



EXPLORING THE EFFECTIVENESS OF DIGITAL TECHNOLOGY IN NEPALESE HIGHER EDUCATION: AN INSTITUTIONAL ETHNOGRAPHY RESEARCH DESIGN



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Abstract

Digital technology seems at the mandatory component of all educational institutions like schools, colleges and universities as well. In Nepal, very few universities had started using digital technology during covid period without proper infrastructure and training. Researcher felt to explore how effectively conduct teaching at higher education with digital technology. However, this study aims at exploring the effectiveness of digital technology at higher education in Nepal. It was guided by qualitative research followed by institutional ethnographic research design. Altogether five teachers, five students and two IT experts were chosen as a sample from the Central Department of Education, Tribhuvan University, Kirtipur, by following a purposive sampling technique. Similarly, qualitative information was garnered by using in-depth interviews and document analysis to get a deeper understanding of the topic being researched. Furthermore, collected data were edited, transcribed, coded and thematized to gain meaningful results and conclusions by considering the objectives of the study. The results have revealed that all respondents in the educational process have a positive perception of using digital technologies in higher educational institutions. Sufficient infrastructure and intensive teacher training should be provided to make the confident teachers and effective instruction via ICT in higher education. The demand on advancement of technology has increased day by day globally. It has made the additional way to provide quality education easily than before. However, this findings highlight and capture the effectiveness of digital technology for fulfillment of sustainable development goals but also remains the same problem for a long time about the appropriate infrastructure, teacher training and need to develop students' efficacy.

Keywords: : Effectiveness, digital technology, higher education, educational process

Introduction

Digital pedagogy has rapidly infiltrated the whole world in terms of holistic development of students, therefore it has been becoming an essential and incredible part of human life. After covid 19, Tribhuvan Universities and all of its educational institutions have widely been following digital technology as teaching resources. Digital literacy seems as a significant hinderences for prepare use of technology in education, due to teachers themselves often needed more traning basically in remote areas of Nepal (Karki et al. 2019 as cited Neupane, M., 2025). Neupane also revealed that digital technology can transform education system in Nepal's remote regions by providing necessary infrastructure challenges, such as stability of internet assess and electricity, as well as increases financial support to invest for technology and data.

Ng (2015) revealed that integrating digital technology into the curriculum has been intended to foster innovative pedagogy and prepare students for their bright future. He also emphasized that the rapid advancement of digital technology in education may enhance quality improvement of higher education all over the world. The diverse nature of digital technology increases interdisciplinary knowledge, collaboration and networking. Despite various the advantages, lack of accessibility, skill, knowledge and inappropriate infrastructure are some of its detriments for innovative teaching and learning. Rudolph et al., 2023 addressed that teachers have conducted digital classes based on principles of authenticity, flexibility and innovation. Although there seems to be numerous efforts on conducting classes by using digital technologies, the initial phase would be challenging task for all educational institutions. Rahman (2020), stated that the spread of digital technologies has contributed to a rapid change in educational institutions. He also emphasized that some challenges such as insufficient teachers' skills and knowledge, reluctant to provide financial support from government and inadequate methodological and legal support hinder the development of digitalization in higher education. Additionally, students, teachers, and administrators were not prepared for it before pandemic. Digital Technologies in higher education has been challenging in developing countries like Nepal. Nevertheless, technology collaborator or moderator roles may enhance the trend toward student friendly education and more independent inquiry learning appropriated by educators (Dye, 2007). Therefore, technology appears to be more than just a teaching tool preparing students for changes in society and the demands of the new global economy, fostering the new learning environment that are suitable for fostering students' 21st century skills such as digital literacy and collaboration.

However, teachers are required to facilitate technological competence and other related knowledge and skills to promote them with digitally competence citizens fitted for the technological era (Nguyen & Habok, 2023). They also mentioned that for reforming and transforming the digital learning as the innovative teaching may broaden learners' motivation and inspiration. Similarly, there would not be improvement in teachers' technical skills in using digital technologies, but also in using and applying the digital technologies properly. Teaching through digital technologies might be supported teacher educators to encourage to their students by employing learning materials and assignments properly and optimize students' engagement in learning experiences and receive feedback and share ideas among their classmate (Kang et al., 2020). In this regard, online teaching forum build self-learning and promote collaboration regarding teaching learning process via students. Furthermore, teachers' felt difficulty in teaching the

