PROSPECTS FOR THE DEVELOPMENT OF DISTANCE AND ONLINE LEARNING IN THE CONTEXT OF HIGHER EDUCATION

PERSPECTIVAS PARA O DESENVOLVIMENTO DO ENSINO A DISTÂNCIA E ONLINE NO CONTEXTO DO ENSINO SUPERIOR

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Abstract. In today's digital society, the significance of distance and online learning in the context of higher education is escalating. Rapid technological advancements, Internet development, and the growing demand among students for educational flexibility and accessibility are generating fresh opportunities for higher education institutions. The paper's purpose is to identify effective methods and modeling processes to ascertain the prospects for the development of distance and online education within modern socio-economic conditions. The paper holds relevance as it scrutinizes current trends, while identifying the benefits, challenges, and opportunities that accompany this advancement. It delves into statistics concerning the growth in the number of students opting for distance learning, attributing this surge to the convenience, efficiency, and affordability offered by this mode of education. The paper also examines the favorable influence of this advancement on higher education and the global labor market. Moreover, the paper explores the advantages that distance and online learning furnish to higher education. It underscores the flexibility it affords students, enabling them to learn at their preferred time and location. It further underscores the potential for accessing a vast array of educational resources and experts from around the world, thereby broadening students' opportunities to attain a quality education. After a comprehensive contextualization of the research subject, the method of hierarchical indicator correlation analysis is employed. This method facilitates a systematic analysis and comparison of relationships among different indicators of student engagement, refusals, and success across universities A, B, C, D, E. The outcomes of the hierarchical indicator correlation analysis offer insights to better grasp the influence of various factors on the effectiveness of distance learning in each of the studied universities, ultimately culminating in informed recommendations for enhancing the quality of the educational process and fostering the growth of distance education in Ukraine. Research reveals that these learning formats possess substantial potential and can emerge as pivotal components within the modern education system. Nonetheless, their successful implementation and utilization necessitate meticulous attention to several pivotal aspects.

Keywords: Higher education, digitalization, online education, distance education

Resumo. Na sociedade digital de hoje, a importância do ensino à distância e online no contexto do ensino superior está aumentando. As rápidas mudanças tecnológicas, o desenvolvimento da Internet e as crescentes necessidades dos alunos por flexibilidade e acessibilidade à educação criam novas oportunidades para as instituições de ensino superior. O objetivo do artigo é encontrar métodos eficazes e processos de modelagem para determinar as perspectivas de desenvolvimento da educação a distância e online nas condições socioeconômicas modernas. O documento é relevante, pois examina as tendências atuais e identifica os benefícios, desafios e oportunidades que acompanham esse desenvolvimento. O artigo examina as estatísticas do crescimento do número de alunos que optam pelo ensino a distância e explica esse crescimento em termos de conveniência, eficiência e acessibilidade dessa forma de educação. Ela também analisa o impacto positivo desse desenvolvimento no ensino superior e no mercado de trabalho global. O artigo explora os benefícios que o ensino a distância e online proporciona ao ensino superior. Ele se concentra na flexibilidade que oferece aos alunos, permitindo que eles estudem no horário e no local que mais lhes convier. Também aponta para a possibilidade de acesso a uma grande quantidade de recursos educacionais e especialistas de todo o mundo, o que amplia as oportunidades para os alunos obterem uma educação de qualidade. O artigo destaca os desafios enfrentados pelas instituições de ensino superior durante o desenvolvimento do ensino a distância e online. Ela discute os requisitos tecnológicos necessários para a implementação bem-sucedida dessas formas de aprendizagem, além de garantir a qualidade do ensino e a interação professor-aluno. No entanto, o artigo também aponta para as oportunidades que o ensino a distância oferece para a

inovação na educação, como o uso de realidade virtual, plataformas interativas e outras tecnologias. A pesquisa mostra que esses formatos de aprendizagem têm grande potencial e podem se tornar um componente importante do sistema educacional moderno. No entanto, sua implementação e uso efetivos requerem atenção a alguns aspectos fundamentais.

Palavras-chave: Educação superior, digitalização, educação online, educação a distância

INTRODUCTION

In the contemporary world, characterized by technological advancements and rapid development of the information society, education is undergoing significant shifts and transformations. The expanding opportunities presented by distance and online learning are attracting the attention of educational institutions, students, and educators, thus unveiling novel perspectives for knowledge access and remote education. Nonetheless, the inadvertent utilization of these learning modalities may engender challenges and deficiencies that necessitate thorough investigation and analysis.

As the prevalence of distance and online learning continues to rise, the scientific community, educational institutions, and stakeholders in the educational process confront inquiries regarding the quality, efficacy, and prospects of these learning formats. The advantages and opportunities they offer, alongside the challenges and limitations inherent in their implementation and usage, remain somewhat enigmatic.

Inquiries persist regarding the impact of distance and online learning on educational quality, the potential for personalized and adaptable learning experiences, student-teacher interaction, accessibility to resources and technologies, as well as the provision of support during remote learning. Furthermore, a comprehensive exploration of the technological requisites and infrastructure influencing the availability and caliber of distance and online learning is imperative.

To comprehend and assess the potential evolution of distance and online education, this paper proposes an investigation and evaluation of diverse factors influencing the quality, effectiveness, and acceptance of these learning modalities. Through a scrutiny of exemplary practices, analysis of research, and specific case studies, our objective is to delineate the advantages, challenges, and untapped potential of distance and online learning, thereby delineating avenues for future advancement.

LITERATURE REVIEW

Distance Education in the Conditions of COVID-19 Pandemic

"Perceived Quality Differences in Online Distance Learning: Impacts on Student Satisfaction during the COVID-19 Pandemic" explores the aspects of perceived quality differences that influence student satisfaction when transitioning from traditional classroom learning to online distance learning due to the COVID-19 pandemic. The research employed an online survey approach, utilizing convenience sampling to collect data from students at a private university in Indonesia. A total of 253 valid responses were obtained, and a seven-point comparative scale was used to record the responses. The study conducted exploratory factor analysis to identify four dimensions of perceived quality differences: campus facilities, learning process, teaching staff, and administrative staff. Multiple regression analysis was then applied to examine the effects of these dimensions on student satisfaction. The results revealed that perceived differences in quality between the traditional classroom and online distance learning had positive and significant impacts on student satisfaction. However, it is important to note that the findings of this study are limited in terms of generalizability due to the use of a convenience sample. Future research could benefit from employing a stratified sample with more diverse categories of respondents to enhance the generalizability of the findings [Istijanto (2021)].

