Science of Ukraine: https://mon.gov.ua/ua/npa/shodo-osoblivostej-organizaciyi-osvitnogo-procesu-pid-chas-karantinu

Misut, M., & Pribilova, K. (2015). Measuring of Quality in the Context of e-Learning. *117*, 312-319.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred Reporting Items for Systematic Reviews and Meta-analyses: the PRISMA Statement. *Annals of Internal Medicine, 151*(4), 264-269.

Mookerji, R. (1994). Glimpses of education in ancient India. *Annals of the Bhandarkar Oriental Research Institute, 25*(1/3), 63-81.

Moorkerji, R. (1941). Proceedings of the Indian History Congress. *Practical aspects of education in Ancient India*, *5*, pp. 127-134.

Morgan, C., & Volante, L. (2016). A review of the Organisation for Economic Cooperation and Development's international education surveys: Governance, human capital discourses, and policy debates. *Policy Futures in Education, 14*(6), 775-792.

Morokhovets, H., Lysanets, Y., Bieliaieva, O., Stetsenko, S., & Shlykova, O. (2022). A study of the effectiveness of distance learning at a medical university in Ukraine. *The Medical and Ecological Problems, 26*(3-4), pp. 34-39. doi:https://doi.org/10.31718/mep.2022.26.3-4.05

Murillo, A., & Jones, K. (2020). A "just-in-time" pragmatic approach to creating Quality Matters-informed online courses. *Information and Learning Science, 121*(5-6), 355-370.

Muslimin, A., & Harintama, F. (2020). Online learning during pandemic: Students' motivation, challenges, and alternatives. *Loquen: English Studies Journal, 13*(2), 60-68. doi:http://dx.doi.org/10.32678/loquen.v13i02

Myers, M. (2020). *Qualitative research in business and management (3rd edition). Sage.*

Naumenko, S., & Holovko, S. (2022). Distance learning in Ukraine: experience and challenges. *Educația de calitate în contextul provocărilor societale*, pp. 248-253.

Nazarova, R., Usarova, N., & Kadirova, D. (2020). A general description of the appearance of the writing. *European Journal of Research and Reflection in Educational Sciences, 8*(12), 226-229.

Nenko, Y., Kybalna, N., & Snisarenko, Y. (2020). The COVID-19 Distance Learning: Insight from Ukrainian Students. *Revista Brasileira de Educação do Campo, 5*, 15-17.

Norman, N., Robinson-Bryant, F., & Lin, Y. (2020). Examining adjunct faculty needs via a distance pedagogical framework in higher education. *Journal of Higher Education Theory and Practice, 20*(10), 113-122.

O'Pry, K. (2015). Social and political roles of women in Athens and Sparta. *Saber & Scroll Historical Journal, 1*(2), 28447.

Okrepilov, V., Getmanova, G., & Khmeid, G. (2020). Journal of Physics: Conference Series. *Development of a management system for educational projects in the context of distance education, 1691*, p. 012034.

Online Learning Consortium. (2020, 08). *Quality Framework*. Retrieved 08 15, 2020, from onlinelearningconsortium.org: https://onlinelearningconsortium.org/about/quality-framework-five-pillars/

Osova, O., Vakaliuk, T., Panchenko, V., & Didkivska, S. (2021). Formation of Future Foreign Language Teachers' Linguistic and Methodological Competency Using Digital Technologies. *Advances in Social Science, Education and Humanities Research, 557*, 282-290.

Osova, O., Vakaluik, T., Panchenko, V., Didkivska, S., & Kontsedailo, V. (2021). International Conference on New Trends in Languages, Literature and Social Communications (ICNTLLSC 2021). *Formation of Future Foreign Language Teachers' Linguistic and Methodological Competency Using Digital Technologies*, (pp. 282-290).

Paliwoda-Pękosz, G., Stal, J., & Wojtowicz, L. (2015). Proceedings of 9th European Conference on IS Management and Evaluation (ECIME). *Application of ICT Tools in Enhancing Education in Information Society*, (pp. 160-169).