students with special need due to the lack of information and communication skills in Nigeria and they realized that they need more preparation and high-tech learning platforms and resources to facilitate the online classes (Chukwuemeka & Dominic, 2020). Constructivist-based pedagogies have been used in online learning with an emphasis on interaction, collaboration and reflection among students and lecturers to connect and co-construct knowledge and learning experiences. Those who experiencing face to face learning as a teaching strategy, they are not well familiar with digital tools and its use. Therefore it takes more time for effectively adapt it in the education sector. In addition to some educators felt that it is challenging to implement new instructional technology instead of traditional chalk and talk teaching methods due to lack of digital literacy and adequate infrastructure. In urban areas, teachers are available every-time and they interact with students. Therefore technology connectivity is not a major issue and hence most students and educators have access to learning resources from their surroundings. Still digital technology tends to be unavailable in various rural areas especially in some places where geographically and economically deprived society.

Objectives and Research Questions

In Nepalese context teachers' and students' competency to effectively use of digital technologies in any teaching situations is increasing pivotal when technology tools are rapidly changing in society. Therefore, universities need to collaborate with IT experts for providing ICT training for teaching and non-teaching staff. In the current situation, we cannot expect teacher candidates to reform and improve their teaching without ICT friendly environment. In this regard, this study was carried out to explore the effectiveness of digital technology at Nepalese higher education. To achieve this objective. A research question – How do digital technologies become more effective at Nepalese higher education?

Rational of the study

Despite tremendous educational challenges, educational institutions are actively promoting efficacy of technologies in teaching learning at higher education (Sharlovyh, et al; 2023). (Shrestha, 2019) stated that Nepal is in the initial phase because it is still planning to build ICT infrastructure. There is a lack of specific study on the higher education regarding the effectiveness of digital technology in higher education thus this topic is found to be relevant for research by the researcher.

Methodology

This study used an institutional ethnography research design under qualitative inquiry. Institutional ethnographers believe that people and events are tied together in ways that make sense of such abstractions as power, knowledge, capitalism, patriarchy, race, the economy, the state, policy, culture and so (Campbell & Gregory, 2002). Due to the constraints of time and other accidental factors, researchers tried to be as representative as possible in the sampling even within the population selected. Thus, all persons who are directly or indirectly involved in using digital technologies during the teaching learning process were the population of the study which allows for the collection of information and opinions from a representative sample of individuals related to specific natural resource management issues (Weisberg et al., 1989). Institutional ethnography is a critical theory/ methodology with a particular focus on people's everyday lives and how their lives are organized and coordinated by institutional forces (Kearney et al., 2019). Use of institutional ethnography has prospered in education that bringing about useful insights in the issues. In institutional ethnography, the interesting things that how things work and how they are put together' as opposed to what happens or why things happen. In depth interview and document analysis were depicted as data collection tools. In depth interviews were conducted to explore the ways of teaching through the digital technology in teaching. The interview was conducted with teachers who are engaged in ICT integrated pedagogy. In-depth interview of each selected samples had been conducted for approximately 40 minutes to gather their personal experiences and then all of the information collected from them was thematized and analyzed to draw valid results and conclusions.

Data collection and Analysis procedure

Data were collected from January 2021 to June 2021. Prior to the data collection, ethical approval for this study was sought and obtained from researchers' institutions. All respondents were informed of the details of this study prior to their consent by checking non-personal details of respondents were retained by the researcher. Similarly, codes were assigned to each respondent. Lectures were coded lecturer 1, 2, 3... etc., students were also student A, student B and IT expert were coded I and II etc. The respondents' responses were analyzed using thematic analysis which has been discussed in chapters below.

Findings and discussions

This chapter aims to present the effectiveness of digital technology as a teaching resources at higher level. Under this main issue, researcher generated various themes from data to identify the real situation of teaching learning environment in higher education through digital devices.

Develop constructive ways of teaching through digital technologies

Students A mentioned that "The contents delivered via digital medium is more effective instead of traditional chalk and talk methods at higher level specially when the contents have multiple aspects of learning using texts, audios, videos clips, and demonstrations" Students C stated that, "with the emergence of social media and platforms like zoom, teams, google meets and messengers etc. I have been becoming very familiar with digital technology, so there is the need to integrate the social media revitalized the academic activity of the students at higher level."

Lecturer 1 informed that, "the lack of accessibility and digital literacy, inadequate infrastructure, slow network and training on ICT tools are the major challenges for us on using digital technologies for effective content delivery."

From this narration, the researcher found that, there are numerous challenges to adapt and transform the digitalization in teaching and learning activities at higher education in Nepal. Despite these challenges, they realized that it can replace the traditional pedagogy and bring innovation in teaching learning process. In current context, there is the need to bring evolution in the teaching

pedagogy via using digital technology . Digital friendly environment will be helpful for optimizing the learning process even in future and it can be a vital part of digital era.