The shift to online teaching became necessary due to social and physical distancing measures implemented to combat the spread of the virus. However, little is known about the specific experiences of nursing lecturers in this context. An interpretive phenomenological analysis study design was employed, and seven nursing lecturers participated in in-depth interviews conducted via telephone calls or video conferences. The collected data was analyzed using interpretive phenomenology analysis. The findings reveal a core theme of "becoming accustomed to online teaching delivery." This central theme is supported by three sub-themes: being comfortable with technology, difficulties faced and strategies to overcome them, and caring for students. These sub-themes shed light on the experiences of nursing lecturers in adapting to online teaching. The study emphasizes the importance of technological familiarity for lecturers to effectively engage in online teaching. It highlights the need for further technological enhancements and the utilization of applications to improve the quality of teaching methods and ensure the delivery of

theoretical knowledge and nursing skill competency to students. This research contributes to the field by providing insights into the experiences of nursing lecturers in the context of online teaching during the COVID-19 pandemic. The findings underscore the significance of technological competence and the potential for advancements in online teaching practices in nursing education. [Ligita, T., Mita, Murtilita and Winarianti (2022)].

The paper examines the factors influencing the acceptance of distance learning systems by university academic staff and students in Jordan, specifically in response to the COVID-19 pandemic. The study aims to investigate the distance learning experience of Jordanian Higher Education Institutions (HEIs) after the suspension of face-to-face courses. Drawing on the unified theory of acceptance and use of technology, the research incorporates contextual variables such as trust, autonomy, and compatibility. An online survey was conducted during the crisis period of the coronavirus, targeting participants from public and private universities. Structural equation modeling was employed to validate the research model. The findings indicate that performance expectancy, facilitating conditions, trust, and autonomy were significant predictors of distance learning acceptance in both samples. By identifying the factors that affect the acceptance of distance learning systems, the study offers insights to improve the quality of distance learning services. It also highlights the potential of distance learning to effectively deliver educational goals, particularly in regions facing a pandemic outbreak like the Middle East. The originality of this research lies in its focus on the acceptance of distance learning systems in Jordan during the COVID-19 pandemic. Distance learning not only provides students with quality education but also offers a safe teaching environment. The study's results have implications for both practice and theory in the field of distance learning. [Alkhwaldi, A.F. and Abdulmuhsin, A.A. (2022)].

The research study aims to gather feedback from learners on the usefulness and effectiveness of online counseling sessions organized during the COVID-19 lockdown. The sessions were conducted through online platforms to provide academic support to learners enrolled under the jurisdiction of IGNOU Regional Centre (RC) Chandigarh. A questionnaire, designed using Google Forms, was distributed via email and SMS to IGNOU learners of the January 2020 session. A total of 487 responses were received, with 445 complete responses representing approximately 8% of the total registered learners during the session. The questionnaire covered various aspects of online counseling and included questions about learners' profiles. The findings indicate that most learners were satisfied with the input provided during the online counseling sessions. Smartphone usage was prevalent among learners (88%) attending these sessions, and the RC's Facebook page was rated as a preferred platform. However, over 50% of learners faced Internet connection issues, which hindered the smooth viewing of the sessions. The proportion of learners encountering difficulties in handling electronic devices was minimal. Learner feedback on attributes such as the usefulness and effectiveness of the sessions, interaction with academic counselors, and the e-content used was significantly positive. A substantial number of learners expressed that online sessions could replace face-to-face counseling in the future, given the flexibility in terms of location and schedule, as well as the availability of session recordings. [Dimri, A.K. (2021)].

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method, the review includes empirical studies conducted in academic institutes during the COVID-19 outbreak. From an initial pool of 103 electronic references, 42 papers underwent abstract screening and full-text assessment. Ultimately, 14 papers met the eligibility criteria, and nine studies were included in the literature review and qualitative analysis. The findings shed light on the link between broad personality traits and various learning outcomes in the context of online learning during the COVID-19 pandemic. The insights gained from this research contribute to a deeper understanding of how personality traits may impact the academic online learning experience. The study emphasizes the importance of considering individual differences, such as personality traits, when designing and implementing online learning strategies in response to public health emergencies like the COVID-19 pandemic. This systematic literature review adds value by consolidating existing research and providing an overview of the relationship between broad personality traits and the academic online learning experience. The findings have implications for educators, policymakers, and researchers seeking to enhance online learning environments and optimize learning outcomes during similar crises in the future. [Morfaki, C. and Skotis, A. (2022)].

Technical, Technological and Organizational Component of Distance Learning

With the rapid advancement of technology, the educational landscape has undergone significant transformations, leading to the emergence of new educational practices and degree programs. Higher education institutions (HEIs) have embraced online resources and collaborative tools, integrating digital

technologies and the internet into their curricula. However, despite the numerous advantages offered by online education, HEIs still face challenges in fostering student collaboration while reducing feelings of social isolation. This case study focuses on a blended Bachelor's degree program in Management at a European business school and aims to provide practical suggestions for implementing e-learning and online education in higher education. By analyzing collaborative learning aspects, organizational and pedagogical structures, philosophical assumptions, and educational settings, this study offers insights into how these factors can be combined to address one of the main challenges in online education: distance. The findings and recommendations from this case study can serve as inspiration for HEIs seeking to enhance collaborative learning and mitigate the impact of distance in online education settings. [Wieser, D. and Seeler, J.-M. (2018)].