Panczyk, M., & Gotlib, J. (2020). EBP e-Toolkit: Providing a Teaching and Learning Open and Innovative Toolkit for Evidence-Based Practice to Nursing European Curriculum - The second transnational project meeting in Warsaw. *Pielegniarstwo XXI Wieku, 18*(3), 197-199.

Parker-Jenkins, M. (2018). Problematising ethnography and case study: reflections on using ethnographic techniques and researcher positioning. *Ethnography and Education, 13*(1), 18-33.

Parulla, C., Galdino, D., Dal Pai, D., Azzolin, K., & Cogo, A. (2020). Nursing assessment: the elaboration and development of a massive open online course. *Revista gaucha de enfermagem, 41*, e20190199.

Pastor, R., Tobarra, L., Robles-Gómez, A., Cano, J., Hammad, B., Al-Zoubi, A., . . . Castro, M. (2020). Renewable energy remote online laboratories in Jordan universities: Tools for training Students in Jordan. *Renewable Energy*, 749-759.

Patwardharr, V., & Rao, S. (2020). Community of inquiry (Col) framework and course design as predictors of satisfaction in emergency remote teaching: Perspectives of hospitality management Students. *Journal of E-Learning and Knowledge Society*, 94-103.

Perkin, H. (2007). History of Universities. In J. Forest, & P. Altbach, *nternational Handbook of Higher Education. Springer International Handbooks of Education* (Vol. 16, pp. 159-206). Dordrecht: Springer. doi:10.1007/978-1-4020-4012-2_10

Pogorilyj, V., Dudikova, L., Yakymenko, O., Poyda, S., & Koval, B. (2020). Improvement of Learning Outcomes in Educational Process of Interns-Pharmacists using Distance Learning Elements. *Information Technologies and Learning Tools, 72*(2), 236-249.

Polinkevych, O., Khovrak, I., & Trynchuk, V. (2022). Quality Management of Distance Education. *Proceedings of the 2022 IEEE 4th International Conference on Modern Electrical and Energy System, MEES 2022*, pp. 1-6. doi:10.1109/MEES58014.2022.10005695

Polonsky, M. (1995). A stakeholder theory approach to designing environmental marketing strategy. *The Journal of Business & Industrial Marketing, 10*(3), 39-37.

President of Ukraine. (2007, 1 9). *The Law of Ukraine on the Basic Principles of Information Society Development in Ukraine for 2007-2015.* Retrieved from Verkhovna Rada of Ukraine. Legislation of Ukraine.: https://zakon.rada.gov.ua/laws/show/537-16#Text

President of Ukraine. (2013, 6 25). *Decree of the President of Ukraine on the National Strategy for the Development of Education in Ukraine for the period until 2021.* Retrieved from Верховна Рада України. Законодавство україни.: https://zakon.rada.gov.ua/laws/show/344/2013#Text

President of Ukraine Petro Poroshenko. (2017). *Закон україни про освіту.* Retrieved from Відомості Верховної Ради (ВВР): https://zakon.rada.gov.ua/laws/show/2145-19#Text

Prime Minister of Ukraine. (2003, 9 23). *About the approval of the Program for the Development of the Distance Learning System for 2004-2006.* Retrieved from The Verkhovna Rada of Ukraine. Legislation of Ukraine.: https://zakon.rada.gov.ua/laws/show/1494-2003-%D0%BF#Text

Pritulska, N., Antiushko, D., & Waller, D. (2017). The system of higher education quality assurance: international experience. *Foreign trade: economy, finance, law., 6*, 108-116. Retrieved from http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21ID=&S21REF=10&S21CNR=20&S21STN=1&S21FMT=ASP_meta&C21COM=S&2_S21P03=FILA=&2_S21STR=uazt_2017_6_11

Prokopenko, I., & Berezhna, S. (2020). *Higher Education Institutions in Ukraine during the Coronavirus, or COVID-19, Outbreak: New Challenges vs New Opportunities.* Kharkiv: Published by Editura Lumen, Asociatia Lumen Lumen Publishing House.

