Providing an Educational Justice Model Based on Information and Communication Technology with a Blended Learning Approach

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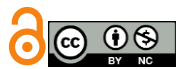* **Corresponding author email address**: eslampanahmary@gmail.com

A r t i c l e   I n f o

A B S T R A C T

Objective: Many teachers believe that numerous topics cannot be effectively conveyed to students through traditional methods of teaching and learning. Therefore, utilizing a blended learning approach in education is essential. This research aims to provide an educational justice model based on information and communication technology (ICT) with a blended learning approach.

Methodology: The research methodology employed in this study is grounded theory. The sampling method was purposive or snowball sampling. Data collection tools included interviews based on the perspectives of university professors, principals, education managers and deputies, and experts in the field of educational justice. The collected interviews were analyzed using ATLAS.ti and MAXQDA software.

Findings: Based on the obtained results, a total of 153 concepts and 21 categories or open codes were identified and extracted. The 21 identified categories were placed into 6 main grounded data categories, and based on these, the model was presented.

Conclusion: The results indicated that the educational justice model based on ICT with a blended learning approach can combine equal access to technology and educational resources with flexibility and diversity in learning. This model allows students to learn in a highly individualized manner according to their needs and abilities, thereby advancing their personal growth and development.

Keywords: *Educational Justice, Information and Communication Technology, Blended Learning.*

1   Introduction

Today, information and communication technology (ICT) has profoundly permeated our lives, bringing numerous achievements and conveniences while transforming our way of life. ICT has created new conditions for the emergence of knowledge societies (Liu et al., 2018). Generally, ICT, and particularly the internet, have allowed the implementation of a wide range of new services that have

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completely altered interactions between individuals and organizations, including communication, conducting business, pursuing economic growth, improving well-being, and even policymaking (Lythreatis et al., 2022). Furthermore, internet browsers, email, blogs, online multimedia streams, virtual social networks, online search engines, wiki sites, access to online libraries, e-commerce, and services like e-government, e-health, e-learning, and e-banking are new opportunities provided by the digital revolution, enabling users to engage in various new forms of communication and interaction among individuals, companies, and governments (Mansell, 2014). UNESCO has noted that achieving such a society can be a new driver for comprehensive development, especially for countries with the lowest levels of development. Accordingly, the information revolution has posed two significant challenges: bridging the digital divide and guaranteeing the future of freedom of expression (Bindé, 2005).

However, with the growth and expansion of ICT, adverse effects and consequences have also become apparent in various societies, including ours. Despite the many benefits that ICT may bring, technology has not necessarily led to positive outcomes (Puma et al., 2000). The idea that ICT offers a completely new world of endless opportunities often neglects culturally challenging aspects such as gender, age, race, culture, and geography (Mwim & Kritzinger, 2016). Simultaneously with the expansion of ICT, it soon became evident that access (and later use) is subject to specific limitations, and researchers should not assume it to be universal or instantaneous. The digital divide can create and even expand educational inequity by distinguishing between those with access to ICT and those without (Sobhani, 2020). The distinction between inequalities in access to and use of ICT has led to the first-order and second-order digital divides (Jim et al., 2021). The first-order digital divide refers to inequalities in access to ICT, while the second-order involves issues such as different usage patterns and intensities among individuals and organizations (e.g., using the internet only for web browsing or email versus for e-learning, social networking, job searching, e-banking, e-health, etc.). Research has shown that both types of digital divides are primarily shaped by socio-economic inequalities between countries and individuals. Those who are economically and socially disadvantaged, such as low-income individuals, people with low education levels, persons with disabilities, those living in rural and deprived areas, ethnic minorities, women, and the elderly, suffer more from digital inequalities (Crenshaw & Robison, 2006).

Additionally, this challenge may also be based on the type of access or use of ICT, which may not be uniform. Significant differences exist in access to ICT and the equality of its use between the affluent and the poor (Ferro et al., 2011). Moreover, internal motivations for accessing ICT have resulted in different usage behaviors among these groups. Economic limitations often lead to a lack of access to ICT (internet access), which is also tied to a lack of skills and awareness regarding ICT. Education can be a vital factor in addressing these issues (Adhikari, 2018).