The research adopts an environmental audit approach, utilizing survey data from 20 UK courses, including 13 campus-based, seven print-based, and online distance learning courses. Various factors, such as travel, paper and print consumption, computing, accommodation, and campus site impacts, were considered. The results were converted into energy and CO2 emissions per student per 100 hours of degree study. The findings reveal that distance learning HE courses exhibit 87% less energy consumption and 85% lower CO2 emissions compared to full-time campus-based courses. Part-time campus HE courses also demonstrate significant reductions, with energy and CO2 emissions lowered by 65% and 61%, respectively, compared to full-time campus courses. The lower impacts of part-time and distance learning courses primarily stem from reduced student travel, elimination of energy consumption in students' housing, and efficiency gains in campus site utilization. E-learning, however, only offers modest energy and emissions reductions (20% and 12%, respectively) compared to predominantly print-based distance learning courses, largely due to increased energy requirements for computing and paper usage. While this study focused on UK-based courses and made certain assumptions in calculating energy and emissions, it suggests broader implications for HE sustainability efforts. Existing sustainability programs should expand their scope beyond campus site impacts and curriculum "greening." Considering the environmental impacts, prioritizing part-time and distance education over increasing full-time provision appears favorable. This aligns with recommendations from the Leitch Review of Skills, emphasizing the importance of continuing education and training for the UK workforce. Future research could include a wider range of distance and blended learning courses offered by institutions beyond the UK Open University, as well as explore additional environmental impacts beyond CO2 emissions [Roy, R., Potter, S. and Yarrow, K. (2008)].

The paper presents a formal study investigating the factors influencing the pricing of online MBA programs in the USA. The research aims to explore the effects of perceptual variables (e.g., rankings and accreditation) and structural characteristics (e.g., program length, program format) of online MBA programs on tuition levels. Secondary data from a sample of 115 publicly available online MBA programs in the USA are analyzed. The dataset includes information on program characteristics and prices. Regression analysis is employed to reveal the underlying pricing model. The findings indicate that perceptual variables have a significantly greater impact on prices charged compared to structural variables. Institutions can leverage perceptual factors to potentially double their revenue per student. While this study focuses on online MBA programs in the USA, the research approach can be extended to investigate pricing models in distance learning programs in other fields and explore similar relationships outside the scope of American institutions. The study contributes to the existing literature by addressing the lack of formal research on how prices (tuition levels) for online MBA programs are determined. The growth of distance learning methods in degree-granting institutions has facilitated access for geographically dispersed students, with the USA alone offering nearly 400 such programs. This research sheds light on the pricing dynamics of these programs and highlights the significance of perceptual and structural factors in setting tuition levels [Estelami, H. and Rezvani, Z. (2011)].

The authors explore theoretical constructs such as "communities of practice" and "communities of inquiry" to inform practices for supporting online students. Additionally, the Dynamic Student Development Metatheodel (DSDM) is discussed as a theoretical framework. The later chapters of the book delve into the experiences of specific populations, including post-baccalaureate students and doctoral students, recognizing that different subsets of students face distinct challenges in online learning. The book concludes with a focus on accessibility, emphasizing the importance of inclusion, participation, and engagement for students with disabilities in all learning modalities. A comparison of two support models (medical and social) is presented, along with recommended changes to enhance literacy supports in online learning environments. This book provides valuable insights and best practices for supporting online students in higher education. By addressing the unique characteristics of online students, exploring

theoretical foundations, and highlighting the experiences of specific populations, it offers a comprehensive resource for professionals seeking to enhance support and success in online learning environments. [Scott, R. and Hoffman, J. (2021)].

The study focuses on faculty members from Sri Lanka, Pakistan, and Mauritius who participated in a six-week professional development online course. Data was collected through a self-reflection questionnaire, asynchronous discussion forum posts, and personal journal entries. Content analysis of the asynchronous discussion forums identified categories and themes related to traditional culture and the impact of culture on online learning. These findings were triangulated with questionnaire data and journal entries. [Jayatilleke, B.G. and Gunawardena, C. (2016)].

The findings highlight that online education influenced the interests and experiences of both students and teachers, significantly impacting their overall psychology. The review emphasizes the importance of considering the psychological well-being of students and teachers in the effective implementation of online and blended education. This can be achieved through well-designed instructions, adequate infrastructure and resources, and the development of satisfactory technological skills.

While this study provides valuable insights, there are limitations to consider. The students were not categorized by subjects or streams, and teachers were not differentiated based on educational levels. Future research should consider these categorizations for a more comprehensive understanding of the impacts of online education.

The research has practical implications, highlighting the challenges and psychological impacts faced by students and teachers during the abrupt transition to online education. It underscores the need to address these issues and provide opportunities for skill development in online education, ensuring the sustained development of online and blended learning environments.

In terms of social implications, students and teachers form an essential part of the educational community. It is crucial to identify and address the challenges faced during online education, provide support for psychological well-being, and facilitate the development of skills necessary for effective online learning environments, contributing to the overall advancement of online education in society. [Aisha, N. and Ratra, A. (2022)].

Online learning in higher education has, until most recently, been delivered primarily through learning management systems (LMS) such as BlackBoard, Moodle, and others. However, responding to budgetary concerns and burgeoning enrollments, delivery of online learning via multiple open source (free) formats, is quickly becoming an attractive and inexpensive option for online distance and learning programs. Multi-user virtual environments, or MUVEs, are one such option that provides an interactive and socially rich learning experience for learners. In this chapter, the authors propose a dually fused pedagogical framework that has the potential to provide both asynchronous and synchronous online learning activities the elicit critical thinking skills and that further align with additional skills twenty-first century learners and instructors need to compete in today's global society [Burgess, M.L. and Ice, P. (2011)].

Often culture, socio-economic conditions and their multiple roles and responsibilities towards family, work and social life impede women from achieving academic goals. Online learning is perceived as flexible, 'comfortable' and as a mode of learning which can be better balanced with other demands and responsibilities such as work, family and social life. With this study, the aim of this chapter was to focus on the 'geography' of online learning, explore whether it supports women's access to higher education and understand whether women find online learning to be a fulfilling experience. The participants in this study confirmed that online learning makes higher education more accessible to women who might otherwise find it difficult to balance multiple roles and responsibilities with academic aspirations. Female students value the flexibility and convenience of online learning and despite challenges (e.g. handling workload or technology), their learning experience is positive. Interestingly, participants value asynchronous online communication with peers and tutors but learn better in a face-to-face environment. The findings of this chapter have implications for online programme designers, programme managers and directors who should consider the multiple responsibilities of female students and their preference for a more personalized learning environment [Tzavara, D. and Wilczek, B. (2019)].