Social pressure and inadequate infrastructure

Educational institutions couldn't recruit competence teachers in the classroom activities due to social pressure and inadequate infrastructure. Lecturer 4 stated that, "Since the instructors and students at higher level are well familiar with ICT, digital is the new pedagogy. While most of the students are busy on their phones and laptops, if these mediums are used as the learning platform, the learning will be fun and interesting . With the emergence of social media and platforms like zoom, teams, google meet, etc., most of the people have become very familiar with digital technologies, so researcher prefer digital technologies over traditional chalk and talk method.

Student D elaborated the problems that "since I am a married women with a children aged 3 , while attending the class via digital medium through home, I faced more difficulties to attend online classes too. If I was out of home for studying, at that time other people used to care my children, but since I was at home even in staying for studying , it was my responsibility due to which it was very challenging for me even participate in the online classes"

As per the respondents, some of them had to be engaged in household works, baby-sittings and chores. Due to this reason, female students were not able to learn properly through digital technologies which affected their learning and navigating discriminate environment among learners .

Accessibility of internet facilities

Study results also show that in the case of developing countries like Nepal there seems to be unavailability of electricity and internet everywhere. For effective way of digital mode of teaching there should be proper management of electricity and internet . IT expert I suggested that "In the context of Nepal, using digital technologies in teaching delves as new way of teaching hence, students at higher level seem to be more excited to adapt the new ICT tools as a medium of instructions. Although digital devices have got each and every individual on their hands, but every corner of the remote areas lack of internet facilities still remain."

The educational institutions located in remote areas shall also be introduced the ICT tools with internet facilities, for this, the professional help from IT experts should be taken to reform, transform and to shift the pedagogy from traditional to digital.

Pedagogical knowledge

The researcher observed that teachers and students faced enormous challenges during teaching learning activities via digital devices. Lecture 4 stated that "although I'm somehow familiar with ICT, the emergence in the digital medium and lack of knowledge update on the same is making me hard to properly utilize the digital medium for effective content delivery".

Student E stated that, "Digital technologies have been becoming the essential part of learning and will take over the traditional pedagogy. After the achievement of the digital learning opportunities I have been able to enhance more knowledge in concerned areas. "

Lecturer 3 responds that, "our institutions facilitates the training for teaching and non-teaching staffs to uplift teaching module then after we are excited to add teaching culture with digital plat form. . "

Lecturer 5 stated that, " Although it makes me excited regarding the emerging technology and digital pedagogy, Still remain the fear of rejection and unfamiliarity to implement it , I confused what to do and hesitated to facilitate learning resources in the classes using digital technology . "

From these narrations , researcher came to know that digital technologies can replace the traditional pedagogy and bring innovation in teaching learning process and all educators can broadly conceived knowledge within it . The study by Kumar,R.,Poudel,K.K., and Shrestha, A.K., (2020)stated that the scenario of present context of online education at higher educatin of Nepal seems more challenging due to insufficient devices for a large numbers of students and weak and unreliable internet . Even in Tribhuvan University , the largest universities of Nepal , the facilities of the online learning system wasnot properly regulated. Very few number of compuses are providing online classes regularly , especially at Master and Mphil levels.

Negligence of government via digital literacy

Many studies in developing countries(Perera et al.2021; Selim 2007 as cited [Adhikari , 2022](#))

identify the availability of information technology's infrastructure, assess to the internet and fast connectivity, LMS and learning websites must be properly arranged at higher education . They also emphasized that reliability , richness, consistency , effectiveness and opportunities are prominent components of advancement of technology in E- learning pedagogy. The low priority in government towards digital pedagogy makes very little enthusiasmin the stakeholders in the past .Similar studies also depicted that almost all students and teachers could not get sufficient training via digital literacy but there is lack of stable government policy and proper monitor and facilities for digital literacy. However, the government should be sincere concerning the use of digital pedagogy and its literacy in higher education. UGC states that , higher education institutions of Nepal receive financial support from the government through the ministry of education but it is not sufficient for ensuring inclusive and equitable quality education for all. Lecture 2 stated that "Lack of training due to proper government policies might be the hindrance on proper utilization of digital media for teaching learning process. "

There is the need for proper training and monitoring to both lecturers and students on using the ICT tools. Also as discussed above, the government shall also focus on providing training on the use of ICT tools and concerned that how to integrate into their practices. Another major challenge despite the lack of training was the distraction and diversion. Mainly, the married women who also had household responsibilities were not able to utilize ICT for teaching-learning process. As per the respondents, some of them had to be engaged in household works, baby sitting and chores. Due to this, they were not able to learn and participate on online activities properly. . Even though, the use of digital tools and platforms has been becoming increasingly integral to our personal and

professional lives, despite its tremendous advantages it may create injustice among female comparing to male students in developing countries and traditional societies .

