Educational Journal
October, 2024, Volume-3, Issue-2
DOI: https://doi.org/10.3126/ej.v3i2.83363
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Issue and Challenges Faced by Teachers in Using ICT in Teaching Processes

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Abstract

The integration of information and communication technology (ICT) in secondary level education has been increasing rapidly to enhance the teaching and learning processes. However, the implementation of ICT in the classrooms have been facing significant challenges. This study attempts to explore the issues and challenge faced by the teachers in classroom while using the ICT during their teaching and learning activity. Quantitative research design was employed and self-developed five-point Likert scale questionnaire is used as tool to collect the primary data and distributed among selected teachers. Descriptive statistic including mean and standard deviation were applied to analyze the data to access the extend of the challenge. The key findings of this study indicate that the teachers have been facing the multiple challenge and problems to integrated ICT in curriculum during the classroom teaching activity. In addition, the study also found that these challenges are consistent with previous studies. This study also concludes that infrastructure development, technical support, professional training to teacher, administrative support and pedagogical and curriculum alignment are essential to overcome these barriers and ensure effective ICT integration in classroom teaching.

Keyword: *Communication technology, teacher competence, curriculum integration, systemic barriers*

Introduction

Information and Communication Technology (ICT) encompasses a wide array of technological tools and resources employed for the purposes of communication, as well as for the creation, distribution, storage, and administration of information (Diyal & Pandey, 2022). In this digital age, ICT is are significantly impacting many aspects of human life, including education, by providing students with opportunities to acquire and apply essential 21st-century skills. The integration of the ICT is causing notable transformations in teaching and learning across all educational levels (Tosuntaş et al., 2019). Utilization of the ICT within the educational setting holds significant importance as it offers students the chance to acquire skills necessary for functioning effectively in an era driven by information and technology (Khalid, 2009). The ICT in

the teaching-learning process comes with its own set of problems and challenges. Nevertheless, there are certain barriers that can discourage educators from incorporating ICT into their classrooms and hinder their ability to introduce supporting materials via ICT(Salehi & Salehi, 2012). Such barriers encounter by teachers when utilizing the ICT in teaching, including constraints related to time, training, support and resources, confidence, availability of computer hardware and software, as well as competence (Rababah et al., 2012). In the similar way, prominent challenges encountered by teachers when utilizing the ICT tools also included limited accessibility and network connection, schools with limited technical support, lack of effective training, limited time, and lack of teacher competency (Ghavifekr et al., 2016). Incorporating information and communication technology (ICT) into the educational process creates increased possibilities for both teachers and students to collaborate more effectively in a digital era (Salehi & Salehi, 2012).

Problem Statement

ICTs are potentially powerful tools for educational change and reform. When used appropriately, different ICTs are said to help expand access to education, strengthen the relevance of education to increase digital workforce, and raise educational quality by helping make teaching and learning into an engaging active process connected to real life (Rababah et al., 2012; Shafaq et al., 2018). ICT as a teaching aid is more complicated in that it demands more specific skills from the teachers. In addition, it is necessary to align the ICT based tool and technology with the curriculum and pedagogical practices but this is the serious problems to the teachers for utilization of technology in the ground with new challenges. That's why it is so essentials to understand these challenges from teachers' perspectives to developing the practical strategies to support effective integration. Therefore, the objective of this study is to explore the issue and challenges face by teacher while using ICT in teaching activity in classroom and to provide data driven insight that can help future planning form policy to practices for effective integration of ICT to improve the quality of education.