Proust, C. (2011). Masters' Writings and Students' Writings: School Material in Mesopotamia. (G. Gueudet, B. Pepin, & L. Trouche, Eds.) *Mathematics Teacher Education, 7*. doi:10.1007/978-94-007-1966-8_9

Publications Office of the European Union. (1992, 7 29). *Treaty of Maastricht on European Union.* Retrieved from Summary of EU legislation: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=LEGISSUM:xy0026

Radić-Šestić, M., Dimić, N., & Šešum, M. (2012). The beginnings of education of the deaf persons: Renaissance Europe (XIV-XVI century). *Specijalna edukacija i rehabilitacija, 11*(1), 147-165.

Radkevych, O., & Radkevych, O. (2020). Relevant competences of the teaching staff for the organisation of distance learning. *Professional Pedagogics, 2*(21), 53-59.

Rahman, F. (2017). The revival of local fairy tales for children education. *Theory and Practice in language Studies, 7*(5), 336.

Ratner, F., & Tikhonova, N. (2019). Quality of education: Pedagogical aspect. (M. P. University, Ed.) *Vysshee Obrazovanie v Rossii, 28*(12), 87-96. doi:10.31992/0869-3617-2019-28-12-87-96

Rektor Akademii Ekonomicznej w Krakowie. (2006, 2 17). *Zarządzenie nr R-0121-9/2006.* Retrieved from Biuletyn Informacji Publicznej. Uniwersytet Ekonomiczny w

Krakowie.: https://bip.uek.krakow.pl/zarzadzenie/1582/zarzadzenie-nr-r-0121-9-2006

Rektor Uniwersytetu Ekonomicznego w Krakowie. (2012, 03 14). *Załącznik nr 1 do Zarządzenia Rektora nr R-0201-16/2012 z dnia 14 marca 2012 roku.* Retrieved from Biuletyn Informacji Publicznej. Uniwersytet Ekonomiczny w Krakowie.

Rektor Uniwersytetu Ekonomicznego w Krakowie. (2012, 3 14). *Zarządzenie nr R-0201-16/2012.* Retrieved from Biuletyn Informacji Publicznej: https://bip.uek.krakow.pl/zarzadzenie/1072/zarzadzenie-nr-r-0201-16-2012

Repeva, A. (2020). eLearning and Software for Education Conference. *Features of the development of distance education in the field of urban development*, (pp. 98-105).

Reznikova, A., Kudinova, T., Patuykova, R., Olomskaya, N., & Dyshekova, O. (2020). E3S Web of Conferences. *The "pandemic" period of the education system crisis: peculiarities of the modern telecommunication systems and messenger's implementation as the alternative didactic platforms for the linguistic disciplines teaching.*, *210*, p. 18037.

Roberts, B. (2018). Education, Urbanization, and Social Change. *Knowledge, Education, and Cultural Change*, 141-162.

Rother, E. (2007). Systematic literature review X narrative review. *Acta paulista de enfermagem*, pp. 5-6. doi:10.1590/S0103-21002007000200001

Russkikh, P., Kapulin, D., & Moor, I. (2020). Journal of Physics: Conference Series. *Implementing e-learning with personalized trajectories*, *1691*, p. 012201.

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of Students and Academic Staff. *Cureus, 12*(4).

Sallis, E. (2014). *Total quality management in education.* Routledge.

Sammarro, M. (2022). Digital Competence for Citizenship: Distance Learning Before and During the Covid-19 Emergency. *INTERNATIONAL SYMPOSIUM: New Metropolitan Perspectives*, 887-895.

Sârbu, R., Ilie, A., Enache, A., & Dumitriu, D. (2009). The quality of educational services in higher education–assurance, management or excellence. *Amfiteatru Economic, 11*(26), 383-392.

Sarilita, E., Rafisa, A., Desai, P., & Mossey, P. (2024). Utilising massive open online courses to enhance global learning dissemination in cleft lip and palate: a case report of penta helix collaboration. *BMC Medical Education*, p. 301. doi:10.1186/s12909-024-05225-4

Schneider, S., & Council, M. (2021). Distance learning in the era of COVID-19. *Archives of Dermatological Research, 313*(5), 389-390.

