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The Role of Technology in Transforming Classroom Instruction: Teacher's perspective

Krishna Prasad Devkota (M.Phil. Scholar)
 (Teaching Assistant), Mid-West University
 Narayan Multiple Campus, Dailekh
<https://orcid.org/0009-0004-6338-1864>

Abstract

This research is focused in how technology has significantly transformed classroom education. Technology integration has transformed conventional teaching strategies and given teachers and students new options to improve educational prospects. This research has been focused on the role of technology in transforming classroom instruction from teachers' perspectives in the context of the Dailekh district. The main purpose of this research is to explore teachers' perceptions regarding the role of technology in transforming classroom instruction and find out the major challenges regarding the use of technology in classroom instructions. This article has been prepared by using the in-depth interview under the qualitative research design. Six teachers were selected from three schools of Dailekh district by employing purposive sampling. The research highlights the advantages of use of technology in the classroom, including improved engagement, individualized instruction, access to a wealth of learning materials, and the development of crucial 21st-century skills. It also looks at potential obstacles and factors, like as infrastructure needs, teacher preparation, access of relabel internet and the technology integration. This study tries to finding the perception of teachers in classroom transformation through use of technology. All respondents were agreed in positive effects of using technology in classroom transforming.

Keywords: Technology, Modernization, Pedagogy, Digital, Education, Transform

Introduction:

Technology has substantially impacted several industries, including education, and has become an essential part of our daily life. The term ICT has been widely used in the educational field (Baral,2025). Especially technology has been used in the sector of education pedagogy for store, transmit and manipulate information. It helps to advancing quickly, and as a result, classrooms are changing as creative, technology-driven techniques are replacing traditional teaching methods. In this modern era globalization of the education is burning issue so, it is necessary to use technology in education to address the issue. Using the technology in classroom that plays the significant role for transforming the classroom instruction (Safitry et al., 2015). The growth in accessibility and affordability of digital

devices, internet connectivity, and instructional software has accelerated this shift. Technology in the classroom has the ability to improve teaching and learning processes, accommodate different learning preferences, and get students ready for the digital era. Technology is a key factor in the world where we live in today. As each day passes, new software and new devices are launched that improve our lives in some ways.

Technology plays an important role in every field, but one of the areas where technology is most pervasive is education. Education among people is increasing as technology advances, and research and development are continuously carried out to introduce advanced technologies to make education easier, more enjoyable and more accessible. It is Today, teaching children with the help of technology is no longer boring and tedious because it has become much more interesting and user-friendly, thanks to educational technology. Today, there is a common focus on improving student achievement while integrating technology as a tool. Policy makers and educators are renewing their commitment to programs and teaching practices designed to have the greatest impact on teaching and student outcomes. We live in a technology-rich world, and using the technology helps to enhance the learning achievement of students by updating the traditional teaching pedagogy. With the advent of Common Core Standards and the emphasis on technology, the use of technology in schools will become even more of a priority (Costley, 2014).

Our life style and working pattern are influenced by Technology. The field of education is no exception. In fact, new technologies were invented and developed in the early 20th century (Ward, 2001). In that time simple technology was used in classroom instruction. Radio and film projectors were introduced to conduct audiovisual learning in the classroom. Different technological tools and software have been developed along the time of modernization. Rapid extension of technology has been transforming the classroom instruction in digital phase (Akram et al.,2022). Especially after Covid -19, the trend of using technology has broadened and that helps to transform the classroom instruction by replacing the traditional pedagogy. Technology was all the rage and education were a prime target for the researchers who wanted to know if their products could transform education as we know it. Nearly a decade has passed since then, and the novelty of educational technology has worn off somewhat. Many schools are struggling to make ends meet and need to cut costs wherever possible. Financial difficulties are still a reality in many school districts. However, even in schools with limited financial resources, educational technology is still a major part of education today Over the years, our country has felt pressure from other countries to successfully integrate information and communication technology (ICT) into their students' education. To prepare students for success in the digital age, the United States is committed to providing students with the skills and resources they need to succeed in life.

According to the CEO Forum, educators are encouraged to make the most of available technology for the benefit of the country. There are many disadvantages also find while using technological tools in class room instruction so, we should be serious to use technological tools (Carstens et al., 2021). Teaching and learning process can be more fruitful by using the different technological tools if we can use them positively, if misused of technology students

engaged in other activity then teaching learning activities So, it is necessary to observe the student's behaviors during classroom instruction. students' creative power also will be decreased when they will be totally dependent towards technological tools. It has more benefit than limitation of using technological tools in classroom instruction. There is no doubt about transforming the classroom instruction by the use of technology if we have used it in the right ways.