Literature Review

The integration of ICT in education is a main way in facing globalization and it would respond to the type 21st century society that we living in. The use of ICT can play a number of roles in education by changing the teaching and learning process. However, ICT integration is not easy task (Mbodila, 2013). Researchers and educators have employed various obstacles faced by teachers when integrating ICT into their teaching, encompassing different aspects. Teachers held the belief that insufficient technical infrastructure within schools, limited internet accessibility and scarcity of available class time acted as notable obstacles, preventing them from incorporating ICT within their classrooms (Salehi & Salehi, 2012). Inadequate infrastructure with poor internet connectivity, limit number of computer, less accessibility in digital resource are the major barriers to integrated ICT in education (Kafyulilo et al., 2015; Law et al., 2008). Technical issue such as hardware and software failure and less timely technical support are also the problems that are frequently face by teacher while incorporating ICT in teaching process (Buabeng-Andoh, 2012; Hennessy et al., 2010). Beyond the technical limitations, teachers' attitude and competence is another significant problem to adopt the ICT which is direct affecting to acquire the require skill, confidence and motivation (Ertmer, 2005; Jimoyiannis, 2010). Similarly, the primary obstacles identified by Habibu et al. (2012) were inadequate technical resources within schools and limited internet and ICT accessibility, which served as major hindrances to teachers attempting to incorporate ICT into the curriculum. Likewise pedagogical challenges also arise as major barrier and teachers are struggling to integrate ICT in curriculum (Albirini, 2006; Voogt & Roblin, 2012).

Moreover, time limitation and less support for develop digital instructional tool and materials are also further barrier to effective implementation (Kirkwood & Price, 2014). Administrative and systematic issues, such as lack of administrative support and system incompatibilities also serve as significant barriers for providing the training opportunities to the teachers to integrate the ICT with curriculum and also to use for assessment process (Pelgrum, 2001; Tondeur et al., 2008). Factors that limit the use of ICT in teaching-learning process found by Mulhim (2014) are lack of access to ICT, lack of training, lack of time. To offer a concise and streamlined overview of the different challenges related to technology integration can categorized into different category such as infrastructure and resource-related problems, technical and support issues, teacher competence and attitude, pedagogical and curriculum integration difficulties, and administrative or systemic barriers.

Methodology

In this research, a survey research design under the quantitative research method was used. Total 65 secondary level schools' teachers were selected via random sampling method from Kathmandu, Lalitpur and Bhaktapur district. Five-point Likert scale with scaling point from 1 to 5, where 1=SDA, 2=DA, 3=N, 4=A, 5-SDA was used as tool for data collection. The questionnaire was set into the five categories corresponding to the major challenges and barriers faced by teacher while using ICT in teaching. The questionnaire was distributed to the targeted group of the teachers to collect the data. The statistical measures mean and standard deviations of each statement were calculated and compared based on the theme.

Result and Discussion

This section presents a detailed analysis and interpretation of the data collected to explore the issues and challenges faced by teachers in using ICT in the teaching process. Based on the analysis of the items, the discussion is grouped thematically for clarity.

Infrastructure and Resource-Related Challenges

Table 1: Infrastructure and resource related challenges

S. N.	Statement	Mean	S.D.
1.	Lack of up-to-date resource availability	8.25	6.85
2.	Insufficient Number of Computers	11.33	6.51
3.	Insufficient Number of software copy	8.00	6.32
4.	Unsuitable hardware/software	7.75	7.63
5.	Unreliable internet connections	8.00	8.29

The result shows that infrastructure and resource is the significant challenges to effective integration of ICT in education. With the highest mean values (M=11.33), the insufficient number of computers is the most pressing issue, suggesting extensive shortage that affects the majority of educational institutions. Although, the standard deviation (SD=6.51), indicates that some variation in response, suggesting the issue is wide but severity is differed across the context. Unreliable internet connection with the mean values (M=8.00) is also emerged as a major concern. But the standard deviation with the value of (SD=8.29) is the highest variation reflecting considerable inconsistency in the internet accessibility and such variation indicate some institution may have well connectivity, but some other face severe limitation. Similarly, the lack of up-to-date resource with mean and standard deviation (M=8.25 and SD=6.850) and unsuitable hardware and software with mean and standard deviation (M=7.75 and SD=7.63) are also the signification barriers but with high standard deviation shows the unequal distribution of resource. This finding indicate that the issue is not uniformly experience. On the other hands, with the mean of (M=8.00) and lowest

standard deviation with (SD=6.32) for insufficient number of software copy appears to be more consistency share challenge across the respondent. In overall, due to the unsatisfactory infrastructure and technological resource hindering to implement the ICT in education. To address these, investment and equal distribute of ICT resource is crucial to ensure equitable access to ICT tool in education.

