Importance of Information and Communication Technology (ICT) in Higher Education Paper

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Abstract The process of ICT becomes an integral part of the process of learning nowadays. The growth and the development of technology are playing an important role in higher education. It helps prepare different learning concepts to enhance the impact of teaching, learning, and research criteria. It highlights different impacts of information and communication technology for providing development to generate different methods. The use of the given technology has changed the procedures in terms of business and governance. The online learning methods provide an experience to adopt suitable factors of consideration used to access educational research to create a proper method of suitable learning based on different analyses. It represents the strategy of the curriculum to provide a demand to the educational practices. It is characterized by providing a descriptive study to link the use of ICT to educational practices.

Keywords Business · Development · Governance · Higher education · ICT · Online learning · Technology · Teaching

1 Introduction

The above article is based on studying the importance of information and communication technology in higher education. The aspects of different changes are based on ICT concepts. It is a process that refers to the different communication technology including different modes such as media applications and services related to the access of manipulation based on higher education. It plays an important role which

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allows students to learn different concepts. It provides different technology to support the process of communication which is beneficial for the students. The spheres of education have changed the practices of the suitable emergence to facilitate higher education growth. It brings many opportunities to explore the changes of education as the concept of ICT emerges practices to promote the criteria of enhancement in information technology. It is based on the approach related to different models for the requirement of the given technology.

2 Literature Review

2.1 Importance of Information and Communication Technology

The process of information and communication technology plays an important role in higher education practices. It deals with different technology to provide a suitable aspect used to interact with the given strategy. According to [1], it consists of different services that include telecommunications and data management to provide a suitable significance to access the information. The concept of communication integrates the experiences in terms of different methods of analysis. It is a useful technology that supports the mechanism of design to promote suitable roles. It helps to merge the devices to provide suitable concepts. In higher education, it includes different computer and Internet techniques, which acts as a powerful tool for educational change to expand education in terms of teaching and learning concepts. It is a diverse set used to manage the information to create different uses to exchange communication [2].

It supports the range of different activities related to learning analytics based on the given concepts' characteristics [3]. It focuses on computer-based technology's infrastructure to provide a suitable contribution such as manipulation and management analysis. The exchange of information provides an approach related to the practices of suitable methods. The organization provides a systematic function related to the factor of the learning process. It supports the process of education to enhance the functions of technology in educational research. In education, the role of education is used to estimate the process to access the factor of education. The definition of knowledge in higher education has achieved suitable functions for implementing communication and information technology. It is based on enthusiasm which mainly focuses on the practices of higher education functionality [4].

2.2 Theoretical Approach

The emergence of ICT has immersed in developing technology to provide a concept of approach related to different factors. For both the students and the teachers, the given technology has provided an outstanding effort. According to [5], it

supports different development concepts to enable the functions of suitable technology factors. It provides a platform to enhance the educational contexts which are related to the concept of learning. The paradigm of learning mainly helps generate the functions of technology to emerge various systems across different organization levels. It adopts the technology of innovation to create perspectives based on the given factor of consequences. The performance of different activities helps to develop the learning use of technology in the phase of communication. The concept of communication in the learning perspectives is mainly involved in the process of adaption.

It usually provides practice to the point of education which tries to connect the method based on different enhancement criteria. The concept of social network has brought a different method of functions related to learning. It is evaluated to develop a suitable method of resolution for the basic use of the development [6] stated that it provides a version of development extended to provide a factor of competence to develop a method of evaluation in the conceptualization of education and learning analysis. It is based on the alternative of the process regarding a suitable paradigm of teaching and online learning. It plays a role to develop different perspectives in the context of higher education. It is convenient to provide an approach based on the various paradigms of teaching and online learning criteria. It is based on stimulus learning response, which provides a factor of assessment to the ICT model.

The approaches are mainly useful to provide a factor of interaction in teaching and learning concepts based on the effectiveness of suitable technology. The concept of information and communication technology is described in the given table in terms of provision, enhancement, and the factor of prevention based on suitable characteristics [7].