A study by Rana (2018) stated that poor implementation strategies of ICT education policy , restricted mind set of educational system of universities and schools , inappropriate financial support from government , lack of IT expert and unnecessary political influence in the educational sectors have been remaining major challenges for integrating digital technologies in Nepalese higher education even in Tribhuvan University . Teachers are needed professional knowledge of applying digital technology on their instructional practices to encourage students with virtual education system (Ferdig,2006 as cited Kundu et al., 2021).

Unprepared and rapid shift to virtual education has been a major challenge from teacher's experience. Due to pedagogy shift, people from marginal households were significantly affected (Kundu, 2021). Although, Digital integrated learning has been becoming mandatory but currently in Nepal it is in honeymoon phase and needs sometimes to bloom. The transformation of teaching and learning in higher education institutions can be heightened with the help of digital technologies and literacy. Since digital technologies have become an inevitable and indispensable part of education and learning, there should be proper operational policies, governance, financial investments, and policy-making. (Okoye et al., 2022). Nowadays, digital technologies have sufficient advantages in higher education and secondary education as well. It fosters educational innovation and digital innovation skills for improving and transforming the learning processes to the stakeholders. The knowledge of digital technologies and literacy skills for both the educators and learners , respectively , can facilitate and transform in the best way for teaching learning process in the classroom (OECD, 2016 as cited Okoye et al ., 2022)

Viewing digital technologies as luxury still in some perspectives has limited the achievement of resources although digital technologies has increased productivity, value creation and social welfare in terms of content delivery (Husain, 2022). For revisiting the previous literature, researcher came to know that digital technology ensures quality learning at convenient place and suitable time . The advancement in education system using technologies made the training system more interesting and enjoyable at all primary, secondary and higher educational level (Aithal &Aithal , 2016). The development digital fluency begins with realization of technological advancement for producing better citizens in the digital world. It enhances the ability to facilitate critical thinking and problem solving in the real world in which children live, play and learn (Kivunja,2013).

Either developed, developing or underdeveloped countries, digital technology influenced educational institutions incredible . The finding suggests that technology may create drastic change in educational pedagogy and required skillful manpower than before . Educators have been creating the content , learning experiences and assessment tools in the favour of all learners and encourage them to participate actively. The notion of the digital pedagogy has been assessed and developed equal opportunities in resources for all . For teachers' professional development, ICT related training plays the pivotal role to enhance their competency in learning and build democratic societies . Furthermore, it enhances the performance of teachers in teaching with integrating technology that can address the students' problems (Compeau & Higgins,1995 , as cited Amhag, 2019)

Higher educational institutions accommodate the new challenges in 21st century curriculum and strongly influenced by the pressures from post- modernism . This would improve lecturer and students' performance than after teaching learning environment and ways of teaching have been modified effectively. It allows individuals increased opportunities to cultivate the complex skills required to work productively with others.

Conclusions

The development of digital technologies have been increasing demand day by day in all sectors including education as well for fostering digital learning environment in society. This research findings identify that poor connectivity of internet, insufficient infrastructure, lack of appropriate policy regarding technology integrated pedagogy and trained human resources are main problems for facilitating the effective ways of teaching through digital mode . Insufficient attention is paid to the issues of digital ethics, digital culture and digital reputation. It may come some issues on human relationships concerning copyright of digital content, a partial awareness of the respondents of the need to respect digital reputation, digital ethics and digital culture. Similarly, the problem of the digital transformation in society indicated that professional development of teaching staff, improving digital literacy for lectures, students and institutions staff in order to provide a new quality of life in the era of the digital transformation in educational institutions. The result revealed that lecturers and students need sufficient training for digital literacy program for enhancing quality education. All schools and colleges are needed to be continuity of technological integrated pedagogy for teaching, communication, administration and research purposes. Educational institutions might be used digital technologies as a tool to relocate the teaching from physical classroom to digital friendly environment. It can be effective as a teaching learning tools for pedagogical purposes which is needed for creating digital teaching learning environment and addressing students' learning needs across several disciplines at higher level. Government should provide huge amount of resources for those students who are from rural areas migrate to urban areas to study higher education, facilitate ICT infrastructure for economically deprived students and noted the gender issues as well .

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