Schüller, D., Chlebovský, V., Doubravský, K., & Chalupský, V. (2014). The conceptual scheme for managing university stakeholders' satisfaction. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 719-727.

Schulz, B. (2008). The importance of soft skills: Education beyond academic knowledge. *Nawa Journal of Communication, 2*(1), 146-154. Retrieved from http://hdl.handle.net/10628/39

Seck, M., Diatta, B., Ouya, S., Mendy, G., & Degboe, B. (2020). Advances in Intelligent Systems and Computing. *Impact of zeroconf protocol on distance learning*, *1134*, p. Impact of zeroconf protocol on distance learning.

Senat UEK. (2009, 5 25). *Uchwała nr 14/2009.* Retrieved from Biuletyn Informacji Publicznej. Uniwersytet Ekonomiczny w Krakowie: https://bip.uek.krakow.pl/uchwala/1937/uchwala-nr-14-2009

Shah, S., Mahboob, U., Junaid, S., Siddiqui, S., Jamil, B., & Rehman, S. (2024). Challenges faced by teachers of postgraduate health professions blended learning programs: a qualitative analysis. *BMC Medical Education, 24*(1), p. 251. doi:10.1186/s12909-024-05213-8

Sikandar, A. (2015). John Dewey and His Philosophy of Education. *Journal of Education and Educational Development, 2*(2), 191-201.

Silva, F., Costa, T., Peres, H., Duarte, E., Castral, T., & Bueno, M. (2020). Expert assessment of the "Neonatal Pain Assessment Program" online course. *Revista brasileira de enfermagem, 73*, e20180392.

Singh, B., & Saradananda, S. (2008). Ethics and surgical training in ancient India-a cue for current practice: history of medicine. *South African Medical Journal, 98*(3), 218-221.

Slabá, M. (2015). Stakeholder Groups of Public and Private Universities in the Czech Republic - Identification, Categorization and Prioritization. *Review of Economic Perspectives, 15*(3), pp. 305-326. doi:10.1515/revecp-2015-0022

Smith, L. (2001). Six Sigma and the evolution of quality in product development. *Six Sigma Forum Magazine, 1*(1), 28-35.

Solovyev, A., Petrova, L., Prikhodko, V., & Makarenko, E. (2017). Quality of Study Programmes or Quality of Education. (M. Auer, D. Guralnick, & J. Uhomoibhi, Eds.) *Interactive Collaborative Learning. ICL 2016. Advances in Intelligent Systems and Computing, 544*, 362-366. doi:doi.org/10.1007/978-3-319-50337-0_34

Stal, J., & Paliwoda-Pękosz, G. (2019). Fostering Development of Soft Skills in ICT Curricula: A Case of a Transition Economy. *Information Technology for Development, 25*(2), 250-274.

Stecuła, K., & Wolniak, R. (2022). Advantages and disadvantages of e-learning innovations during COVID-19 pandemic in higher education in Poland. *Journal of Open Innovation: Technology, Market, and Complexity, 8*(3), p. 159. doi:https://doi.org/10.3390/joitmc8030159

Stecuła, K., & Wolniak, R. (2022). Influence of COVID-19 Pandemic on Dissemination of Innovative E-Learning Tools in Higher Education in Poland. *Journal of Open Innovation: Technology, Market, and Complexity, 8*(2), 89.

Stefanovic, M., Tadic, D., Arsovski, S., Arsovski, Z., & Aleksic, A. (2010). A Fuzzy Multicriteria Method for E-Learning Quality Evaluation. *International Journal of Engineering Education*, pp. 1200–1209.

Stephens, H. (1927). The School, the Church, and the State. *Marquette Law Review, 12*, 206.

Stewart, K. (1947). *Magico-religious beliefs and practices in primitive society: A sociological interpretation of their therapeutic aspects. PhD Thesis. .* London: London School of Economics.