On the other hand, the information revolution and the ensuing digital divide challenge have permeated all aspects of human life, including education and learning. The information revolution claims that online education can provide education for all segments of society and in all locations, thereby achieving educational justice (Iniesto, 2020). However, research has shown that several socio-economic factors lead to asymmetry in the implementation and use of technologies, such as income, age, education level, and relational dynamics (Dewan et al., 2010). Additionally, educational technologists warn about the methods of utilizing ICT, as the independent growth of ICT can affect social and cultural affairs. They discuss conflicting learning methods in curriculum planning, such as "drill and practice" versus learning in "interactive and participatory" environments, valuing one of these poles from an educational perspective, and attribute the issue of inequality in ICT to unequal access to this technology and new educational opportunities (Harper, 2003). Therefore, ICT can be regarded as a new paradigm in education that has introduced new challenges concerning educational justice.

The relationship between education and justice is more than one-sided. The education system is the only institution that can both be a factor for achieving justice and responsible for nurturing justice-oriented citizens who perpetuate justice in society. The Fundamental Transformation Document of Education (2010) also considers justice as one of the general principles of education. Accordingly, considering the common and different characteristics of learners and educators and their efforts and outcomes to establish justice is essential. In the educational process, equal opportunities must be provided for everyone based on shared characteristics, while also considering individual (interpersonal and intrapersonal), cultural, and social differences in delivering quality education to all learners (Herlina & Saputra, 2021). Furthermore, the educational process must be balanced (considering religious and rational criteria) and avoid extremes. Observing educational justice

plays the most critical role in developing comprehensive and sustainable social justice. Various definitions of educational justice have been proposed based on different perspectives. The instrumentalists' definition of educational justice emphasizes equality in individuals' welfare levels, suggesting that although individuals may not have the same educational facilities, they may have equal welfare levels, which they consider educational justice (Waltenberg, 2016).

The broad concept of justice, and consequently educational justice, has been discussed in various domains and has been increasingly influenced by the growth of new technologies. Over the past two years, the need to focus on online and virtual education has become one of the most critical necessities for implementing these forms of education, especially with the spread of the coronavirus worldwide and particularly in Iran. However, with the recent prioritization of virtual education and the use of platforms like Shad (Online Student Network) and online learning in the Iranian educational system, and the lack of necessary infrastructure, educational challenges and injustices have become more apparent. It is essential to address these challenges and promote equal educational opportunities for all (Torkashvand et al., 2022). The digital divide has been one of the significant obstacles to achieving online and virtual education in deprived and less privileged areas of the country, challenging educational justice. Nevertheless, using ICT in distance education can be a viable option to fill educational gaps in the absence of in-person education and can significantly enhance social justice in terms of educational quality in rural and remote areas. Moreover, the approach of Iranian education towards educational justice and its transformative documents is derived from an Islamic worldview that aims to achieve a just society (Sobhani, 2020). Hence, despite the importance of online and virtual education and its connection to educational justice in the educational system, no research has yet been conducted on designing an educational justice model based on ICT. Therefore, this study focuses on designing an educational justice model based on ICT with a blended learning approach in education, addressing the following questions:

What are the components of an educational justice model based on ICT with a blended learning approach in education?

What are the causal conditions influencing educational justice based on ICT?

What are the contextual (environmental) conditions governing educational justice based on ICT?

What are the intervening conditions influencing educational justice based on ICT?

What are the strategic conditions (solutions) influencing educational justice based on ICT?

What are the expected outcomes of implementing educational justice based on ICT?

What does the educational justice model based on ICT with a blended learning approach look like?

2 Methods and Materials

This study is qualitative and employs grounded theory methodology. The research is also developmental in its objective.