The concept of ICT is used to construct the method to determine the process's functionality based on different educational research practices. It helps to represent the different roles that help build the ability to learn to generate the functions useful in higher education. According to [8], it represents the completion of the process based on certain factors used to provide complete in terms of suitable consequences to provide an approach related to the process's perspectives. It facilitates the parameters to describe the concept of education in the analysis of the given method, the information and communication technology.

It promotes the factor of estimation related to the paradigm of communication in higher education functionality. It describes the current development to enable the flexibility of the process related to teaching and learning contexts. It identifies the approach on the basis of different approaches which helps to reflect the phenomenon of education which are collected to modify. It helps to collaborate new technology to implement the method related to the different aspects that are useful to describe the given resource's proper function. It manipulates the skills to develop higher thinking to construct the knowledge related to learning aspects. It includes different aspects of information to better understand the mode of communication in the ICT analysis context [9].

2.3   The Model Used in Information and Communication Technology

Education Transformation Model In the concept of ICT, the education transformation model is used to increase effectiveness to improve the transformation factor's quality in higher education. According to [10], it consists of different factors that are generally used in professional development, research, evaluation, and assessment criteria. The ICT provides a systematic framework that is required to support and improve the quality of education. It increases the competitiveness strategy in terms of improving the process of cohesion. It plays a role in the development of educational approaches that measure education's functionality to produce different outcomes. In the given diagram, there are different terms used to analyze the process of evaluation. It acknowledges the transformation value which offers an opportunity to describe the role of transformation in the higher education context. It develops the factor related to the estimation which is used in information and communication technology in Fig. 1.

The transformation process provides an opportunity related to the practices of education to develop the factor of personality [11] stated that the ICT describes other technology's functionality that provides suitable information to recognize the process's analysis. The curriculum and assessment area involves the conceptual knowledge related to the process of different factors that determine the analysis related to the educational practices in the research context. This model describes research and evaluation functions to gather the collection based on the process's systematic analysis. In the education context, the personal development criteria require different skills related to the addition of the process used for communication

Table 1 The concept of information and communication technology

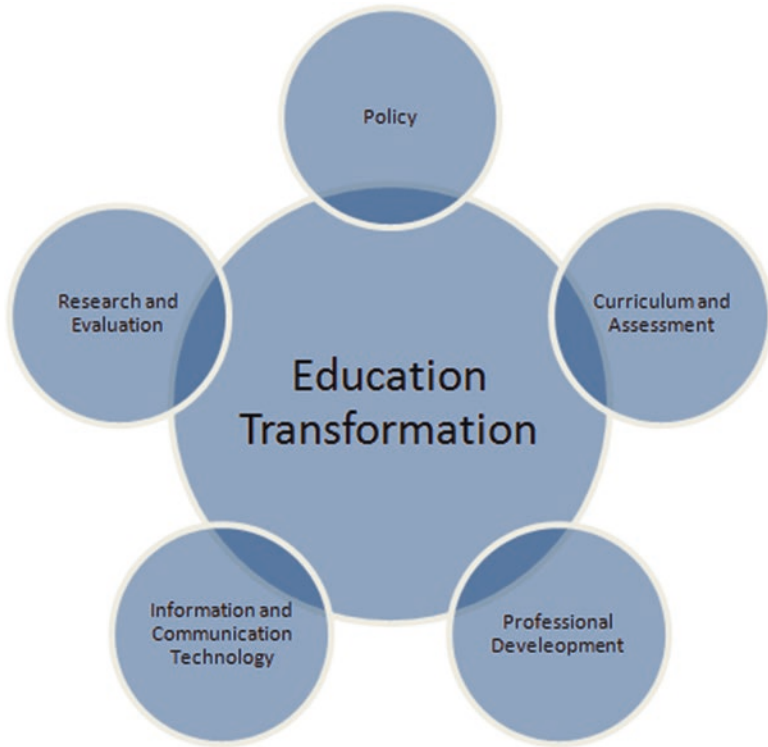| SI No.	Concept of provision	Enhancement approach	Prevention in ICT
1	Value-added quality	Use of the behavioral approach	Effectiveness of the communication
2	Information related to the development criteria	Providing suitable aspects of technology	Increases the factor of transparency
3	Building the cognitive ability	Promoting the work of estimation	Based on learning in the process
4	Virtual centralization of the learning	Generates knowledge functions	Encourages the creation of development
5	Helps to collect the process of interaction	Providing different experiences	Develop the method of communication
6	Reduces the factor of participation	Used to develop the process in higher education	Interacts with a different concept of knowledge
7	Learning stimulus response	Access the method of education	Preventing the paradigm of ICT in teaching and learning concepts.

