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To Explore the Utilization of Information Communication Technology in Higher Education: Current Trends, Challenges and Potential Solutions

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ABSTRACT

The integration of Information and Communication Technology (ICT) has emerged as a major force for change in higher education, affecting teaching, learning, and institutional practices. This paper examines the current trends in the use of ICT in higher education institutions, the challenges that the faculty and students are currently facing, and the possible solutions for effective implementation. By adopting a mixed-methods approach to research, data was gathered using surveys and interviews from faculty members and students of selected higher education institutions. The results indicate that learning management systems, digital libraries, online collaboration tools, and multimedia resources are increasingly being used to improve teaching and learning practices. However, challenges such as a lack of infrastructure, a lack of digital literacy, resistance to change, and a lack of institutional support are some of the factors that are impeding the effective use of ICT. Solutions such as continuous professional development, improved technological infrastructure, institutional policies, and increased investment are proposed to address the challenges. The purpose of the study was to explore the current practices, challenges and remedies of ICT integration in higher education institutes. This study aimed to explore the practices, challenges and solutions at SBBU, SBA. The qualitative approach with case study design. The department of education was taken as the population and 30 students of M.Phil (edu) was selected as sample. Data was collected by focus group method, interviews and observation. Thematic analysis was applied to identify patterns and identify themes related to ICT integration.



Introduction

Technology is playing a very important role in the education system all around the world. It is also playing an important role in the development of the child. In this century, Information Communication and Technology has reached the stage of generating global thinkers. The overall theme of this article is to explore the views of University students about how Information Communication Technology is adaptive at the higher level of education.

ICT can enhance teaching and learning process not only in schools but also at the higher level of institutions. ICT assists in enhancing high standards of education, as it not only enhances the modernization of tools and hardware equipment of technology but also assists in modifying the teaching skills and methods from traditional to modern and modernizes the learning processes and methods as well. Technology can be viewed as a “significant tool for constructing knowledge societies” (UNESCO, 2003). Also, ICT can enhance the quality of education at the higher level of education by acting as a primary level tool to decide the modern teaching techniques and practices. The application of multimedia can enhance efficiency and equity in education (European commission, 2013). The application of technological tools makes it easy for everyone to learn from everyone, from everywhere, anytime, by using any technological device. It is difficult to transfer knowledge in distant areas, as like from one country to other country without technology.

From the start of 19th century technology has played crucial role in changing everyone's lifestyle. Information and communication technology has transformed education globally and energized the teachers and learners alike to innovate. Technology helps to improve personal satisfaction. It also creates different problems and issues in its usage but different devices and procedures are also developed to cop these challenges. Use of technology also helps in creating minds for basic reasoning and helps in better learning. Different methods used for instructive technology gives best experiences to youth. According to Ramburuth and McCormick 2001 increase in size of classes, changed student perceptions or styles and the increase in use of computer technology in teaching and learning process has changed contribution to major pedagogical challenges faced to universities. These changes has made it crucial to universities to review their courses and teaching, learning methods regularly to create most satisfactory teaching learning environment in classrooms. As educational institutions university's main goal has become to improve to achieve their obligations as educational institutes. There point to be raised that in what way educational institutes could work on learner differences and use the modern technologies for designing curriculum and methods of delivering and improving the quality level of teaching learning process.

From this perspective, the important task is spotting which approaches are effective in learning, and then finding the best practices for learning environments, and aligning learning approaches with the strategy for inquiry, so that the results can be assessed concerning the advancement of teaching and learning, which is the prime mover in any educational institution.

According to Biggs (2003), enhancing the quality of teaching and learning is not only the responsibility of the institution but also relies on teachers. If it is left to teachers to improve the teaching process, then it is important for the institution to equip them with appropriate tools and technology. This paper starts by examining the degree of innovation relating to learning and teaching in higher education institutions through technology in the current technology-driven era. Technology has emerged as a relevant force in different dimensions of higher education institutions, including finance, administration, libraries, and even examination offices (Guri-Rosenblit 2009). This paper will continue by highlighting the problems encountered by students in

higher education institutions and the different approaches that can be followed to respond to those problems. Although there has been research done to evaluate the adoption of information and communication technology (ICT) in secondary education at a macro-level, relatively fewer studies can be found on higher education institutions.