This chapter critically examines the provision and partnership structures of online and distance teacher preparation courses implemented in Scotland between 2014 and 2018. These courses were developed by universities in collaboration with local authority employers, primarily in rural areas, in response to teacher shortages. The chapter explores the geographic and policy context, analyzes the national and local policy drivers that led to the expansion of online and distance provision, and examines the program structures offered by the University of the Highlands and Islands, the University of Aberdeen, and the University of

Dundee. The chapter highlights the national policy drivers, including the shortage of teachers in rural areas, the challenges of recruiting secondary science and technology teachers, and the introduction of national funding from the Scottish Government for 'New Routes into Teaching.' It contrasts the government's aim of recruiting highly qualified graduates into teaching as a career with the local objective of promoting wider and more equitable access to a teaching career for individuals already committed to living in rural Scotland. The chapter also discusses the processes and technology employed in these programs and considers the future of online and distance teacher preparation in Scotland. It reflects on the impact of these programs in addressing teacher shortages, promoting access to teaching careers, and leveraging technology to enhance teacher preparation. The findings and analysis contribute to ongoing discussions and planning for the future of online and distance teacher preparation in Scotland [Redford, M. (2020)].

The study aims to provide insights into the student experience and offer lessons and implications for others planning similar induction programmes. A self-completion questionnaire was administered to all students enrolled in the programme, including those who did not attend the webinar or participate in the online induction. Follow-up semi-structured interviews were conducted to gather additional insights. The analysis focused on the student experience of the induction programme. The findings indicate overall student satisfaction with the online programme. The webinar encouraged engagement with various elements of the online workshop and complemented other learning opportunities available online. Students appreciated the webinar for providing a sense of "face-to-face" interaction, fostering interactivity between tutors and students, and enhancing their sense of belonging to the university. The webinar also facilitated social interactions among the students. Practical implications from the study highlight the importance of offering multiple webinar sessions and optimizing the timing of activities in the online workshop to encourage participation. Clear guidance on the requirements and duration of the induction programme can also enhance student engagement. This case study adds value by evaluating the inclusion of webinar technology within an online induction programme, offering insights specific to this context. It contributes to the limited literature available on the topic and provides guidance for educators and institutions looking to enhance their online induction processes using webinars. [Warren, S., Black, P. and Mills, E. (2015)].

The global shift to emergency remote teaching during the COVID-19 pandemic has placed a significant burden on teachers and trainers to quickly transition face-to-face courses to online formats. However, the prevailing approach has often been the replication of traditional classroom pedagogy in online settings. This paper argues for a reconsideration of the use of synchronous and asynchronous lecture videos in online learning, emphasizing the need for pedagogical relevance rather than convenience or time-saving measures. Drawing on the author's viewpoint and supported by references and research, the paper explores the affordances of synchronous and asynchronous lecture videos in online learning. It contends that while pre-recorded videos have become customary and can enhance the online learning environment, their use should be driven by pedagogical pertinence rather than mere convenience. The findings highlight the importance of considering the pedagogical nuances of online learning and student engagement. The focus should be on creating conditions that maximize the likelihood of effective learning outcomes. This viewpoint paper offers a fresh perspective on the current practices in online learning, calling for a shift away from a lecture-centered approach. It encourages educators to critically reflect on their instructional choices and adopt pedagogical strategies that align with the unique affordances of online environments. The paper contributes to the ongoing dialogue on effective online teaching and learning, urging educators to prioritize pedagogical effectiveness over convenience in their instructional design. [Cohen, J.A. (2022)].

The research aims to assess faculty and student satisfaction with the institutional readiness for distance learning and their perceptions of the opportunities and challenges associated with this mode of education. Data was collected in March 2020 through an online survey questionnaire from 445 students and 139 faculty members. The study adopts the unified theory of acceptance and use of technology (UTAUT) as a conceptual framework. Statistical techniques and partial least squares structural equation modeling were employed to analyze the data and test hypotheses. The findings indicate that faculty members and students expressed high levels of satisfaction with the institutional readiness for distance learning and acknowledged its opportunities and advantages. However, they also expressed concerns about the challenges associated with distance learning. The study reveals a relationship between the participant's college or status and their perception of the opportunities and advantages of distance learning. The hypotheses testing supports the study's framework and the UTAUT theory by confirming the impact of perceived opportunities of distance learning on satisfaction with institutional readiness. The study highlights the importance of non-distance learning institutions offering courses through distance learning as a preventive measure for potential shortcomings in the future. This research contributes to the understanding of faculty and student

perspectives on distance learning and provides insights for institutions aiming to enhance their readiness for similar scenarios. [El Refae, G.A., Kaba, A. and Eletter, S. (2021)].

The emergence of digital technologies and the growing interest in computerized higher education have paved the way for e-learning, encompassing various platforms such as electronic mail, the Internet, the World Wide Web, and multimedia. However, unresolved questions pertaining to faculty integration of technology, plagiarism, and communication continue to impact the adoption and effectiveness of e-learning. Consequently, the expected response from the marketplace of learners has not been fully realized. This paper addresses the need for a framework that considers the importance of information systems, faculty adoption of technology, and understanding the market dynamics to achieve success in e-learning. It reviews existing definitions of e-learning and critically examines relevant literature to develop a practical framework for achieving success in this domain. Additionally, the paper briefly discusses reported case experiences to provide real-world insights. The findings underscore the significance of a comprehensive framework that incorporates faculty engagement, technology integration, and market considerations in designing and implementing successful e-learning initiatives. The framework serves as a guide for institutions aiming to optimize the effectiveness of their e-learning programs and overcome the challenges associated with faculty adoption, plagiarism, and communication. The paper concludes by suggesting avenues for future research in the field of e-learning, recognizing the need for further exploration and refinement of strategies and approaches to enhance the outcomes and experiences of e-learners. [Gunasekaran, A., McNeil, R.D. and Shaul, D. (2002)].

The authors analyze the role of online-learning interaction in student learning by conducting interviews with nine instructors from both countries. Constructivism and Confucianism serve as the conceptual framework for understanding the educators' viewpoints. The findings reveal distinct differences between Korean and American instructors in their emphasis on online-learning interaction. American instructors prioritize learner-to-learner interaction, while Korean instructors highlight teacher-to-learner interaction. Korean instructors also perceive a gap between the ideal integration of interaction in online activities and the reality of their implementation in courses. This study contributes to the field by offering a cross-national comparison of online-learning interaction, shedding light on the different perspectives and practices across cultures. The findings provide practical insights for designing online-learning courses with global or multicultural user experiences in mind. Educators and instructional designers can benefit from the ideas presented in this study to enhance the effectiveness of online-learning interaction in diverse educational contexts. [Yoo, S., Jeong Kim, H. and Young Kwon, S. (2014)].