Fig. 1 Education transformation model

purposes. It describes an effective analysis of the process related to the approach of professional development functions. It is a fundamental right that helps create different policies used in the transformation of education.

Technology Acceptance Model This model is used to access the process of information and communication technology in suitable ways. It plays an important function in performing the concept of communication and technology based on perceived usefulness and behavioral intention. It claims certain characteristics based on the interaction of interfaces used in ICT analysis. It collects the different data used to estimate the process to accompany the factor of encouragement which aims to provide a suitable contribution in the research of ICT in higher education. The definition of perceived usefulness is used to establish the technology's perspectives to estimate external variables such as features of the system and criteria of training documentation. The particular system is used to the extent of perceived use to analyze the effort of estimation. It performs a specific function to enhance the concept of information and communication technology [11].

It is widely applied in the technology strategy related to suitable acceptance of the model, requiring the complete acceleration to improve the performance based

on different effects related to the use of suitable factors of evaluation. According to [12], the given model integrates the hypothesis to determine the influence of ICT which provides a proper significance. It is applicable in identifying the models to influence the model's strategy based on the factor of contribution. It defines the attributes which are established mainly to enhance the functionality of the model. The performance of the given models helps measure the strength of intention in actual use which is tested to influence the applications. The process of communication helps in identifying the development of technology for higher education purposes.

3 Materials and Methods

For finding the importance of information and communication technology in higher education paper, the survey was conducted. The questionnaire development took place by asking the students, faculties, and the staff regarding the importance of ICT, and their feedback was stored. According to [13], the participants were asked to rate the importance of information and communication technology on the five-point Likert scales. The questions were asked that meet the needs of ICT and the future needs of the ICT in the higher education paper. We have used the positivism research philosophy in this research, and the descriptive research design has been selected for conducting this study. For fulfilling the mandatory factors in this study, the deductive research design has been used. The participants rated the strong agreement, moderate agreement, moderate disagreement, and the strong disagreement on the five-point Likert scales.

3.1 Research Philosophy

Research philosophy is used in the study to increase the effectiveness of research which deals with the nature, source, and development of the knowledge. Various research philosophies are used to maintain the reliability and data collection needed in conducting the study. According to [14], the different research philosophies are positivism, pragmatism, interpretive, and realism, and among all these, we have used the positivism research philosophy for completing this study. Positivism philosophy is used in this study as it provides a large sample for analyzing the importance of ICT in higher education papers. This research philosophy is highly structured and provides both the analysis, qualitative and quantitative analysis of data. In this article, we have used qualitative data analysis for completing the study.

3.2   Research Design

The framework of the research methods is designed by the research design. It helps in enhancing the efficiency of the study. Research design is used for maintaining the structure of the study. In this study, we have used a descriptive research design. According to [15], descriptive research design helps the researchers find the importance of ICT in higher education papers by asking the participants questions and gathering their feedback. It provides information regarding the current phenomenon and provides the need according to conditions or situations. It is used in the study as it collects a large amount of data to complete the study. To complete this article, we have used a deductive approach to better explain the relationship between the importance of ICT and higher education paper. It follows the logical path to complete the study which makes it more interesting.