Purpose of the study

The purpose of this research is to explore the current practices of ICT integration in higher education institutes, and to identify challenges and remedies. Current practices in institutes can encourage educators to integrate ICT into their learning practices. Challenges like lack of infrastructure and technical issues, non-availability of resources, lack of digital skills among students and teachers, cyber security. And remedies like, to invest in infrastructure, professional development courses or workshops, change in management, cyber security measures. These are reasons that motivated researcher to selected the topic to explore the current practices of ICT usage at Shaheed Benazir Bhutto University, Shaheed Benazir Abad. To identify the challenges faced by students in using ICT at Shaheed Benazir Bhutto university, Shaheed Benazir Abad. To propose remedies to improve ICT integration at Shaheed Benazir Bhutto university, Shaheed Benazir Abad.

Objectives

- To investigate the level of use of ICT in Shaheed Benazir Bhutto University.SBA.
- To identify challenges faced by students in using ICT in SBBA, SBA.
- To find-out remedies and strategies for improving use of ICT in SBBA, SBA.

Research questions

1. What are the current practices of use ICT in SBBU,SBA ?
2. What are the challenges faced by students in using ICT at SBBA,SBA?
3. What are the strategies and remedies to overcome the challenges in using ICT in SBBA, SBA?

Literature review

According to Ghavifekr, Afshari & Amla Salleh, 2012, from 21st century ICT has integrated with education. It's because that we could easily get any easy way to transfer data or knowledge via technology. For creating and developing 21st century skills in students, institutes should be responsible for providing technological knowledge and tools to teachers and learners also for better results technology should be integrated through curriculum.

For creating technological integrated learning for daily basis use it is important to transfer overall system of any institute from traditional to information, communication and technology oriented. Not only the system but teaching methods should also be converted to technological, lesson plans should be designed in a way that technology should be applied which develops learners digital skills and make them able to run in this digital world. By the use of ICT learning process can be developed in interesting and effectively (Arnseth & Hatlevik, 2012).

The goal of integrated technology is to develop teaching learning process's quality and to make it accessible , and easy convenience this could also helps to reach to global problems and work on them with international learners. (Albirini, 2006, p.6). Information, communication and technology integrated classrooms gives availability to continuous learning and make easy access to information resources (Young, 2003).

In education process ICT applied refers to technological techniques and tools related to education used in classrooms. Teaching via technology creates students interested leaning environment as students do not take interest in traditional learning but loves to use and learn through technology. The integration of technology in educational pedagogies helps to give varieties of techniques (Jamieson-Procter et al., 2013). For integrating technology in teaching learning process it is government's responsibility to provide infrastructure and ICT trainings to teachers. Teachers should have access to the technology related to their courses (Hennessy, Ruthven, & Brindley, 2005). In Pakistan the most faced issue related to integration ICT is not having proper infrastructure and digital-divided areas specially in rural areas it seems impossible to integrate technology. Not having proper infrastructure and proper network creates issues and makes getting education difficult. Teachers are also not able to use technology because of not having proper ICT trainings. (Jamieson-Procter et al., 2013).

There are varieties of tools and techniques, apps for educational use of technology so it is the responsibility of an instructor to evaluate that what to use, how to use, and where to use for teaching and learning process. How to make technology effective in education. If the infrastructure is provided then it is also important to give trainings to teachers and then use those materials (Dawam et al, 1999). Young, 2002 says that ICT is changing the today's system education by providing new opportunities and facilities to educational system. He also described that ICT helps in independent learning that is the great change in educational history. Easy access to learning is also the major change developed by ICT. Learners are now able to easily access the E-books, different learning materials, video lectures, sample papers for any test, easy to get literature review for researches, and also to connect with different peers and teachers who are not present in these areas.

Limited support

Despite to the different benefits ICT integration still there are different challenges faced in integration of ICT. These challenges include insufficient infrastructure, lack of digital trainings, lower internet connectivity they could hinder its effective integration (Kozma, 2008). Inadequate technical assistance and maintenance can lead to frustration and decreased ICT usage (UNESCO, 2011).

Insufficient teacher training:

Teachers may lack the necessary skills and training to effectively integrate ICT into their teaching practices, as different updates develops day by day in technology which a teacher might not be able to use easily. (Garrison & Kanuka, 2004).

Investing in ICT infrastructure:

For supporting ICT integration hardware's and software's should be updated, provide better internet connections, and give trainings to instructors. (Kozma, 2008)

Providing teacher training and support:

Offering regular training, workshops, and technical support can enhance teachers' ICT skills and confidence (Garrison & Kanuka, 2004).

Developing ICT-based curriculum:

To improve academic outcomes ICT should be integrated in curriculum and promote ICT into student centered learning (UNESCO, 2011).

