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Online learning as a transformation in the academic system

Zhakupova Aliya[1*], Akbalayeva Zhanat[2], Zhardamaliyeva Zhanar[3], Koyanbekova Sara[4], Ibragimova Zhanat[5]

[1]*International Educational Corporation, 050043, 28 Ryskulbekov Str., Almaty, Republic of Kazakhstan*
[2]*Department of Kazakh American University, International Educational Corporation, 050043, 28 Ryskulbekov Str., Almaty, Republic of Kazakhstan.*
[3]*Department of Kazakh and Russian Languages, Project Management Institute Satbayev University, Kazakhstan.*
[4,5]*Head of the Social Department Satbayev University, 050013, 22A Satbayev Str., Almaty, Republic of Kazakhstan.*

Corresponding author: Zhakupova Aliya (*Email: aliya.zhakupova.2024@mail.ru*)

Abstract

Online or distance education represents a departure from conventional learning methods, facilitating the idea that learners can be situated remotely from the primary sources of knowledge, whether they are through books, instructors, or peer groups. This approach empowers educational institutions to extend their offerings to a diverse range of geographical locations, granting learners the flexibility to engage with educational content and training programs from wherever they are. Such educational models cater particularly to students who may face barriers to participating in traditional classroom settings. This study seeks to explore both traditional and online teaching and learning methodologies, drawing upon existing research to inform its analysis. The findings suggest that while online education presents unique challenges, there remains optimism about its potential applicability, especially for specific demographics facing particular circumstances.

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1. Introduction

Teachers are continuously experimenting with various methods in the quest for greater effectiveness. By embracing new technologies, resources, techniques, strategies, and ideologies, teaching has evolved to engage a broader audience. As technology evolves, educators must judiciously incorporate, assess, and adjust to new tools to maximize their efficacy and understand their functionalities. The repercussions of the widespread COVID-19 pandemic have significantly altered how educational institutions deliver their educational offerings. Students and instructors across all fields and levels were

compelled to swiftly transition to online learning, teaching, and assessment methods to comply with national lockdown measures. The sudden shift away from in-person learning significantly affected the balance between work and personal life, as well as overall well-being. Numerous students and workers expressed feelings of isolation and disconnection from their social circles and colleagues, with whom they had frequent interactions prior to the outbreak. Online learning, on the other hand, can be referred to as digital tools for educational purposes, facilitating instruction and communication through online platforms [1]. In the realm of higher education, online learning has become firmly entrenched. Its benefits, widely recognized, encompass enhanced accessibility, greater flexibility in scheduling, reduced spatial demands, and decreased delivery expenses [2]. Furthermore, there is a requirement for clear directives and responsibilities, transparent and candid communication, the active participation of both students and instructors, and timely feedback [3]. When a sense of comfort is established among both students and teachers, communities can start to develop.

Digital transformation referred to as the process of adaptation and disruption, wherein organizations employ strategic initiatives to generate value [4]. This digital transformation involves various stakeholders, with the teacher positioned as a central figure. As stated, "the role of the teacher is pivotal for integrating the dynamics of the teaching-learning process with digital technologies."

Building upon the previous discussion and acknowledging that the crucial factors influencing teachers' adoption of digital technologies are their attitudes and self-efficacy [5], there is a need to reconsider how we uncover the strengths of teachers. Thus, this study adopts the epistemological approach of appreciative inquiry and positive psychology, focusing on harnessing the developmental capabilities of university faculty. This approach moves beyond the deficit-oriented view of change, recognizing the importance of a positive change perspective centered on amplifying exemplary practices, perseverance, responsibility, spirituality, courage, future orientation, creativity, wisdom, hope and aspirations [6].