3.3   Research Approach

Research approach provides methods and plans for completing the study. The research approach provides various steps for completing the study. There are various types of research approaches used to complete the study, such as the inductive and deductive research approaches. For the completion of this article, we have used a deductive approach to better explain the relationship between the importance of ICT and higher education paper. According to [16], it follows the logical path to complete the article, making the study more interesting. In this research, we have used the qualitative data approach to finding the importance of ICT in higher education papers. The deductive research approach is used as it focuses on the method testing which provides convenience to the research in conducting the research.

3.4   Data Collection and Data Analysis

Data collection is the process of gathering the data about the thesis, and it is one of the important parts in the whole process of study. Research can be conducted based on the data gathered by the researchers. Secondary data collection is used in this article. The researchers gather data through various ways such as through online mode, face to face interviews, or SMS. According to [17], the researchers ask the questions about the study and record their feedback. Data analysis is the second step after gathering the data. The researchers analyze the data after collecting the data and eliminate the data that doesn't satisfy the thesis's needs and check the data redundancy. The authentic data is separated from the whole data. The researchers conducted a survey for knowing the importance of the ICT in higher education paper and the participants rate the level of importance on the scale of 0 to 10 ranges.

3.5 *Ethical Consideration*

Ethical consideration is an important part of conducting the study. It generates guidelines which must be followed during the whole period of study. According to [18], the researchers should perform the task according to the generated guidelines. The whole study should be completed in some limits, and the authentic way should be used by the researchers to complete the study. The participants in the survey should not harm, or they can't be forced to provide information. All the participants should be treated with full respect and dignity. The name and the information about the participants should not be disclosed; it should be confidential. The researchers should use only authentic data in the research, and they should not use unfair means for completing the thesis. The communication made between the researchers and the participants should be honest and transparent.

4 Result and Discussion

The information and communication technology (ICT) plays an important role in higher education paper. According to [19], ICT helps in the improvements in the social and economical sector and increase the standards of the person. The students can benefit from the ICT as it creates various opportunities for the colleges and universities to achieve diverse knowledge of contents effectively. In the higher education paper, the ICT will help by providing different learning styles and learning abilities in a diverse form. Involvement in the various online activities will develop collaborated skills among the students. The students in higher education who are struggling or disabled can easily get knowledge through information and communication technology. In the survey, 359 people participated to access the importance of information and communication technology for the higher education paper [20] The participants were teachers, students, faculty, and staff. Among all participants, 55 percent of participants strongly agree with the importance of ICT for higher education.

They agreed to learn ICT in the colleges as well as universities. They support the online learning management system. Majority of the people agreed that social media can provide more benefits in exploring the learning and academic skills. In the result, it is found the majority of the students have developed better knowledge retention.

It has been found the ICT helps in saving the time as the students can start their training from any place and also they can access the training system any time whenever they time which is more convenient and less time-consuming for them. According to [21], the students get opportunities to access their higher education through ICT in every situation. Majority of the participants agree that ICT reduces the anxiety among the students and increases the learning satisfaction among the students. In the table, it is found that the majority of the students (53.2% $n = 46$) are

agreed with the higher importance of the information and communication technology in the higher education paper. They support the currently available research capabilities of the higher education paper. They support the development of the currently available tools for the track progress and the research proposals. The questions were asked to the participants in the research about the importance of ICT in their higher education paper. Majority of the students (42% $n = 36$) were in the favor of ICT for developing their knowledge and enhancing their skills and interest.

Majority of the participants agreed with the benefits of ICT in the higher education paper. In the research, it is found that the majority of the students face various problems while using ICT such as the speed of their computer, problems in accessing the Internet, printer issues, as well as the computer backup procedures. These all were of high importance to the students, and these problems became a hindrance for the effective use of the ICT for the higher education paper. According to [22], ICT supports the technologies used in the higher education paper which was majorly supported by the participants. ICT support needs in the electronic testing environments and timely maintenance for enabling the teachers to perform their tasks.