In the first phase, using grounded theory, the study examines the phenomenon of designing an educational justice model based on ICT with a blended learning approach in education, involving coding, extracting categories, and process stages. The research population includes principals, managers, and deputies of education, and faculty members from universities in Kermanshah province specializing in curriculum planning and education, educational management, educational technology, education and human resource development, educational research, educational evaluation, comparative education, psychology and exceptional children's education, and educational psychology. Purposeful (judgmental) sampling will be used for interviewing specialists, selecting samples from those willing to cooperate. Sampling will continue until category saturation, where no new information emerges from the interviews. The criteria for selecting university faculty include holding at least an assistant professor rank in the mentioned fields and having scientific-research or ISI articles in management and educational technology, human resource management, and related fields. Criteria for selecting education principals, managers, and deputies include: a) having at least 5 years of experience in managerial positions in Kermanshah province education, such as school principal or deputy, deputy for management and support development, deputy for research, planning and human resources, deputy for educational and cultural affairs, secondary education deputy, primary education deputy, literacy deputy, and physical education and health deputy; b) having held or currently holding the position of principal in Kermanshah education centers. Data collection tools include interviews.

3 Findings and Results

To perform open coding, all interviews were entered into ATLAS.ti software. Necessary reviews were conducted, and the desired codes were extracted. Code labeling was done based on the interviews, with the researcher striving to adhere to the participants' perspectives to minimize any potential and unintended biases. Throughout the coding process, the researcher adhered to theoretical sensitivity, a principle of grounded theory, to enhance the richness of the research.

After extracting the initial codes, categorization and conceptualization were done following each interview, and concepts were continuously revised through constant comparison, leading to the formation of final concepts and categories. This process is exemplified below for one of the concepts. A detailed explanation of how concepts and categories were formed is shown in Table 1.

Table 1

Secondary Coding

Axial Code	Open Code
Goals	Planning for educational opportunities and educational justice
	Designing virtual curricula eliminating differential stereotypes across all geographical, gender, migrant, border areas, disabled, and special needs levels
	School policy and strategy formulation for education
	Setting standards for virtual education to create equitable educational procedures
	Developing capacities in deprived areas to benefit from virtual education
	Planning for comprehensive virtual education coverage for all levels
	Increasing executable options for virtual learning to achieve goals
	Setting standards for virtual education
	Observing the standard ratio of students to virtual educational courses
	Increasing flexibility in learning and education
	Equitable distribution of virtual education facilities across all schools
Content	Participatory teaching process
	Content continuity
	Educational content dynamism
	Easy content accessibility
	Self-learning content
	Multifaceted content
Educational Method	Increasing interaction between teacher and learner
	Online access to teaching techniques and other teachers
	Flexible educational process based on time and place
	Variety of teaching techniques
	Localization of e-learning methods
Evaluation	Self-evaluation
	Online error detection and effective solution discovery
	Cost-free and fast online tests
	Multidimensional evaluation techniques
	Specialization of evaluation and testing processes
Infrastructure	Access to online education tools
	High-speed internet
	Fast and up-to-date hardware
	Access to international electronic educational resources
	Technological structure of schools
Organizational Factors	Updating school resource status
	Ensuring all students have access to necessary equipment
	Planning based on e-learning components
	Monitoring and control to reduce errors
	Regular coordination and organization of schools
Individual Factors	Individual knowledge in virtual education
	Individual mental orientation
	Previous experience (success and failure)
	Age, gender, and work experience
	Collaborative spirit (collective acceptance)
	Flexibility and adaptability to the environment