Amid home-based isolation measures, many schools resorted to digital technologies to transform the academic system using online teaching. These digital tools facilitated students' studying, communication, and sharing of learning materials. Throughout the pandemic, various virtual platforms were instrumental in establishing a smart virtual environment for the teaching and learning process. However, online education did not unfold seamlessly. Numerous students reported feeling disrupted, particularly with the use of technologies during synchronous online meetings that started during the pandemic. Teachers, too, expressed concerns about students' ability to engage and the challenges of assessing their progress in the online teaching process [7]. Unpredictable network disruptions pose an additional challenge for students and educators striving to pursue their education online [8]. Consequently, certain researchers have suggested that virtual tools may have limitations in educational settings, advocating for a return to in-person classes post-pandemic. Neuwirth et al. argue that utilizing digital resources for online learning is a pragmatic approach during public health emergencies. However, once students resume their usual schedules, they should revert to traditional face-to-face classroom instruction [9].

2. Literature Review

The educational system is entirely spanning tertiary levels from elementary levels and experienced a significant disruption during the lockdown period imposed due to the COVID-19 pandemic, not only in Kazakhstan but globally. This study delves into the online learning and teaching methods implemented at Mizoram University, both for the semester examinations and the instructional process subsequently. It aims to provide valuable insights for future academic decision-making during challenging times. The paper addresses the necessary components of the online teaching process during the COVID-19 crisis and explores how educational institutions can effectively utilize existing resources to transition formal education into online platforms, utilizing virtual classes and other essential online tools within the evolving landscape of education. Employing both quantitative and qualitative methodologies, the study examines the perceptions of students and teachers regarding online learning and teaching methods while also shedding light on the process of implementation in these modes [10].

COVID-19 has emerged as a formidable disruptor, impacting not only global health and economies but also reshaping the dynamics of teaching, learning, and communication with students. It has upheaved traditional educational paradigms and long-standing practices that have been cultivated over many years. The challenge extends beyond the mere transition from face-to-face to online instruction; it entails fostering a culture conducive to embracing innovative practices, demanding new skills and competencies from educators, students, mentors, and administrators, all while upholding educational standards. Essentially, it entails transforming what was once considered exceptional into the new norm within a compressed timeframe. This article outlines our "Open Learning" approach to managing such change. Our overarching philosophy revolves around ensuring students have access to high-quality resources and fostering their enthusiasm and learning capabilities. Simultaneously, we aim to optimize the utilization of available online applications and learning management systems to align with the capabilities of our faculty [11].

The research showcases the online learning methods implemented by the College of Administration, both for educational purposes and semester examinations. It aims to contribute to informed academic decision-making during challenging circumstances. The primary objective of the study examines the requirement of the online teaching model during the lockdown period, and the educational institutions are explored by leveraging the existing resources transitioned formal education into an online education pattern by eliminating the requirements of direct classes and a few conventional practices. The paper utilized both quantitative and qualitative approaches to investigate the perspectives of instructors and students on online teaching and learning methods, as well as the implementation processes thereof. Furthermore, the paper seeks to offer a comprehensive overview of online learning and teaching activities during COVID-19, illustrating the interconnectedness of processes of management changes and online education within the educational system amidst the COVID-19 crisis. This

endeavor aims to mitigate academic disruptions and ensure the continuity of instructional activities and discourse within the educational framework [10].

3. Methodology

An analysis was conducted to explore two main streams of research literature concerning the current perceptions of online learning. This analysis encompassed the examination of the online education framework and a few strategies proposed for implementing online education, as well as the utilization of online education content. While literature produced during the recent lockdown situation was given preference, it was not the sole focus. Following this, survey research was conducted to gather key insights, utilizing a questionnaire designed to capture both students' and educators' experiences. A total of 100 participants were recruited from educational institutions in Kazakhstan. The collected data underwent thorough statistical analysis to uncover the most impactful challenges associated with transitioning to and adapting to online learning. The framework for this analysis begins with defining the system under investigation as the initial stage, followed by an exploration of the involved stakeholders, namely students and their educators, in the subsequent stage.