This paper examines the challenges faced by university students in adopting e-learning during the global pandemic emergency and proposes solutions using the theoretical lens of emergency management theory (EMT). Qualitative research methods, including in-depth online interviews with 10 students from Pakistan and the UK, were employed. The study identifies several challenges, such as lack of preparedness, low quality of interaction, lack of motivation, and a forced shift to e-learning. However, it also highlights opportunities for improvement, including the development of a comprehensive emergency management plan, implementation of robust student counseling programs, and the creation of a strategic plan for enhancing the quality of online learning content. This research provides valuable insights into the experiences of students during the pandemic, applying EMT to explore preparedness, response, mitigation, and recovery from the students' perspective. It emphasizes the importance of considering students' opinions in ensuring quality assurance in higher education during such crises, particularly in developing countries. [Abdur Rehman, M., Soroya, S.H., Abbas, Z., Mirza, F. and Mahmood, K. (2021)].

The paper presents a survey conducted by Wawasan Open University Library to examine the information-seeking behavior of their distance students when utilizing library resources for research and learning activities. The study utilizes Wilson's revised model of information behavior (1999) as a framework. The aim of the paper is to discuss the findings and implications of the study. Using a random sampling method, a total of 550 questionnaires were distributed to undergraduate and postgraduate students, resulting in 435 completed questionnaires (response rate: 79%). The samples were selected to ensure representation from four schools of studies and five regional centers. The findings reveal significant differences in the use of the university's MyDigital Library and physical library between undergraduate and postgraduate students. Furthermore, differences were observed between first-year students and post-first-year students in their utilization of internet search engines as part of their information-seeking process. The practical implications of the study highlight the importance of improving students' information-seeking behavior to enhance their learning and research work. By promoting effective information-seeking practices, students can better engage with the university and avoid feelings of isolation often associated

with distance learning. This paper contributes to the scholarship of learning and research by emphasizing the crucial role of the library in supporting distance learners and reducing their sense of isolation. It underscores the significance of promoting good information-seeking behavior among distance students to enhance their overall university experience [Vighnarajah, Ali Hassan, F., Abd Aziz, N. and Siew Lee, O. (2016)].

The findings highlight that the primary advantage of iPods lies in their portability, enabling efficient utilization of time and effective study planning. The mobility of iPods allowed students to make productive use of previously unutilized periods, such as commuting. Additionally, students with a preference for visual learning reported that the iPod was significant in supporting their learning process. It is important to note that the generalizability of the findings is limited due to the small sample size of 23 participants, which affects the robustness of the results. This study contributes to the existing knowledge by providing preliminary evidence on the perceived usefulness of handheld devices as learning tools. The exploratory nature of the research opens avenues for further investigation into the integration of mobile devices in online education, particularly considering students' diverse learning styles. [Richardson, P., Dellaportas, S., Perera, L. and Richardson, B. (2013)].

The paper presents a reflection on practice aimed at re-imagining online distance learning (ODL) environments to foster greater learner engagement. The study explores the augmentation of ODL environments through the integration of videoconferencing, with the goal of increasing dialogue, instructor presence, and a sense of instructor care, concern, and guidance. The video-conference sessions were limited in duration (40 minutes per weekly module) and focused on explaining and integrating learning content and activities, resulting in an augmentation rather than a transformation into blended learning courses. Preliminary feedback from student discussions during video-conference sessions and their reflective journals indicates that the innovation was well-received by students and significantly contributed to their appreciation, satisfaction, and overall engagement with the course. The simplicity and effectiveness of the augmentation make it a particularly relevant approach for designing and facilitating ODL environments, especially in the context of uncertainty, disruption, and educational changes caused by the COVID-19 pandemic. The introduction of an active learning component through videoconferencing is argued to have significant implications for learner performance, satisfaction, and persistence in distance learning programs. While attempts to increase social presence and engagement in ODL are not uncommon, this approach stands out due to its simplicity, ease of implementation, and perceived element of originality and innovation that appeals to learners. It is believed that this approach adds significant value to the quality and outcomes of the distance learning experience. [Starr-Glass, D. (2020)].

The results reveal that there is a negative impact of the physical environment on the quality of distance education from the perspective of the teaching staff in Jordanian universities during the COVID-19 pandemic. The results also show that there are statistically significant differences between males and females in terms of the quality of distance education in favor of males. In addition, there are no statistically significant differences in the quality of distance education based on the place from which the lecture is given and the faculty type. [Al-Tkhayneh, K.M., Altakhaineh, A.R.M. and Nser, K.K. (2023)].

The study aims to determine whether a similar relationship exists at a distance-learning university compared to other academic institutions. A small library data project was established, analyzing online library resource data from access logs obtained through the EZproxy and OpenAthens systems. A dataset of 1.7 million online resource accesses was combined with student success data for approximately 90,000 undergraduate students. Various analyses were conducted to examine the relationship. The findings indicate a clear pattern where more successful students tend to access a greater number of library resources. A chi-square test revealed a statistically significant association between library resource accesses and module results, while an ANOVA test suggests a medium-sized effect. Furthermore, the study identified that 152 out of 199 modules (76%) exhibited a positive correlation, ranging from small to large, between student success, measured by the overall assessment score, and online library resource accesses. This study contributes to existing evidence by demonstrating that the relationship between library use and student success extends to the context of a non-traditional, innovative library service supporting part-time distance learners. It emphasizes the importance of online library resources in facilitating student achievement, even in a distance-learning environment. The findings have practical implications for enhancing library services and promoting student success in similar educational settings. [Nurse, R., Baker, K. and Gambles, A. (2018)].