Purpose of the Study

Main purpose of this research is to discover the experiences and perceptions of teacher, gain a deeper understanding of teacher's experiences and perceptions of integrating technology into the classroom. Similarly, this research will be emphasized to explore the Role of technology on classroom transformation and enhancing learning achievement. Examine how the integration of technology in the classroom impacts student learning experiences and outcomes from the perspective of teachers. Expect them following are the main purpose of this study:

To explore teachers' perceptions regarding the role of technology in transforming classroom instruction, to examine how technology is integrated into classroom instruction and how it supports teachers in setting their instructional strategies, and to identify the key challenges faced by teachers in implementing technologies during classroom instruction.

Research Question

How do teachers perceive the role of technology in transforming classroom instruction?
 How has the use of technology changed the instructional strategies of teachers?
 What challenges do teachers face while using technology for instructional purposes?

Literature Reviews

The way we live and work is changing quickly, thanks to technology. There is no exception in the sphere of education. throughout fact, new technologies were created and developed on an almost weekly basis throughout the late 1990s. Technology was in vogue, and those ambitious researchers who wanted to explore, if their product might change education as we know it made education their main focus. The novelty of instructional technology has partially worn off after over ten years. Many schools are scrimping and saving in order to make ends meet. Many school districts are still experiencing financial difficulties today. The use of instructional technology is still widely used in the classroom today, particularly at institutions with little funding (Vail, 2003). Over time, our country has experienced pressure (Firmin & Genesi, 2013). The trend of using technology is expanded in this modern age. All sectors have been affected by use of technology. It is necessary to use technology in educational sector for transforming classroom instruction. Different educators have published journals and articles by research regarding use of technology in the classroom. According to (Budhwar, 2017), The trend of using technology in daily life that helps to raising the standard of life. Similarly, use of technology in class room instruction that helps to students for active participation in teaching learning activities. In the other word we

can make teaching learning activities more interesting by use of technological tools in the classroom teaching (Budhwar, 2017). When we use different technological tools then students can get the opportunity of sharing personal experiences and knowledge with each other among friends that helps to develop critical thinking in education sector. Similarly, the use of technology enhances student learning. Students that utilize technology are more engaged, which results in greater learning retention.

Technology is significant to students because new technologies are emerging quickly on a worldwide scale. Technology offers valuable educational opportunities. Additionally, technology offers chances for experiential learning that may be incorporated into many aspects of the educational curriculum (Costley, 2014). Students can actively engage in teaching learning activities without any hesitation. It helps to develop the level of confident in students and they can develop the knowledge, attitude and skills which are necessary for enhancing the quality of education. Students today inhabit a highly technological environment. The majority of students regularly utilize technology, such as texting, social networking, and online browsing. These tools are viewed as both incredibly helpful and pleasant by students. These same children will be comfortable utilizing technology in the classroom since they are acclimated to it. Technology has four roles in the field of education: it is included into the curriculum, used as a method of delivering teaching, as a way to support instruction, and as a tool to improve the overall learning process. Technology has transformed education from being passive and reactive to becoming participatory and combative. In both academic and industrial environments, education is crucial. In the former, employees are assisted in changing their previous behaviors by means of education or training. The goal of instruction in the latter is to pique pupils' curiosity. Using technology can improve students' understanding and memory of topics in either situation. (Raja & Nagasubramani, 2018).

Teachers' Perceptions of Technology in the Classroom

Before 2019 AD the term of technology wasn't widely used in education sector. Many teachers were conducted their teaching learning activities in traditional ways. After the period of Covid-19 pandemic was most critical all over the world, but that provided the opportunity to extend the use of technology in the educational sector. Many educational institutes faced the problem while they were deprived of face-to-face learning. That situation has been opened the opportunity to accelerate the digitalization of education (Cahyani & Aminudin, 2025). It means the trend of using technology in educational sector has been widen after Covid-19 Period. In the post-pandemic era different technological tools and software were developing and applying in classroom instructions. Many educational institutions have been started the blended and hybrid teaching learning approaches. That creates the techno-friendly environment in the educational institutions.