The teaching phase includes the analysis and utilization of studies related to online education and understanding the challenges, along with the frameworks and diverse methods, that are presently being addressed. This evaluation underscores the essential factors required for analyzing the adoption of online education. Moving to the third phase, it involves acknowledging the contextual challenges faced by both learners and teachers during the transition to online methods, which are influenced by real-life situations. For this study, these contextual challenges are specifically derived from experiences within various institutions. The stages are completed, and the identified factors are structured to integrate the research findings. The fourth phase employs the accumulated information to formulate a practical questionnaire, following which survey participants are engaged to gather data in the fifth phase. Statistical data analysis and recommendations are then conducted in the sixth phase, leading to the proposal of concrete solutions and frameworks in the seventh phase. To support this process, feedback and review mechanisms were also established.

Responding to the challenges posed by lockdown measures and the absence of in-person instruction, educational institutions have been deliberating on approaches to advancing learning objectives, particularly regarding the effective utilization of online technology. The closure of all educational facilities amid the pandemic has presented a multitude of issues and obstacles, particularly impacting individuals at critical stages of development and learning [12]. The survey study discussed herein emerged as a response to the various dynamics brought forth by these circumstances.

3.1. Study Sample

The study focuses on students and teachers affiliated with educational institutions, encompassing both public and private sectors.

A custom-designed data collection instrument was tailored to address the primary issues identified through the research literature. Additionally, internal challenges specific to the context of educational institutions were incorporated.

4. Results and Discussion

The successful utilization of online educational resources demands the alignment of several critical elements, encompassing technical proficiency, overall management, and consideration of cultural and social dynamics. Hence, the subsequent section aims to evaluate these diverse factors to ensure that the paths chosen by educators and learners are resilient and prosperous within society. Drawing insights from the literature review, which encompasses both accomplishments and challenges encountered, along with the findings from the questionnaire, an efficient and cohesive implementation strategy is proposed. This strategy aims to integrate all teaching methodologies and resources, resulting in a fruitful online learning experience. Given the pivotal role of online capabilities, there is a concerted effort to ensure that professionals develop these solutions to anticipate any usability issues. The demographics frequency is given in Table 1.

Table 1.
Demographics of teachers and learners in online education.

Demographics	Frequency	Percentage
Female	65	43.3
Male	85	56.6
Teachers	7	10.5
Students	143	95.3
Private	98	65.3
Public	52	34.6

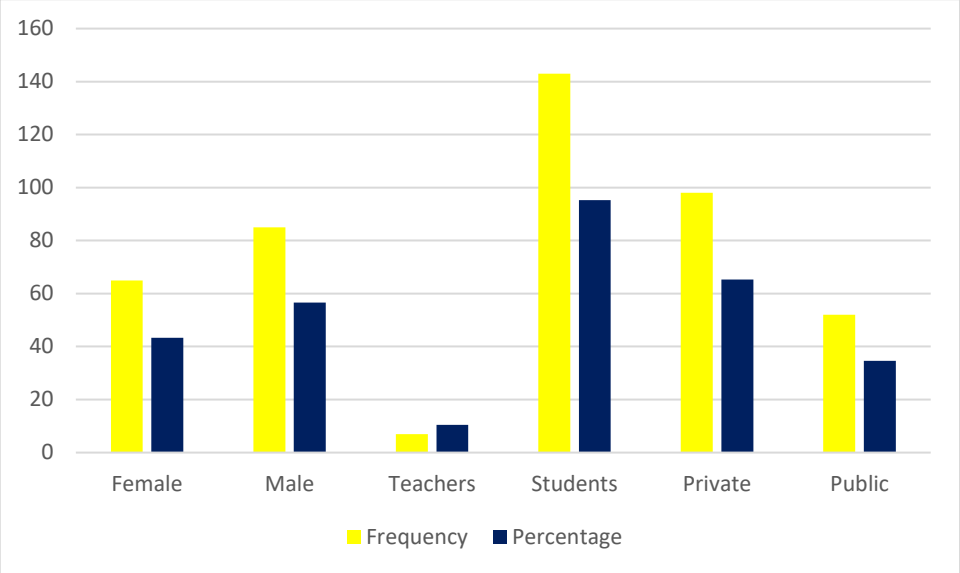

Figure 1.
Demographics of teachers and learners in online education.