Stracke, C. (2019). Quality Frameworks and Learning Design for Open Education. *The International Review of Research in Open and Distributed Learning, 20*(2), 180-203. doi:https://doi.org/10.19173/irrodl.v20i2.4213

Stracke, C., Tan, E., Texeira, A., Pinto, M., Vassiliadis, B., Kameas, A., & Sgouropoulou, C. (2018). Perspectives on Interaction and Experiences in MOOCs: Findings from the Global MOOC Quality Survey.18th International Conference on Advanced Learning Technologies (ICALT). *Gap between MOOC Designers' and MOOC Learners*, (pp. 1-5).

Suligar, S. (2021). Students' Barriers To Online Tutoria. *Turkish Online Journal of Distance Education, 22*(1), pp. 170-178.

Sumner, J. (2000). Serving the system: A critical history of distance education. *Open Learning: The Journal of Open, Distance and e-Learning*, 267-285.

Sydorenko, V. (2020). Soft skills as an educational trend and a necessary development component for a vocational lifelong education teacher. *Fundamental and applied researches in practice of leading scientific schools, 38*(2), 127-134.

Tam, M. (2001). Measuring quality and performance in higher education. *Quality in higher Education, 7*(1), 47-54.

Thyer, B., & Pignotti, M. (2016). The problem of pseudoscience in social work continuing education. *Journal of Social Work Education, 52*(2), 136-146.

Tian-hong, M. (2005). The thought of Laozi and the implicit education. *Journal of Hefei University of Technolog (Social Sciences*, 2.

Tikhomirova, L., & Dolgova, L. (2020). Journal of Physics: Conference Series. *The experience of distance learning for Students of Altai State University in the conditions of COVID-19, 1691*, p. 012149.

Torda, A., Velan, G., & Perkovic, V. (2020). The impact of the COVID-19 pandemic on medical education. *Medical Journal of Australia, 213*(7), 334.

Toshtemirova, S. (2020). The Quality of Education is a Pedagogical Problem. *Актуальные вопросы современной науки: материалы VI международной научно-практической конференции, 1*(7), 39-40.

Townsend, E., & Friedland, J. (2016). 19th & 20th century educational reforms arising in Europe, the United Kingdom, and the Americas: Inspiration for occupational science? *Journal of Occupational Science*, 488-495.

Trafic Masters. (2022, 11 15). *Casino Guru Academy*. Retrieved from Casino Guru Academy: https://casino.guru/academy

Tuma, F., Nassar, A. K., Kamel, M. K., Knowlton, L. M., & Jawad, N. K. (2021). Students and faculty perception of distance medical education outcomes in resource-constrained system during COVID-19 pandemic. A cross-sectional study. *Annals of Medicine and Surgery, 62,* pp. 337-382.

Tylor, E. (1871). *Primitive culture: Researches into the development of mythology, philosophy, religion, art and custom* (Vol. 2). J. Murray.

Ulewicz, R. (2014). Application of servqual method for evaluation of quality of educational services at the university of higher education. *Polish Journal of Management Studies, 9,* 254-264.

UNESCO. (2000). Analytical survey Distance Education for the Information Society: Policies, Pedagogy and Professional Development. *Institute for Information Technologies in Education,* pp. 3-6.

Unruh, E. (2024). Too much of a good thing? Teacher performance during the COVID-19 pandemic and the ambiguous role of high teacher autonomy. *International Journal of Educational Research Open, 7,* p. 100353. doi:10.1016/j.ijedro.2024.100353

Vakaliuk, T., Yefimenko, A., Bolotina, V., Bailiuk, Y., Pokotylo, O., & Didkivska, S. (2020). ICTERI Workshops. *Using Massive Open Online Courses in Teaching the Subject "Computer Networks" to the Future IT Specialists,* (pp. 665-676).