The findings demonstrate a clear pattern indicating that more successful students tend to access a greater number of library resources. Statistical analysis, including a chi-square test and an ANOVA test,

reveal a significant association between library resource accesses and module results, with a medium-sized effect observed. Additionally, the study identifies that 152 out of 199 modules (76%) exhibit a positive correlation, ranging from small to large, between student success (measured by overall assessment scores) and online library resource accesses. This research contributes to the existing body of evidence by showcasing that the relationship between library use and student success extends to the unique context of a non-traditional, innovative library service catering to part-time distance learners. It highlights the vital role of online library resources in facilitating student achievement, even within a distance-learning environment. The findings hold practical implications for enhancing library services and fostering student success in similar educational settings. [Marandu, E.E., Mathew, I.R., Svotwa, T.D., Machera, R.P. and Jaiyeoba, O. (2023)].

The 2019 edition was conducted in-person, while the 2021 edition shifted to an online format. The authors specifically explore the impact of remote working and the introduction of a self-directed learning approach on entrepreneurial skills and teamwork. The chapter critically evaluates the effectiveness of remote working and self-directed learning in innovation and entrepreneurship education programmes. Early evidence is presented, highlighting certain challenges associated with online and distance learning, particularly in relation to self-efficacy skills such as motivating others to collaborate effectively. Despite the negative effects observed in some entrepreneurial skills, the authors demonstrate that the ability to reflect on learning experiences positively influences the development of specific entrepreneurial and innovation skills. The findings suggest that students who engage in reflective learning experiences exhibit greater confidence in becoming entrepreneurs or working in companies with a strong entrepreneurial mindset. This chapter contributes valuable insights into the evolving landscape of innovation and entrepreneurship education in the face of the Covid-19 pandemic, shedding light on the potential benefits and challenges associated with remote working and self-directed learning approaches [Scroccaro, A. and Rossi, A. (2022)].

The findings of the study reveal several key issues faced by supervisors, including time constraints, official restrictions, irregular contacts, and technological challenges. Moreover, the study identifies student-supervisor interaction, diversity, perceptions, virtual communities, and academic collaboration as significant challenges in the context of distance learning supervision. Additionally, the study highlights that students' attitude and supervisors' mindset play crucial roles in the success of distance research supervision. The practical implications of this research can assist institutions, particularly in Asia, in strategically reviewing their research programs to enhance their effectiveness. The study emphasizes the importance of timely completion and promoting novel research in distance learning programs. Addressing these aspects efficiently can contribute to a more favorable comparison between distance learning and conventional learning approaches. Overall, this study sheds light on the challenges faced by supervisors in distance/online learning environments and provides valuable insights for improving the effectiveness of research programs in such settings. [Zaheer, M. and Munir, S. (2020)].

The paper offers a comprehensive review of the latest management developments worldwide, aiming to identify practical implications derived from cutting-edge research and case studies. The briefing is prepared by an independent writer who provides impartial commentary and contextualizes the papers. Drawing on four learning theories, the paper explores their application to adult online and distance learning. While no single theory fully encompasses adult learning, utilizing these theories in combination can assist instructors in designing effective and engaging courses that enhance the learning experience and foster improved outcomes. The practical implications of this paper lie in the strategic insights and practical thinking derived from influential organizations worldwide. It provides busy executives and researchers with a time-saving resource, condensing and presenting the most relevant and valuable information in an easily digestible format. By reviewing management developments and highlighting practical implications, this briefing serves as a valuable resource for staying informed about the latest trends and research findings in the field. It offers valuable insights for practitioners and researchers seeking to leverage cutting-edge knowledge to drive organizational success [Citation (2018)].

The findings indicate that most participants agree with the study's propositions. Students still prefer traditional classroom-based instruction due to various challenges encountered in online learning, including a lack of motivation, difficulties in understanding course material, decreased communication levels between students and instructors, and feelings of isolation caused by the online learning environment. It is important to note that this research focuses solely on the students' perspective, as the sample consisted exclusively of students. The originality and value of this research lie in its comprehensive exploration of students' viewpoints, facilitating a deeper understanding of the issues and providing effective solutions. The study suggests that instructors should employ both formal and informal communication channels (such as instant

messaging, online chat groups, audio calls, and private video calls) to engage with students. Furthermore, instructors are encouraged to incentivize student participation and learning through various methods. This research contributes to the broader understanding of online learning by uncovering student perspectives and offering practical recommendations for enhancing communication and productivity in online educational settings. [Alawamleh, M., Al-Twait, L.M. and Al-Saht, G.R. (2022)].

PURPOSE

The purpose of the paper is to find effective methods and modeling processes for determining the prospects for the development of distance and online education in modern socio-economic conditions.

To achieve the goal of the study, the following tasks were performed:

- analysis of statistics on the growth of the number of students who choose distance learning and the impact of the trend on the development of education,
- determining the advantages of distance and online education in modern socio-economic conditions,
- identification of challenges faced by higher educational institutions during the development of distance and online learning,
- modeling of processes for evaluating the effectiveness of distance and online learning as a method of ensuring the quality of education.

METHODS

The paper encompasses various research methods aimed at collecting pertinent data and exploring relevant issues. The examination of scientific studies, publications, papers, and other sources pertaining to distance and online learning has facilitated the acquisition of information regarding prevailing trends, technologies, challenges, and opportunities in this domain.

The scrutiny of the situation through the observation of distance and online education processes encompasses the analysis of instructional practices, student-teacher interaction, technology utilization, and other factors that influence educational quality. Modeling methods are employed to construct a hierarchical framework of components for evaluating the developmental potential of distance and online learning. Specifically, the method of hierarchical indicator correlation analysis is utilized.

In order to ascertain the prospects for the advancement of distance education and online learning in Ukraine, a range of methodologies is employed. These include statistical data analysis, cartographic projection of statistical outcomes, and an exploration of causal relationships' effects on trends in the evolution of distance education within contemporary socio-economic conditions. The research methods synergistically converge and complement one another to yield a more comprehensive comprehension of the potential for the development of distance and online learning.

RESULTS

In connection with the transformation of socio-economic systems and new challenges, it is expedient to analyze the trends of distance learning and online learning choices by students. Trends in the development of distance and online education are largely related to the development of technologies and the availability of the Internet. Especially during the COVID-19 pandemic, many educational institutions were forced to switch to distance learning to ensure the safety of students and teachers.