However, the effectiveness of the proposal hinges on various factors, such as the initiatives undertaken by the educational institution itself, addressing technical challenges including productivity, network security, and bandwidth, and establishing connections with the centralized regional data centers. An infrastructure capable of delivering high performance is thus indispensable for the success of online education endeavors. Consequently, the framework presented integrates both cloud-based architecture and local infrastructure. As a result, the outcomes may depend on public and private cloud models or the combination of both, depending on what is most suitable. Additionally, all learners require access to their relevant mobile devices to reach the necessary resources irrespective of location. If a network experiences inactive performance, it will be insufficient, and the learning and teaching challenges are addressed effectively. These issues should be prioritized using the solutions offered by the frameworks rather than being treated as subsequent performance problems. As the recommended online education infrastructure has been tailored to address practical issues and contexts specific to the challenges faced in educational institutions, it incorporates cultural and social factors. The various stages of implementation are outlined across specific tiers, all aimed at constituting an effective 'Distance and Blended Learning System'. A bottom-up approach is structured to facilitate implementation in an organized way as follows: user gateway portal, online education delivery, interactive content repository, learning management system, and infrastructure. Each level entails design specifications and precise components to guide developers. Additionally, an ongoing emphasis on quality and efficacy should be maintained based on feedback and reviews by users. The framework encompasses a spectrum of implementation fields, encompassing providing platforms, user collaborations, and knowledge sharing for user engagement and feedback. Moreover, it should be noted that the various tiers represent the unit of performance management and learning gateway of educational institutions. The primary role of this tier is the elements of quality assurance, which is to monitor and enhance the standards of pedagogy to achieve the objectives of learning effectively. This is essential to ensure that educators, technical advisors, or any administrative personnel can monitor performance using diverse tools and resources involved. The pivotal factor of Quality Assurance emerged as a focus on continual improvement across multiple levels, to be applied for each tier and integrated into every phase of the learning process, ensuring efficacy and accuracy. The significance of academic standards and quality assurance delineates the level of attainment that the online education strategies and processes achieve with respect to their broader objectives.

4.1. Tier – 1

The infrastructure tier concentrates on providing quality resources for the computation process to offer an exceptional user-friendly nature through a hybrid approach and access to the public cloud. The hybrid approach that is adopted means that features are accessible through private and public cloud resources but function seamlessly together. The aim is to establish a completely integrated and innovative infrastructure that remains technologically current and facilitates the merging and utilization of learning platforms. Moreover, it should enable educational facility administrators to accommodate upcoming advancements in cloud computing and new technologies. Apart from being easily accessible and user-friendly, the infrastructure should deliver high performance that will not hinder learning progress, enabling users to engage interactively and dynamically while also providing excellent file storage capabilities.

4.2. Tier-2

A comprehensive distance-learning solution must encompass various features to establish a resilient system, including enabling dynamic multimedia resources, smart classrooms and communication seamlessly integrated with the benefits of Learning Management Systems (LMS), accessible both remotely and on-site. This stage of online education delivery

necessitates a variety of instructional channels. The framework of the online education system with 5 tiers is given in Figure 2.