Vakaliuk, T., Yefimenko, A., Bolotina, V., Bailiuk, Y., Pokotylo, O., & Didkivska, S. (2020). The use of massive open online courses in teaching the fundamentals of programming to software engineers. *CEUR Workshop Proceedings.*, 1-12. Retrieved from https://ceur-ws.org/Vol-2732/20200665.pdf

Vazquez, A. G., Verde, J. M., Dal Mas, F., Palermo, M., Cobianchi, L., Marescaux, J., . . . Gimenez, M. (2020). Image-Guided Surgical e-Learning in the Post-COVID-19 Pandemic Era: What Is Next? *Journal of Laparoendoscopic and Advanced Surgical Techniques, 30,* 993-997.

Vazquez, A., Verde, J., Dal Mas, F., Palermo, M., Cobianchi, L., Marescaux, J., . . . Gimenez, M. (2020). Image-Guided Surgical e-Learning in the Post-COVID-19 Pandemic Era: What Is Next? *Journal of Laparoendoscopic and Advanced Surgical Techniques, 30*(9), 993-997.

Vezne, R. (2020). Teacher candidates' satisfaction with massive open online courses in Turkey. *Cypriot Journal of Educational Sciences*, 479-491.

Vollbrecht, P., Porter-Stransky, K., & Lackey-Cornelison, W. (2020). Lessons learned while creating an effective emergency remote learning environment for Students during the COVID-19 pandemic. *Advances in Physiology Education, 44*, 722-725.

Voznesenskaya, E. (2017). Distance education–history of development and modern tendencies in the educational space. *Science and School, 1*, 116-123.

Waheed, H., Hassan, S., Aljohani, N., Hardman, J., Alelyani, S., & Nawaz, R. (2020). Predicting academic performance of Students from VLE big data using deep learning models. *Computers in Human behavior*, 106189. doi:https://doi.org/10.1016/j.chb.2019.106189.

Weisheipl, J. (1965). Mediaeval studies. *Classification of the sciences in medieval thought., 27*, 54-90.

Welsh, E., Wanberg, C., Brown, K., & Simmering, M. (2003). E-Learning: emergings uses, empirical results and future directions. *International Journal of Training and Development, 7*(4), 245-258.

Wilder-Smith, A., & Freedman, D. (2020). Isolation, quarantine, social distancing and community containment: pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. *Journal of travel medicine*.

Willis, B. (1994). *Distance education: Strategies and tools.* Educational Technology.

Yerden, A., & Akkus, N. (2020). Virtual reality remote access laboratory for teaching programmable logic controller topics. *International Journal of Engineering Education, 35*(5), 1708-1721.

Yin, R. (2018). *Case study research and applications. Sage.*

Yu, X., Sheng, Y., & Zhang, L. (2023). 2023 Asia-Europe Conference on Electronics, Data Processing and Informatics (ACEDPI). *Teaching Management System Based on. NET and Mobile Communication Technology* (pp. 380-384). IEEE.

Zargaran, A., Daneshamuz, S., & Mohagheghzadeh, A. (2011). Medical Education in Ancient Persia. *ranian Journal of medical education, 11*(2).

Zaytseva, A., & Grynyuk, S. (2020). University distance learning due to the Covid-19 pandemic in Ukraine. *The scientific heritage, 53*(4), 49-52.

Zeithaml, V. (2000). Service quality, profitability, and the economic worth of customers: what we know and what we need to learn. *Journal of the academy of marketing science, 28*(1), 67-85.

Zhang, Z. (2000). Quality management approach in China. *The TQM Magazine*, 92-105. doi:10.1108/09544780010318343

Zhytomyr Polytechnic State University. (n.d.). *Освітній портал*. Retrieved from Державний університет "Житомирська Політехніка" - Освітній портал: https://learn.ztu.edu.ua/

Zitzmann, N., Matthisson, L., Ohla, H., & Joda, T. (2020). Digital undergraduate education in dentistry: A systematic review. *International Journal of Environmental Research and Public Health, 17*(9).