Methodology

Inclusive criteria

Students in the M Phil education program at Shaheed Benazir Bhutto university. Participants with experience with ICT integration in education and willing to participate in study are selected.

Ethical considerations

Ethical consideration is prioritized. Obtain informed consent from participants, after ensuring they understand the purpose, and benefits of the study. Researcher respected the privacy and confidentiality by using pseudonyms and securely storing data. Participants has the right to withdraw from the study at any time. The potential impact of the research is also considered on participants, taking step to minimize any potential harm.

This piece takes a social constructionist approach to view how ICT is interwoven into higher education regarding integration, obstacles, and remedies. It foregrounds the ways in which societal expectations and biases mold such issues and uses that lens to explore just how ICT is built and used within universities through power dynamics and language that guide the process.

Research methodology

It involves the usage of qualitative methods: a range of case studies, introspection, life-story interviews, observations, interactions, and visual texts that capture ordinary and troublesome moments . Evidence on practices challenges and remedies was gathered through interviews and focus group discussions in the relevant setting.

Research design

A case study design of a qualitative approach identifies and investigates the current status of ICT practices, the challenges, and possible remedies at Shaheed Benazir Bhutto University, Shaheed Benazir Abad. The research follows all the standard steps of other designs as well. First of all, in multi-case study research, one has to specify a set of related cases. A single case is identified in single-case study research. Normally, researchers ask what is currently known about the case(s).

Information is gathered through discussion method. According to Polit and Beck (2018), the population refers to the total number of individuals who meet the sampling criteria. The population for this research involves those who study in the MPhil Education program at Shaheed Benazir Bhutto University, Shaheed Benazir Abad. According to Sharon Lohr, 2020, sampling can be defined as choosing an object that holds the data. The researcher identified 30 participants in the MPhil Education program at SBBU through a convenience sampling strategy which was preferred due to convenience.

Data collection

Data were collected via semi-structured interviews, focus group discussions, and observations. In-depth interviews: indepth discussions with MPhil teachers to get comprehensive contextual data. Focus groups: Group discussions with educators explore collective experiences and perceptions. Case studies: Detailed investigations into higher education institutes with a view to evaluating practices of integration and challenges of ICT. Analysis of data Thematic analysis is used to find patterns and themes associated with ICT use at SBBU.

Results

There are several themes identified in the study that are linked to infrastructure and technology challenges: lack of resources, skill shortages related to digital technology in both students and educators, expenditures related to cyber security, and the importance of remedies such as investment in infrastructure and staff development, combined with strong cyber-security. Practices in today's institute must encourage educators to integrate ICT into learning.

On the basis of themes and findings mentioned above, the qualitative thematic findings for 30 M. Phil students are:

Information and Communication Technology Infrastructure and Support: Poor

- Infrastructure: 14 out of 30 MPhil students (46.6%) find that the ICT infrastructure is not adequate enough to help the students use ICT for research and academics.

Responses:

"We have shared computers in the laboratory, but there are not enough computers. Every time we go to use them, the computers are occupied by other students, and we have to wait for one to be free."

- Limited Technical Support: 19 of 30 MPhil students (63.33%) feel that technical support is limited. This creates problems in digital technology usage.

Respondents say:

"Well, Wi-Fi should be available in the university, but the rates are so low that even the simplest searches would take ages. This would be worse in the classroom, so it would make it impossible for our devices to connect."

Information and Communication Technology Usage and Integration

- Frequent Use of ICT: 26 out of 30 MPhil students, 86.5%, use ICT for their research, academic, as well as personal work.

Respondents Agree:

"We make extensive use of ICT for research, learning, exam preparation, and conduct actual exams. We use it to learn more and understand concepts better through video lectures and other ICT tools available,"

Increased Student Engagement

23 out of 30 MPhil students (76.67%) feel that the adoption of ICT improves their learning and engages them effectively to learn at their own pace. This implies that the use of ICT increases student interaction with the learning content. Teacher Training and Development. A number of – Lack of Adequate Teacher Education: 14 out of 30 M. Phil students (46.7%) feel that teacher education is inadequate.

Improved Student Engagement: 23 out of 30 MPhil students (76.67%) says that:

"ICT integration improves our learning and engages us in effective way in learning. It helps us to learn in our own way and also flexible to use whenever we want". It shows that ICT enhance learning and engagement with course materials. ICT helps to students learning and create their interest in learning.