	Perseverance in achieving a suitable job position
	Personal development
	Creativity and innovation
	Learning ability and transfer speed
	Intuition (sharp senses)
	Self-confidence
Managerial Factors	Management's attitude towards virtual education
	Uniform and fair behavior by management
	Management support for new educational practices
	Flexibility of school management
	Participatory decision-making by managers
Negligence	Indifference of managers towards school conditions
	Negligence in fulfilling educational and nurturing responsibilities
	Lack of attention to the necessity of educational justice
	Indifference to educational changes and developments worldwide
	Lack of effort to establish educational justice based on technology
	Lack of attention to teamwork collaboration
	Prioritizing non-primary responsibilities and focusing on marginal issues
Cultural and Social Conditions	Difficulty accepting new technology in schools
	Cultural neglect in using digital tools for education
	Distrust in online educational tools
	Difficulty accepting education due to lack of face-to-face interaction
	Rapid and compulsory familiarization of managers with virtual education in Iran during and after the COVID-19 pandemic
	Lack of proper culture-building for online education
Resource Access	Lack of access to global databases
	Insufficient budget for effective virtual education
	Lack of adequate financial support from the government and Ministry of Education
Environmental Factors	Rapid changes in global educational environments
	Competitive pressure
	Economic and political sanctions as performance barriers
	Complex and inflexible structure
	High structural concentration
	Organizational diktats to schools
	Traditional structure of the Ministry of Education
	Cumbersome and bureaucratic administrative processes
	Decision-makers' lack of understanding of the benefits of virtual education
Organizational Knowledge	Macro perspective in education
	Unattainable goal setting for virtual education
	Ineffective planning and strategic mismanagement of schools
	Managers' forward-thinking based on traditional views
	Lack of specialized fields in e-learning
	Lack of specialized knowledge
	Absence of media contingencies
Educational Conditions	Poor execution of existing virtual education
	Marginalization of educational justice
	Low attention to the proper execution of virtual education
	Lack of an operational curriculum for virtual education
	Low proficiency in English
	Lack of in-service training courses
	Insufficient information dissemination and awareness
Educational System Preparation	Easy access to resources (hardware, software, internet, knowledge)
	Provision of sufficient facilities and budget for virtual education
	Legislation facilitating the creation of virtual education
	Establishing support and monitoring units
	Incentive systems for increased participation in virtual education
	Security and legal regulations in virtual education systems
	Creating comprehensive databases
	Infrastructure investment for online education development

Creative Strategies	Proper culture-building for online education
	Formulating monitoring systems
	Unique and innovative school education
	Innovation based on education
	Innovation in service delivery
	Designing educational digital games
	Localizing the curriculum for the online work environment
	Focus on teamwork
	Developing open inter-organizational communications
	Updating traditional structures
Innovative Strategies	Using new technologies (Internet of Things, Chat GPT, etc.)
	Benchmarking top schools for student education implementation
	Focus on global educational goals
	Utilizing modern and up-to-date equipment in education
	Flexibility of school systems
	Comprehensive support and participation
	Enhancing the research and development unit in the Ministry of Education
	Enhancing school dynamism based on extracted knowledge
	Creating unique educational approaches
School Performance Improvement	Improving the school's position within the organization
	Maturity of learning schools
	Achieving intra-school goals
	Improving educational and nurturing performance of schools
	Creating learning and knowledge-oriented schools
	Knowledge culture-building and creative development
	Increasing the efficiency of school strategic programs
	Increasing the efficiency of school rules and regulations
Manager Satisfaction	Increasing motivation
	Improving managers' knowledge and executive performance
	Increasing managers' individual participation
	Better implementation of regulations
	Effective communication between managers and staff
	Improving behavioral performance in schools
Human Resource Empowerment	Increasing motivation of teachers and school officials
	Teachers' job commitment and belonging
	Improving the quality of work life
	Increasing human capital resilience
	Creating a positive competitive atmosphere among colleagues
	Individual learning development
	Improving managers' and teachers' job attitudes
	Enhancing job skills and knowledge
	Improving performance and efficiency
Growth and Maturity	Educational growth and development of schools
	Continuous improvement in organizational intelligence
	Increasing competitive potential
	Maturity of educational leadership techniques
	Addressing basic and essential educational needs
	Active participation
	Encouraging educational staff
	Optimizing the status of virtual education
	Creating sustainable competitive advantages
	Keeping pace with global changes

During axial coding, categories derived from open and secondary coding were placed under six groups: axial category, causal conditions, intervening conditions, context conditions, strategies, and outcomes. Based on the research objective, the axial category is educational justice based on ICT. The formation of causal, intervening, context conditions, strategies, and outcomes is explained.

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3.1 Causal Conditions

Causal conditions are events or incidents that lead to the occurrence or expansion of a phenomenon. In this study, based on participants' views, the categories of infrastructure, organizational, individual, and managerial factors were identified and linked to a broader category named causal conditions.

3.2 Strategies

Strategies are actions and reactions intended to control, manage, and provide feedback on the phenomenon under study. Strategies are purposeful and occur for a reason. There are always intervening conditions that facilitate or limit strategies. System preparation, creative strategies, and innovative strategies were placed in this category.