Житомирська політехніка. (2022, 03 12). *Новини Житомирської політехніки*. Retrieved from Зміна графіку освітнього процесу у Державному університеті «Житомирська політехніка»: https://news.ztu.edu.ua/2022/03/zmina-grafiku-osvitnogo-protsesu-u-derzhavnomu-universyteti-zhytomyrska-politehnika/

Житомирська політехніка. (2022, 2 25). *Новини Житомирської політехніки*. Retrieved from Формування бази волонтерів з числа здобувачів освіти: https://news.ztu.edu.ua/2022/02/formuvannya-bazy-volonteriv-z-chysla-zdobuvachiv-osvity/

Житомирська політехніка. (2022, 05 23). *Новини Житомирської політехніки*. Retrieved from День Європи: онлайн-зустріч «Дружня підтримка країн Європи та нові можливості для студентів України під час війни»: https://news.ztu.edu.ua/2022/05/den-yevropy-onlajn-zustrich-druzhnya-pidtrymka-krayin-yevropy-ta-novi-mozhlyvosti-dlya-Studentiv-ukrayiny-pid-chas-vijny/

Житомирська політехніка. (2022). *Розклад занять Житомирської політехніки*. Retrieved from Розклад занять академічних груп: https://rozklad.ztu.edu.ua/

Житомирська політехніка. (2023, 9 4). *Графік освітнього процесу*. Retrieved from Графік освітнього процесу в Університеті затверджено наказом Житомирської політехніки: https://ztu.edu.ua/page/541.html

Житомирська політехніка. (2023, 9 21). *Психологічна підтримка для здобувачів освіти та викладачів Житомирської політехніки*. Retrieved from Психологічна підтримка для здобувачів освіти та викладачів Житомирської політехніки: https://news.ztu.edu.ua/2023/09/psyhologichna-pidtrymka-dlya-zdobuvachiv-osvity-ta-vykladachiv-zhytomyrskoyi-politehniky/

Комітет Верховної Ради України. (2023, 12 29). *Верховна Рада України online Офіційний вебпортал парламенту України*. Retrieved from Інформація про роботу Комітету Верховної Ради України з питань освіти, науки та інновацій за 2023 рік: https://kno.rada.gov.ua/documents/doc_arch/76298.html

Міністерство Освіти і Науки України. (2022, 3 28). *Міністерство Освіти і Науки України*. Retrieved from Наказ Міністерства Освіти і Науки України №274: https://mon.gov.ua/npas/pro-deyaki-pitannya-organizaciyi-zdobuttya-zagalnoyi-serednoyi-osviti-ta-osvitnogo-procesu-v-umovah-voyennogo-stanu-v-ukrayini

Прес-служба Апарату Верховної Ради України. (2023, 12 28). *Верхована Рада Україна online Офіційний вебпортал парламенту України*. Retrieved from Новини комітетів: https://www.rada.gov.ua/news/news_kom/245282.html

List of tables

Table 1. Three groups of stakeholders based on their interest. 22
Table 2. Connection between informational revolution and distance learning improvement. 27
Table 3. Familiarity of students with distance learning tools used in higher educational institutions. 30
Table 4. Approaches to quality of education. 36
Table 5. The European Higher Education Area standards for quality assurance. 37
Table 6. Five pillars of quality. 39
Table 7. Quality parameters mentioned in up-to-date literature in years 2020-2024. 44
Table 8. Research methodology. 48
Table 9. Respondent structure. 49
Table 10. Types of e-classes that can be conducted at KUE. 57
Table 11. Academic Staff's general opinion on distance learning. 61
Table 12. Academic Staff's outlook on the quality of distance learning. 63
Table 13. Academic Staff's opinions on distance learning difficulties. 66
Table 14. Academic Staff's opinions on unethical behavior during distance learning. 68
Table 15. Academic Staff's vision on the future of distance learning. 70
Table 16. Academic Staff's outlook on the stakeholders of distance learning. 72
Table 17. Skills connected with DL gained by Academic Staff since the beginning of the pandemic. 74
Table 18. KUE and ZP Students' general opinions on distance learning. 77
Table 19. Students' outlook on good quality of distance learning. 80
Table 20. Students' opinions on unethical behavior during distance learning. 82
Table 21. Students' outlook on the distance learning stakeholders. 83
Table 22. KUE e-learning department's general opinion on distance learning (including blended learning) that was conducted at the university. 87
Table 23. ZP e-learning department's general opinion on distance learning (including blended learning) that was conducted at the university. 88
Table 24. KUE e-learning department's outlook on what the quality of DL depends on. 90
Table 25. ZP e-learning department's outlook on what the quality of DL depends on. 90
Table 26. Questions, problems and highlights reported by KUE lecturers to the e-learning department. 92
Table 27. Questions, problems and highlights reported by ZP lecturers to the e-learning department. 93