Changes in Teaching Strategies Due to Technology

In recent time using the technology has been common trend in global context of education (Davidson et al., 2014). Teachers have been trying to use different technology in

teaching learning activities. That helps to enhancing interest of students in learning activities. Use of technology helps to create learner's friendly environment in educational institutions. The trend of using technology has been changing the teaching learning approaches. These types of practice certainly help to transforming the classroom instruction. In this context traditional teaching learning strategies have been the replaced and updated by using the technology. It is necessary to align the learning environment with basic skills and knowledge needed in 21st century learners (Tunkler, et al., 2024). Digital technology plays the important role for reshaping the instructional practices and challenges (Rahman, 2025). Like other countries of the world the government of Nepal has been encouraged to enhancing the use of technology in educational sectors. Government of Nepal commit to enhancing the technology in educational sector. For that government of Nepal has been formulated the ICT policy 2000, ICT in education master plan 2013, Digital Nepal framework 2019, NEHEP 2021-026 etc (Joshi et al., 2024). Above all policies are being effective enhancing technology but all stakeholders should be serious to effective implement of this policy. It is necessary to make the provision of sufficient budget and good supervision and monitoring by the government for effective implication of above policies.

Challenges and Barriers in Using Technology

This study has been focused on challenges faced by teachers during conduct classroom instruction. Rapid development of technology encourages to the educators for professional development (Tunkler and Akman ,2024). Availability of different technological tools make easy to updating the knowledge and teaching learning strategy to the teachers. With the access of opportunity many challenges have been raising. The trend of using technology has many positive aspects although are many challenges (Koc,2024). There are many challenges and obstacles to using technology for transforming the classroom. In this context many countries have been facing the challenges in using technology in classroom transforming. Among them under developed and developing countries have been faced the many challenges and obstacles then developed countries (Pittman & Gaines ,2015). Especially in rural areas of Nepal insufficient connection of internet, lack of skill regarding using technology, lack of access, lack of hardware and internet are the major challenges in using technology for classroom transforming.

In this modern age, digital technology plays the key role in transforming classroom instructions. The trend of using technology has been widening day by day. They help to reshape the instructional approaches (Oliveira & De Souza, 2021). The education system should be updated according to the global context. For that, using the technology is necessary; all stakeholders are equally responsible for applying the technology to enhance the quality of education, although teachers should play the important role of implementing the concept of technology. Using the technology in education has broad impact in transforming in the classroom instruction (Stenbom & Geijer, 2024). In the above literature different scholars have been described about the general concept, meaning and importance of using technology in classroom transforming but they haven't described about the teachers' perceptions, strategies and challenges in the context of Nepal. Especially in this study I have

described about them to fulfil the research gap in my study. This study has been focused to find the teachers' perception and technological integration and to identify the problem face by secondary-level teachers of Dailekh district, Nepal.

Methodology

Research method is an important part of research. In this part, researchers mention the procedures of doing activities and explain them systematically. I have chosen an in-depth interview and follow the procedures regarding in-depth interviews to meet target of this study. For preparing this article, I have used the Qualitative research approach. This study is focused on role of technology in transforming classroom instructions. An In-depth interview has been used under the qualitative research design for collecting data. Qualitative research design is suitable for understanding the reality and experiences of respondents (Solanki, 2022). A total of six teachers participated in the study selected through purposive sampling based on their experiences and engagement with technology in teaching. Among six respondents three secondary level and one basic level teacher, were selected from two private schools and two respondents were selected from a government school of Dailekh district. An in-depth interview is suitable in qualitative research to introduce the perception of the respondents (Devkota, 2024). Basic and Secondary level Private and government school's teachers were respondent of this study. The purposive sampling method was used for this study. At first, I went to school then take the permission from the head teacher and conducted in- depth interviews with teacher. The data collected were analyzed using thematic analysis to identify key themes and patterns related to the integration of technology in classroom instruction.

Findings

Teacher Background and Experience

Using technology is burning issue of 21st century. It is necessary to effective use of technology to enhance quality of education and motivate students' engagement in classroom instruction. During prepared this article I have conducted the in-depth interview with teachers who were engaged in technology-based teaching learning activities. The respondent teachers had difference teaching experiences and educational background. I have selected newly appointed to over ten years experienced teacher in my study. Most of the selected teachers haven't got the opportunity of training regarding ICT, they have the hunger of knowledge about modern technology but they haven't high confidant level. Although they were updating by individual effort. At the time of conduct in-depth interview I got, newly appointment teachers were more confidant in using technology. Similarly, senior teachers conducted their classroom instruction getting the support of their students. Generally Smart board, Projectors, computer and smart phone were used in their classroom instruction.