3.3 Outcomes

Outcomes result from strategies. They are the results of actions and reactions. Outcomes are not always predictable and are not necessarily what individuals intended. Outcomes may be events, can take on a negative form, be real or implicit, and occur in the present or future. Additionally, what is considered an outcome at one time may become part of conditions and factors at another time. School performance improvement, manager satisfaction, human resource empowerment, and growth and maturity were placed in this category.

3.4 Context Conditions

The context is a set of specific characteristics that relate to the phenomenon under consideration; it represents the place of events and incidents related to the phenomenon. Organizational knowledge and educational conditions were identified as context conditions.

3.5 Intervening Conditions

Intervening conditions are structural factors related to the phenomenon that affect action and reaction strategies. They facilitate or limit strategies within a specific context. Negligence, environmental factors, cultural and social conditions, and resource access were identified as intervening conditions.

The axial phenomenon of this study is the virtual education model for school staff. Among the interview texts, the following concepts were identified as the codes for the examined items: educational method, content, evaluation, and goals.

The main phase of grounded data analysis is selective coding, where the researcher, based on the results of open and axial coding, presents a theory. Since some categories or relationships between them might not be well examined in the model resulting from axial coding, the researcher refines and expands those categories and relationships that were not well addressed. The researcher validates the defined categories and relationships through constant reference to books, published articles in the field of e-learning and educational justice, and examples mentioned by participants during interviews, evaluating the ability to explain the developed model and expanding and deepening the elements and relationships as needed.

From the identified factors, axial coding was performed, and the linear relationship between research categories, including causal conditions, axial categories, context conditions, intervening conditions, strategies, and outcomes, was determined. Figure 1 shows the axial coding paradigm, or in other words, the qualitative research process model.

Figure 1

Final Model of the Study
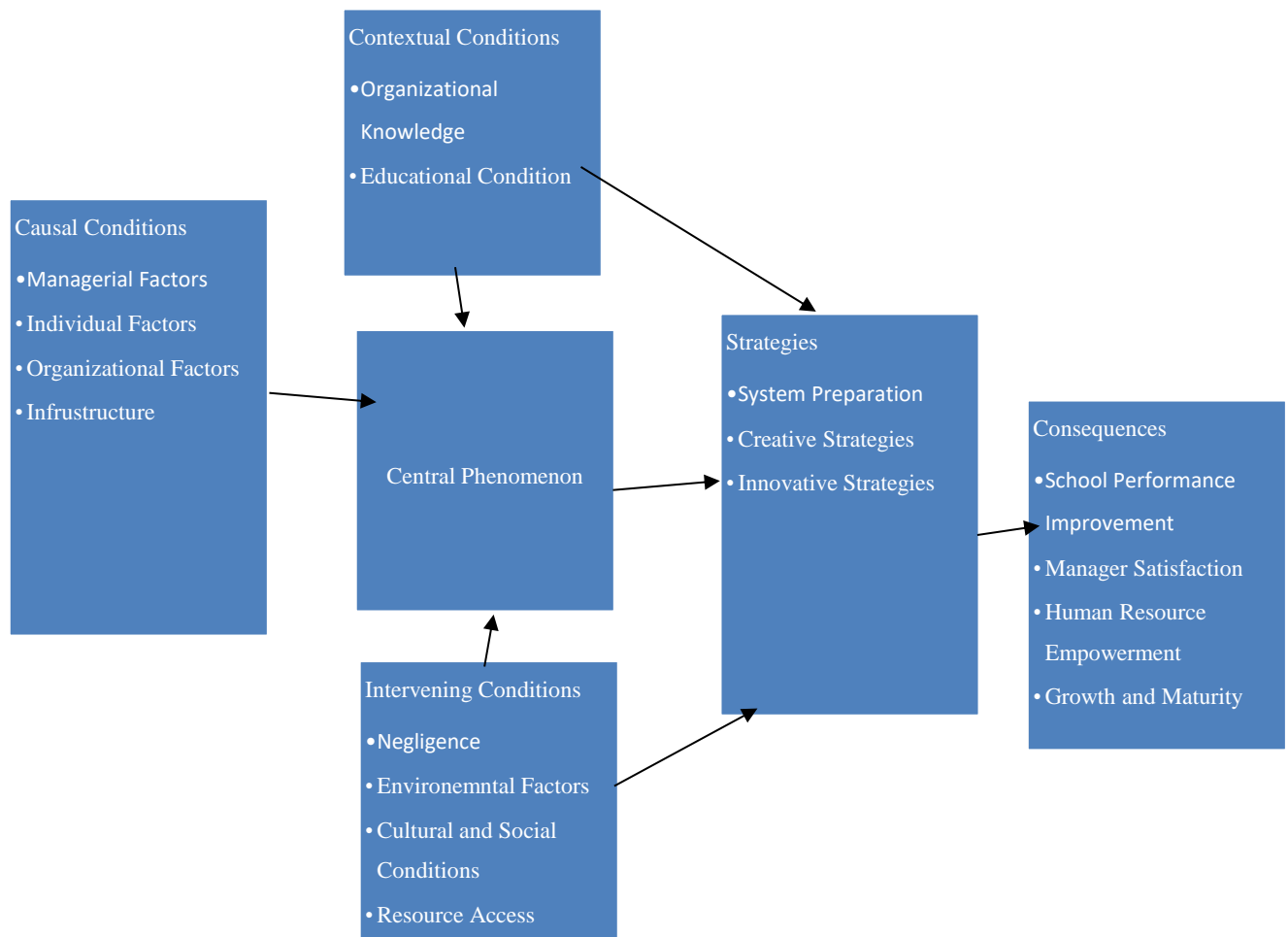
4   Discussion and Conclusion