Teacher Training and Development

Insufficient Teacher Training: 14 out of 30 MPhil students (46.7%) agreed that:

“Sometimes our teachers also do not have the proper ability to use ICT tools. They do not understand that how to use tools even our class’s mostly time wastes because teacher does not even know that how to on and connect multimedia with their laptops. Even though it is in their daily use. This because of installing ICT tools without giving trainings to the teachers”.

Need for Ongoing Training:

26 out of 30 MPhil students (86.67%) says;

“In institute our teachers also need to get trainings which should be ongoing so that they have the information of every new updates related to educational ICT tools for enhancing teaching learning process, as our learning also emphasizes on their teaching skills”. These responses describes, that not giving ICT trainings to teachers also impacts on students learning. Institutes should take the responsibility to organize training sessions and make their teachers updated to technology.

Discussion

This report helps in understanding how the current inclusion of the usage of ICT in university education is in fact problematic, but also indicates in which areas it should develop. Here are some insights into key findings, difficulties, as well as solutions. Practices Adopted in the Current ICT Era: From the study, it is evident that the adoption of ICT is prevalent within the universities being used for teaching, learning, and research. The adopted instruments range from administrative setups to online forums and other forms of multimedia. There are opportunities such as Wi-Fi and computer labs (with inadequate computers) within the universities. Challenges Facing the Integration of ICT in Higher Education Institutions: With the prevalence of the use of ICT, there are some challenges that inhibit the effective integration of the technology in institutions of higher learning. These include the inadequate availability of computers, the speed of internet connections, and the availability of software. The lack of effective technical support affects teaching and learning. The misuse of ICT through a lack of appropriate training for teachers affects teaching, given the fact that the teacher will not be able to effectively demonstrate the usage of the technology. Basic technology such as multimedia disrupts learning due to the inability of the teacher to comprehensively understand the technology.

Remedies

Infrastructure: To address the above problems, a strong infrastructure is required, such as upgrading the hardware, software, as well as the internet, as well as an increase in the number of computer systems to cater to Training: Teachers may benefit from training programs on a constant basis. They may also be provided with technical support to promote student centered learning and make them use to, to ICT tools, also to improve academic outcomes. This study have smaller sample size only of one department’s students has been chosen. Which may not represent larger population.

Limitations

This thus provides helpful insights into how ICT use is fashioned at higher education levels, yet with several caveats: One, much of the data is from self-reports, which can be colored by what respondents think, biases they hold, or how aware they are of ICT use. Two, the work covers only a selection of higher education institutions, meaning that the results might not easily generalize to

other universities or regions with different tech setups and policies. Three, due to its cross-sectional design, ICT trends and challenges can be captured in a snapshot at just one moment in time, complicating judgments about long-term effects or gradual changes. Moreover, it has centered on the aspects of access and usage patterns mainly and may not reflect the quality or effectiveness of integrating ICT into teaching-learning fully. Lastly, rapid evolution means some findings could be outdated, which fundamentally underlines the need for ongoing, longitudinal research in this area. This study also have been done by using single method approach, which may not be able to give comprehensive understanding.

Suggestions: there are some suggestions for the researchers who want to research on this topic in future that: sample size should be increased lie more departments should be chosen as sampling for better results.

Also they use both qualitative and quantitative research (mixed method approach) for more comprehensive understandings.

Conclusion

This paper examines the usage of information and communication technology (ICT) in higher education, highlighting trends at the current juncture, with pointers to the challenges being experienced, as well as remedying measures. Data analyzed indicate that ICT is integrating thoroughly into the realms of education and administration. This trend towards expanded utilization of learning management systems, online libraries, assessment systems, and virtual classrooms depicts advancements towards technology-driven education for flexible, interaction-based, and student-centric education delivery. Nevertheless, despite the progress achieved, there are several factors that impede the complete integration of ICT in colleges and universities. These factors include poor technology infrastructure, lack of usage of digital resources, lack of capacity development for faculty members, resistance to change, and concerns regarding digital literacy and security. Such factors reduce the effectiveness that can be achieved through the use of ICT. In addressing such challenges, the role of strategic planning and the provision of adequate infrastructural support is emphasized in this study as imperative to overcome the current challenges and to make ICT successful in higher education institutions. It is imperative to emphasize and support online hybrid education delivery programs, increase digital literacy among people, and encourage interagency collaboration to make ICT successful in higher education institutions. In this case, ICT has the ability to improve the quality and availability of higher education but requires collective efforts to make it successful.

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