Perceived Role of Technology in Instruction

I have conducted in-depth interview with six respondent teachers who have been teaching in different three schools of Dailekh district. I have selected the respondent teacher through purposive sampling who teach different subject in their schools. According to computer teacher using technology provides an opportunity to both students and teachers for enhancing teaching learning activities. Generally, all respondents' teachers were agreeing to using technology is necessary to promote quality of education. Some teachers viewed technology as a supportive tool that helps to update traditional instructional pedagogy. They believed that technology plays the key role for transforming the classroom instruction but that cannot replace the traditional instruction pedagogy. According, to their views all technological tools were developing on the base of traditional pedagogy so that, traditional instructional pedagogy should be updated along the modern technology. All they were agreed about technology can play the key role for transforming classroom transforming.

Technology integration and classroom instruction strategy

It is necessary to integrate technology to classroom instruction. Most of the respondents were using multimedia presentations in their classroom instruction according to the nature of subject matter. According to respondent teachers the issue of technology integration depends on the policies and infrastructure of schools. Generally private schools felt the freedom to introduce and applying the polices regarding enhancing technology. Government schools have limit access to make decisions and manage the sufficient budget from the stakeholders. Although different schools have managed the technology in their schools. Teachers were satisfied to deliver their class through using the technological tools and they have felt students' engagement rate also increased in classroom instruction through technology integration in classroom instruction strategy.

Changes in Student Engagement and Learning

Changing the classroom instruction strategy is the most important topic of this digital era. When I conducted in-depth interview with teacher all six teachers agreed that using technology enhances the engagement of students in learning. According to all respondent teachers' students' engagement has been increased in audio-visuals presentation. The rate of active participation of students in classroom learning activities when multimedia was used. According to teachers, absent rate of students is also decreasing by using the technology. All teachers felt that the use of technology can play the key role to increase the interest of students to learn. That helps to change in students' engagement in learning.

Challenges faced by teacher

Using technologies is very beneficial in teaching learning activities. That helps to reshape the pedagogy in the context of global innovation and development, although there were many challenges are also raising in using technology. According to respondent teachers, they have faced several challenges in using technology in the classroom instruction process. Some teachers have faced the challenges regarding insufficient access to the internet, infrastructure regarding challenges, lack of training, especially senior teachers have felt

hesitation to use projectors, digital board and computer. They haven't well skill of preparing ppt for presentation so, they should get the support from young. In this context teachers have faced many challenges. In some schools there are provision of smart board but banning the use of smart phone in classroom so, they have felt difficulty to handling the smart board.

Conclusion:

Use of Technological tools is very interesting and serious work so, all stakeholders should be serious and responsible for development and use of technology in class room instruction. When I have read different literatures during writing this research, I have found many information regarding my topic. If we can use different technological tools in right way that helps to create the critical thinking, develop the new knowledge, skills and attitudes. Technological tool makes our life easy and helps to increase the standard of life. Technological tools have great role in all sectors, similarly in the educational sectors they can play great role. Students feel boring when use traditional teaching methods. They cannot give more interest in their teaching learning activities if, when we use different modern technological tools in class room instruction that helps to increase the interest of students in teaching learning activities. By using technology, we can attract to the learners to gain more knowledge. Student's engagement and activeness also increase by using technology in class room instruction. So, we should give priority to use of technology and follow the modern teaching method according to the nature of content. Every aspect has positive and negative effects but we should be able to identify wrong and right. So, using of technology has also some disadvantages but we can eradicate them by use of proper ways.

Especially, teachers should be serious and responsible for misuse of technology during class room. We can use different technological tools such as, smart phone, laptop, projectors, etc in class room instruction but sometimes students may be engaged in playing game, watching different movies which are not regarding to our curriculum. From the above literature use of technological tools in classroom instruction is very beneficial for effective classroom instruction. It is necessary to use different modern technological tools to transform classroom instruction from traditional to modern ways. So, all stakeholders should be active to expand the use of technology in class room instruction. Effective policy and act should be formulated and well implementation from government level to expand the technology in educational sectors is essential, enough budget should be allocated for expanding the technology in educational sectors. It is necessary to provide opportunity to the all teachers for skills development to adjust in this modern era. Expansion of the use of technological tools is the key factor to enhance the quality of education. We should develop the concept of digital class room for transformation teaching learning activities and enhance quality of education.

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