The aim of this research was to present a model of educational justice based on information and communication technology (ICT) with a blended learning approach in education. Grounded theory methods were used in this study. By reviewing the literature and utilizing previous research, this study identified several factors influencing the configuration of educational justice based on ICT and similar aspects, aiding specialists in this field to better understand this concept and providing a relevant model.

Among qualitative research strategies, grounded theory was used to develop a comprehensive model that includes causal factors, intervening factors, contextual factors, strategies, and the model of educational justice based on ICT with a blended learning approach in education. In-depth interviews were used as the primary data collection tool at this stage. Based on the results obtained in Chapter Four, a total of 153 concepts and 21 categories or open codes were identified and extracted. The 21 identified categories were placed into 6 main grounded data categories.

The six components of the educational justice model based on ICT with a blended learning approach in education were identified in Chapter Four. This model of educational justice based on ICT with a blended learning approach is a crucial and vital entity in the context of education. This educational model emphasizes the principles of justice and the optimal combination of technology and traditional methods to prevent social and economic disparities arising from limited access to technology and to provide better opportunities for all students. Here, a conclusion and necessity for this model are presented:

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The educational justice model based on ICT with a blended learning approach has the potential to create a diverse and flexible educational environment that allows students to learn individually according to their needs and talents. This model provides students with access to a broader range of educational resources and materials through ICT tools such as computers, tablets, the internet, and educational software, utilizing features like educational videos, interactive software, and online learning platforms. The main features of the proposed model are:

Equitable Access: This model reduces the deficiencies related to access to in-person education. Students can access educational resources through ICT devices and continue their education.

Flexibility in Learning: This model allows students to learn independently based on their needs and knowledge level. They can interactively engage with educational content in virtual spaces and get their questions answered.

Optimal Combination of Technology and Traditional Methods: This model leverages the optimal combination of technology and traditional learning methods. This enables students to benefit from diverse learning experiences and covers various aspects of skills.

Enhancement of Technological Skills: This model prepares students for the digital society of the future by enhancing their ICT skills, enabling them to face new informational and technical challenges.

Overall, the educational justice model based on ICT with a blended learning approach combines equal access to technology and educational resources with flexibility and diversity in learning. This model allows students to learn individually based on their needs and abilities, advancing their personal growth and development.

Recommendations for Education Administrators:

Ensure Technological Infrastructure: Ensure that all students have access to technological tools. This includes providing computers, tablets, high-speed internet, and other necessary equipment to access educational content.

Develop and Provide Online Educational Platforms: Create and provide online educational platforms that include educational videos, interactive software, exercises, and tests. These platforms should be user-friendly, accessible to all students, and present educational content in an engaging and interactive manner.

By implementing these recommendations, education administrators can support the successful integration of ICT in education, ensuring that all students benefit from the advancements in educational technology and the opportunities it provides for a more equitable and effective learning experience.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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