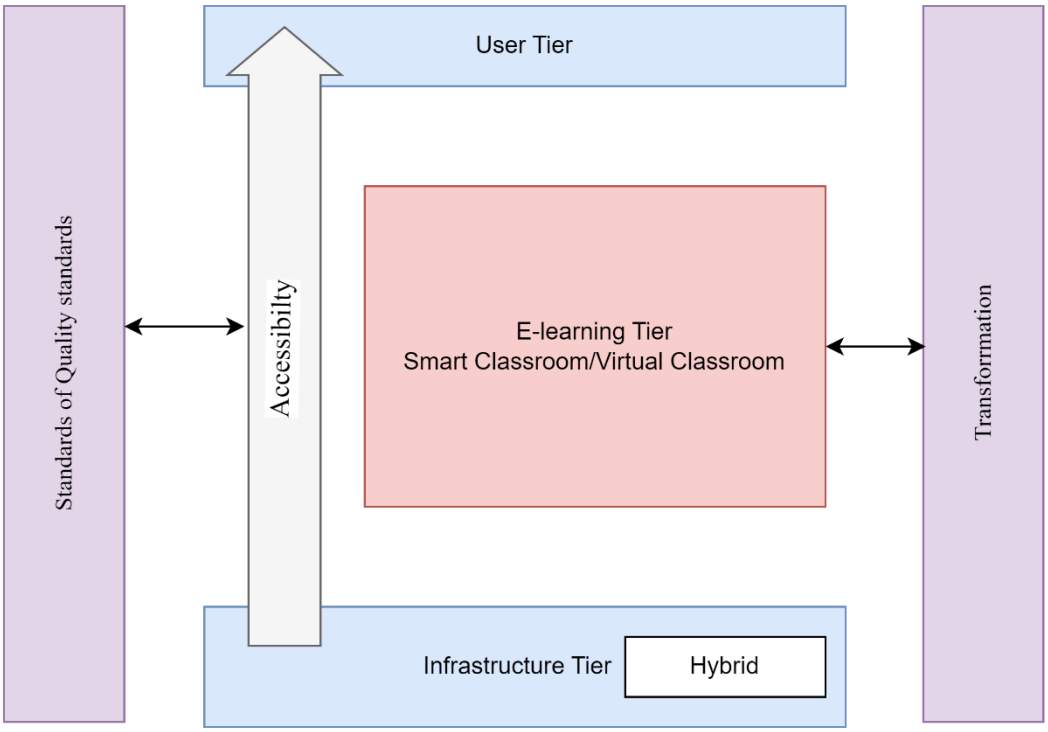

Figure 2.
Framework of online education system.

4.3. Tier - 3

Learning Management System tier is pivotal to realize the capabilities can be challenging to encapsulate succinctly. Software application is required by LMS in the organization streamline reporting, monitoring of curriculum in online education system [13]. The combined functions of the two tiers, including LMS and the delivery of online education, incorporate learning environments that oversee all aspects, including examinations, student enrollment, content links, and course materials. The progress in learning can be monitored by educators, emphasizing the importance of both design and integration to enable professionals to fulfill the duties that ensure the learning journey of students is adequately supported. Location and time constraints should not hinder access for students, who should be able to engage with the resources at their convenience. Concurrently, educators can ensure access to necessary resources and interactive content to make the learning process effective. The LMS serves as the cornerstone of the overall delivery system, enabling the presentation of course materials, student monitoring, and performance assessment.

4.4. Tier - 4

The interactive e-content provides critical components and careful consideration for the online learning system. The delivery and design of educational tasks are considered to be contingent upon the robust accessibility and integration of pedagogy, irrespective of time and location. It has been positioned between the outcomes of the teaching and learning process, and this tier links the elements present in tier 3 and tier 5. While it may be overlooked, the interactive content of online education is indispensable for many solutions in online education, without any technical development and sound design, including the learning process and its outcomes that can be operated efficiently.

4.5. Tier – 5

The user portal is known as the learning gateway, which focuses on providing convenient access for every user, whether they are learners or instructors – an experience shared by system developers as well. Essentially, the gateway serves as a high-level perspective, offering a single portal sign-in and access to a number of various online education resources relevant to the learning and teaching process. The primary elements in the gateway of the learning process include the ability to oversee the online education system. Its objectives encompass managing and presenting interactive digital e-content, integrating educational and administrative materials, facilitating communication among system users, and representing all parties effectively in a manner that suits their needs.

5. Conclusion

An integrated framework for online education implementation is suggested by this research, which can facilitate the hybrid transition of online education from conventional education in the academic system. A hybrid framework was proposed

to evaluate the online education system as well as the difficulties and achievements that other systems have tried and documented. This study collected data using a questionnaire and evaluated and analyzed the global online education and remote learning frameworks. This aided in compiling all of the findings into a strong implementation framework that, if applied, may direct educational institutions and other surrounding countries' education providers toward maximizing the benefits of integrated online education. The suggested framework is in line with pertinent social and cultural norms and is intended to lay the foundation for a future dynamic online education system.

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