Table 28. Stakeholders of DL and their perspectives (according to the KUE e-learning department). 94
Table 29. Stakeholders in distance learning and their perspectives (according to the ZP e-learning department). 95
Table 30. Future of DL (according to the KUE e-learning center). 97
Table 31. Future of DL (according to the ZP e-learning department). 98
Table 32. Challenges faced by the IT department connected with distance learning. 100
Table 33. IT department's general opinion on distance learning. 101
Table 34. New technical solutions introduced for distance learning. 102
Table 35. IT problems reported by staff connected with distance learning. 103
Table 36. List of potential improvements. 104
Table 37. Employer characteristics. 106
Table 38. Differences between graduates who experienced DL versus previously hired graduates who studied in the traditional form. 107
Table 39. DL effectiveness for employee training. 109
Table 40. The scope of distance learning usage in the future. 110
Table 41. Stakeholders of university educational services based on the literature and the results of interviews. 113
Table 42. Quality parameters' summary based on the analysis of the results. 116
Table 43. A proposition of a framework for shaping the quality of DL. 120

List of figures

Figure 1. Classification of educational services. 19
Figure 2. Four steps of stakeholder identification. 23
Figure 3. ISO quality management standards principles. 33
Figure 4. Parameters that should be included in the Framework for shaping the quality of distance learning (on the left side – parameters met during literature review and document analysis, on the right side – respondents that mentioned the parameters). 118

Annex

1. Questions for Academic Staff for the semi-structured interviews

1. What are your thoughts on DL (including blended learning) that was conducted at the university?
2. How do you imagine high-quality DL?
3. In your opinion, what are the hinders of DL?
4. Have you encountered any unethical behaviors among Students during remote learning? (What kind of behavior you can name unethical?)
5. What will be the future of distance learning in education?
6. What kind of stakeholders do you see in distance learning?

2. Questions for Students for the semi-structured interviews

1. What do you think about distance learning (blended learning) at the university nowadays?
2. How do you imagine good quality distance learning (blended learning)?
3. What kind of stakeholders do you see in distance learning?
4. Have you encountered unethical behavior of Students during distance learning?

3. Questions for E-Learning Department staff for the semi-structured interviews

1. What do you think about distance learning (including blended learning) that was conducted at the university? What influenced on it during different periods of time?
2. What should high-quality distance learning look like? What does this quality depend on?
3. Did the Academic Staff cope with that kind of education? What can you say about the questions or problems that lecturers have reported (after 2020, when

the pandemic began)? Were there many of them and what was the most frequently mentioned topic?

4. What stakeholders do you know about distance learning? What are their prospects for distance education?
5. What will be the future of distance learning in education?

4. Questions for IT Department staff for the semi-structured interviews

1. What are your thoughts on DL at the university today?
2. What technical and organizational challenges has the institution faced in implementing this DL?
3. What new solutions have been developed in relation to DL?
4. What are the most common problems that lecturers have approached you with seeking assistance?
5. What could be done today to improve the quality of DL?

5. Questions for Employers for the semi-structured interviews

1. Have you had any experience with graduates from KUE who studied remotely (graduates of 2020, 2021, 2022)? If so, from what field and major? /With ZP remote education graduates from what field and major have you had experience?
2. How can such graduates be characterized? Do you see any differences between them and the graduates from previous years (in terms of knowledge and skills level)? If so, what are they?
3. Can remote learning (online courses) be an optimal form of employee training? Yes/No - why?
4. In your opinion, what should be the future scope of utilizing DL?