As a result of the analysis of literary sources, the reasons for choosing distance learning were determined, which may include:

- **Flexibility:** Distance learning allows students to choose a study schedule that suits their needs. They can study the material at their own pace and time convenient for them.
- **Geographical accessibility:** distance learning allows students to receive education in educational institutions that may be far from their place of residence. They are not limited by geographical restrictions and can choose educational institutions with a world reputation.
- **Expanded access to resources:** With the help of distance learning, students have the opportunity to use virtual libraries, databases and other electronic resources, which can significantly expand their research opportunities and obtain relevant information.
- **Economic benefits:** distance learning can be more affordable from an economic point of view,

since students do not need to spend money on utilities, travel to the educational institution or living in a dormitory.

- **Productivity:** For some students, distance learning can be more productive because they can create a comfortable learning environment and avoid the mental or social stress associated with traditional learning.
- **Global access to learning:** thanks to distance and online learning, students can have access to learning at universities and educational institutions from all over the world. They can study subjects that were previously inaccessible due to geographical restrictions.
- **Individualization of learning:** online learning allows students to learn at their own pace and choose the materials that interest them the most.
- **Collaboration and interaction:** online platforms provide the opportunity to communicate and collaborate with fellow students and teachers through forums, chats, video conferencing, etc., which facilitates the exchange of ideas, discussions, and collective learning.
- **Career Goals:** Online learning allows students to choose courses and subjects that match their interests and career goals. They can receive specialized education or acquire new skills in a specific field.

These benefits of distance and online learning help expand access to education and provide students with more opportunities for self-development and achievement of their educational goals.

For Ukraine, in connection with a full-scale military invasion, the distance learning process has become a decisive factor for the possibility of continuing the education of children and youth. Today, the issue of distance learning in Ukraine is associated with the danger for students and the impossibility of conducting offline training due to hostilities or the destruction of educational institutions.

According to documented records, the destruction of educational institutions has resulted in significant financial losses, totaling $8.94 billion. As a result of ongoing hostilities, a minimum of 915 educational infrastructure facilities have been destroyed, while 2,165 have suffered varying degrees of damage. The region's most heavily affected by the destruction and damage to educational institutions include Kharkiv, Donetsk, Chernihiv, Zaporizhzhia, and Kyiv. Specifically, in Ukraine, as of April 2023, 42 higher education institutions have been damaged, with 4 destroyed. The estimated financial losses for the restoration of these damaged and destroyed institutions amount to $330 million, as allocated by the supreme council. For a visual representation of the distribution of damaged and destroyed educational institutions across regions, please refer to the map provided in Figure 2.

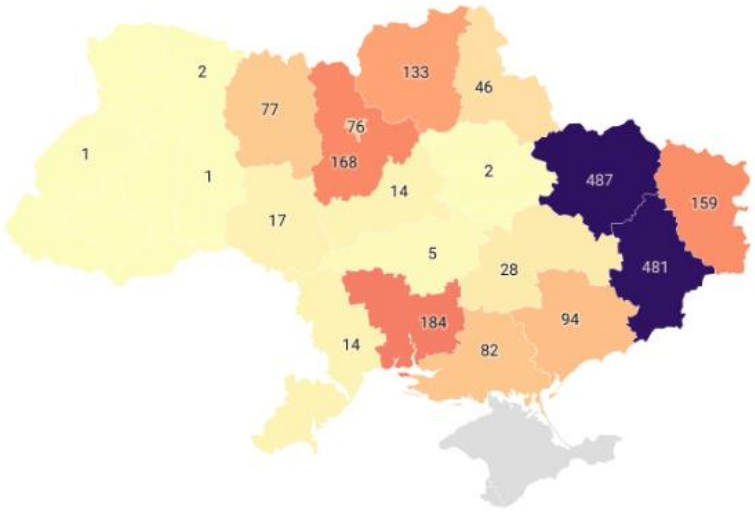

Figure 1: Statistics of damaged educational institutions in Ukraine.
Resource: portal of the Ministry of Education and Science of Ukraine

Therefore, analyzing the challenges to the education system that can be overcome by digitalization processes and the advantages of distance and online learning, it is advisable to develop a methodology for assessing the quality of distance and online learning.

Analysis of literary sources and the report of international organizations made it possible to form a set of criteria, which provide an evaluation of the distance and online learning system, are presented in Table 1.

Table 1. Criterion, which provide an evaluation of the distance and online learning system.

Indicators	Description	Calculation formula	Parameters
Engagement rate	It is determined by the number of students who participated in distance or online learning compared to the total number of students.	$E = \frac{number\ of\ students\ who\ participated\ in\ distance\ or\ online\ learning}{\text{total number of students}}$	High involvement indicates the popularity of these learning formats among students
Rejection rate	It is used to assess the quality of distance and online education in the context of refusals and exclusions of students from the program.	$R = \frac{the\ number\ of\ students\ who\ refused\ distance\ or\ online\ education}{total\ number\ of\ students}$	The low rejection rate indicates the satisfaction of students with these study formats.
Success rate	It is used to measure the level of success of students in distance and online learning. This indicator allows you to estimate the percentage of students who successfully completed the educational program or received positive results during distance and online learning during a certain period of time.	$S = \frac{\text{the number of students who have successfully completed distance or online education}}{total\ number\ of\ students}$	A high success rate indicates the effectiveness of the educational process and the quality of the education provided

* Resource: developed by the author based on the analysis of world rankings of educational institutions

Specific formulas may vary depending on specific contextual conditions and methods of assessing competitiveness. To determine the weighting coefficients of the influence of the resulting factors, an analysis of correlation dependence was carried out on the example of five higher educational institutions of Ukraine, which suffered as a result of full-scale military aggression. Correlational dependencies were calculated based on the analysis of the reporting data of educational institutions (we code them A, B, C, D, E) - the results are shown in the Table. 2.

Table 2. Correlation dependence results.

	A	B	C	D	E	Correlation
E	0,25	0,41	0,08	0,38	0,41	0,41
R	0,21	0,08	0,20	0,26	0,12	0,61
S	0,08	0,14	0,21	0,21	0,21	0,04
Level	0,24	0,21	0,21	0,26	0,11	

* Resource: developed by the author based on calculations

The correlation dependence of the weighting coefficients of the resulting coefficients was automatically calculated, the formula for calculation is formula 1

$$I = \sum_n (0{,}41 * E + 0{,}61 * R + 0{,}04 * S) \quad (1)$$

So, the resulting index allows you to assess the quality of distance and online education, considering the requirements and trends of higher education development.