Table 2 Importance of ICT for the higher education paper

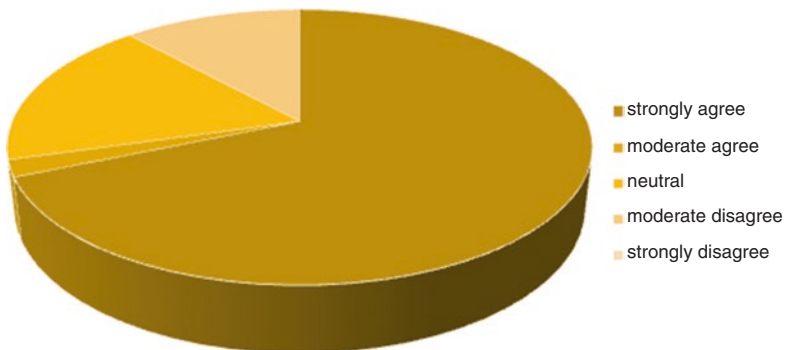|			
Online survey assessments	38.9%($n = 32$)	39.4%($n = 29$)	15.9%($n = 13$)
View all the online active projects in the higher education paper	53.0.2% ($n = 46$)	23.6% ($n = 20$)	15.6% ($n = 13$)
Research capabilities like electronic data for capturing the research data	42% ($n = 36$)	28.2% ($n = 24$)	21.2% ($n = 18$)
Research capabilities for developing the research proposal for the higher education paper	43.2% ($n = 37$)	33.8% ($n = 29$)	15.6% ($n = 13$)

Fig. 2 Difficulties with ICT in classrooms and conference rooms

Figure 2 shows that ICT has major advantages in higher education paper. In the result, it is found that the ICT strategies should be examined in the consideration of the research capabilities of the higher education paper, and the available learning tools should be developed for the track progress and for developing the research proposals. According to [23], the students have supported the research activities through ICT and the faculty and staffs also agree with the benefits of ICT for the paper. The students were supporting ICT as it is less consuming time as well as they can start their training from anywhere and anytime they want. ICT creates interest among the students as it provides a diverse knowledge of the topics. Blackboard system was supported by the majority of the students which signifies that more training is needed for learning the system and Internet properly.

Digital audio and graphic design is not much used, and their importance is still not known by the students. In the result, various problems are found regarding the ICT such as the speed of the computer and the problem in accessing the Internet. ICT personnel give priorities to the maintenance of the conference room and the classrooms. Social media has a major impact on the learning skills of the students as it provides a larger explorer in the form of diverse courses in different learning styles which has highly influenced the students. ICT has the potential to increase access in the training of the students. This potential will include the challenges, needs, and the ICT limitation in the higher education paper. According to [24–27], the limitations of the ICT are they have poor data control as well as mechanism and incompatible software and the inappropriate design of the software creates problems in understanding the importance of ICT. Majority of the participants were in favor of blackboard study as they are more comfortable with the blackboard training which shows that there is a need to provide training for the proper use of the system. Students liked the ICT as a large volume of data they can store which would help them in learning the topics.

5   Conclusion

In this article, we have discussed the importance of information and communication technology in higher education papers. ICT plays an important role in higher education papers as it provides diverse knowledge about the topic as well as encourages the students to develop their skills by using the online platform for their training. Majority of the students like the ICT as it saves time and the students can start their training from anywhere any time. The struggling and disabled students take the ICT platform as a boon as this platform is motivating them a lot. The limitations of the ICT are the speed of personal computers, problems in accessing the Internet, and the issues of printer break. For understanding the proper benefits of ICT, it is important to provide proper training about operating the system. ICT is becoming a part of our lives as it satisfies the present needs with future concern.

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