According to the results of the calculation of the elements of the model for universities (A, B, C, D, E) regarding the quality of the application of distance learning and its development prospects, based on the results of the calculations in the Correlation Dependence Results table, several specific recommendations were formed.

University A

- Engagement Rate (E) - 0.25: Has a moderate rate of student engagement. It is recommended to

pay attention to increasing the popularity of distance learning among students, possibly by improving the communication and interactivity of online courses.

- Rejection Rate (R) - 0.21: Satisfactory student rejection rate. It is recommended to ensure greater availability and quality of educational material to reduce distance learning refusals.
- Success Rate (S) - 0.08: The success rate is lower. Efforts should be made to improve the quality of education and student support to ensure high success.

University B

- Engagement Rate (E) - 0.41: High student engagement. It is recommended to maintain and maintain effective methods of encouraging participation in distance learning.
- Rejection Rate (R) - 0.08: Low rejection rate. The university should continue to provide quality education and meet the needs of students.
- Success Rate (S) - 0.14: The success rate is lower. It is recommended to activate student support and optimize the educational process to achieve better results.

University C

- Engagement Rate (E) - 0.08: Engagement is lower. It is recommended to pay attention to the attractiveness and availability of online courses to increase the popularity of distance learning.
- Rejection Rate (R) - 0.20: The rejection rate is satisfactory. Efforts should be made to improve the quality and availability of educational programs to reduce student dropouts.
- Success Rate (S) - 0.21: Average success rate. It is recommended to focus on improving teaching methods and student support.

University D

- Engagement Rate (E) - 0.38: Moderate student engagement. It is recommended to pay attention to the creation of interesting and interactive distance courses to increase the popularity of education.
- Rejection Rate (R) - 0.26: Average rejection rate. Greater availability and quality of educational resources should be ensured to reduce student dropouts.
- Success Rate (S) - 0.21: Average success rate. It is recommended to work on optimizing the learning process and providing additional support to students.

University E

- Engagement Rate (E) - 0.41: High student engagement. It is recommended to continue to encourage active participation of students in distance learning.
- Rejection Rate (R) - 0.12: The rejection rate is at a satisfactory level. Support for distance learning formats should be continued.
- Rejection Rate (R) - 0.12: The rejection rate is at a satisfactory level. It is necessary to continue to maintain the high quality of education and create comfortable conditions for students in order to reduce the number of refusals.
- Success Rate (S) - 0.21: Average success rate. It is recommended to focus on improving the support and educational process. It is important to promote the active participation of students, as well as to implement innovative teaching methods to ensure better results.

DISCUSSION

The Criterion table provides a comprehensive evaluation of distance and online learning systems, highlighting key indicators that shed light on the effectiveness, popularity, and quality of these educational formats. The indicators include Engagement Rate, Rejection Rate, and Success Rate.

Engagement Rate: This indicator gauges the level of student participation in distance and online learning relative to the total student population. Calculated as the number of participating students divided by the total number of students, a high Engagement Rate signifies the popularity and acceptance of these learning formats among the student body.

Rejection Rate: The Rejection Rate assesses the quality of distance and online education by examining student refusals and exclusions from the program. By dividing the number of students who declined distance or online education by the total number of students, a low Rejection Rate indicates student satisfaction with these learning modes.

Success Rate: This indicator measures student success in distance and online learning. It quantifies the percentage of students who successfully completed the educational program or achieved positive outcomes within a specified time frame. Calculated as the number of successful students divided by the total number of students, a high Success Rate reflects the effectiveness of the educational process and the quality of the education provided.

In essence, the Criterion table offers valuable insights into the performance and reception of distance and online learning systems. These indicators collectively provide a nuanced understanding of student engagement, contentment, and achievement, thereby facilitating informed decisions and improvements in the realm of online education.

Discussion points of the paper are as follows. The discussion may concern the quality of education and the possibility of interaction between students and teachers in distance and online format. Issues include the effectiveness of teaching methods, student interaction and collaboration in a virtual environment, and the provision of quality teacher support. The discussion may relate to the availability and accessibility of technological infrastructure for distance and online learning. Issues include Internet connection speed and stability, access to appropriate devices and software, and support for technical issues. Issues include opportunities for teamwork and collaboration, providing interpersonal connections in a virtual environment, and stimulating student motivation to actively participate in learning. The discussion may address ethical and legal aspects of distance and online learning, such as the privacy of student data, plagiarism and copyright issues, and compliance with legal regulations and standards.

CONCLUSION

Distance and online learning open wide perspectives for the development of education, providing greater access to knowledge, flexibility, and innovation. The paper analyzed various aspects and points of discussion related to the prospects for the development of these educational formats. Based on the conducted research, we made the following conclusions.

Factors score results for universities A, B, C, D, and E indicate varying degrees of success and popularity of distance learning at each institution. To improve the quality of the use of distance learning and promote its further development, we recommend:

- Actively cooperate with teachers and students to improve the content and teaching methods.
- Implement innovative technologies and interactive approaches to ensure student interest and engagement.
- Ensure the availability and quality of educational materials and resources.
- Provide additional support to students, especially those who have difficulty with the material taught.
- Systematically analyze the results and make corrections of teaching methods to achieve high student success.

The general practice of applying these recommendations will help universities improve the effectiveness of distance learning and develop it as a convenient and effective means of education.

Distance and online learning can be effective and provide high quality learning, but it requires appropriate teacher training, effective teaching methods, and student support.

Ensuring the activity and involvement of students in a virtual learning environment requires interactive methods, collaboration, and stimulation of active participation. The successful development of distance and online learning requires a reliable and affordable technological infrastructure, including fast Internet and functional platforms. The effectiveness of distance and online learning depends on the quality of the curriculum, teaching methods and student support. It is important to consider the needs and expectations of students, to ensure interaction and involvement of students in a virtual learning environment. Developing innovative teaching methods and supporting teachers in learning new competencies are necessary steps to improve the quality of distance and online learning. The social dimension is also important in the development of distance and online learning. Ensuring interaction between students, creating a community, and supporting the social adaptation of students are necessary elements for achieving success. Creating opportunities for communication and collaboration between students during distance and online learning contributes to the development of interpersonal skills and the perception of educational programs.

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