Technical and Support Issues

Table 2: Technical and Support Issues

S. N.	Statement	Mean	S. D.
1.	Technical difficulties to access ICT infrastructure.	8.25	7.93
2.	Lack of effective training on the use of ICT in teaching.	8.25	5.62
3.	Less support to solve technical problems	8.25	9.50
4.	Constant technical problems	8.50	5.97

Technical difficulties to access ICT infrastructure, lack of effective training, less support to solve technical problems have identical mean (M=8.25) score, indicating a strong agreement among to respondence and remain a potential and common barrier to effective use of ICT. Although, vary standard deviation among them shows the inconsistency in experience. Less support to solve technical problems also varies widely, as shown by the high standard deviation (SD=9.50), suggesting a wide disparity in the level of technical support available across institutions. Some institutions may have access to responsive support and other institutions may not, reflecting a systemic inconsistency. In contrast, Lack of effective training (SD=5.62), lower standard deviation shows that many respondence have similar experience making it a more uniformly encountered issue. High standard deviation (SD=7.93) on technical difficulties to access ICT infrastructure, pointing to large variation in the level of access. Meanwhile, Constant technical problems, with the highest mean values (M=8.50) and standard deviation (SD=5.97) are ongoing and repeated problems for implementation ICT in Education. This finding suggests that consistent ICT training, accessibility of resource, responsive technical support to overcome constant technical problems are require to implement ICT in teaching process.

Teacher Competence and Attitude Challenges

Table 3: Teacher Competence and Attitude Challenges

S. N.	Statement	Mean	S. D.
1	Lack of confidence to use ICT	7.75	6.65
2	Resistance to change to adopt ICT in teaching practices.	7.75	4.27
3	Less enthusiasm towards using ICT	8.25	5.32
4	Limited technical skills	7.75	4.99
5	Lack of technological competence	8.00	6.68

As lack of confidence to use ICT, Resistant to change and limit technical skill have same mean (M=7.75) reflection a consistent recognition of these challenges. Resistant to change and limit technical skill with lowest standard deviation (SD=4.27 and SD=4.99) point to a common struggle among teachers in adopt

new ICT based technology in teaching process and handling ICT tools effectively. Less enthusiasm towards using ICT with highest mean score (M=8.25) suggesting that a lack of motivation is a significant barrier to ICT adoption in teaching practices.

However, With the standard deviation (SD=5.32), shows the reasonable variability which indicates that the almost teachers are less motivated toward using ICT. Furthermore, the lack of technological competence with the mean score (M=8.00) and the highest standard deviation (SD=6.68), revealing a wide difference in level of digital literacy. This suggests that some teachers may be quite competent, although others teachers are still facing significant difficulties in using technology. In overall, this insight indicating to continuous professional development program, confidence building workshop, motivation and teachers' capacity building strategies are essential to overcome such problems.

Pedagogical and Curriculum Integration Challenges

Table 4:Pedagogical and Curriculum Integration Challenges

S. N.	Item	Mean	S. D.
1.	Lack of time to prepare ICT based instructional design	8.00	5.29
2.	Difficulties to integrating ICT in instruction	10.33	7.57
3.	Difficulty to integrate with curriculum requirements	7.75	8.34
4.	Difficulty to balancing the use of ICT with traditional teaching methods	8.50	5.51
5.	Assessment and evaluation challenges associated with ICT integration.	6.50	6.35

Difficulties in integrating ICT in instruction with mean score (M=10.33), indicting that this is perceived as the most significant challenges. However, standard deviation score (SD=7.57) indicates the extensive variability, suggesting that the severity of the issues is different across the institutions. Difficulty to balancing the use of ICT with traditional teaching methods with the mean score (M=8.50) and standard deviation (SD=5.51) shows that almost teachers are still struggle in balancing between traditional and digital teaching method. Lack of time to prepare ICT based instructional design with the mean score (M=8.00) and standard deviation (SD=5.29), indicate that it is also common problems among most of the teachers and also hindering to integrate the ICT with the curriculum. Difficulty to integrate with curriculum requirements with mean score (M=7.75), and highest standard deviation (SD=8.34), which indicate a signification variation in how well ICT align with the existing curriculum. Lastly, Assessment and evaluation challenges associated with ICT integration, had relatively lowest mean score (M=6.60), indicating that it is less critical issue to compare with other. However, the standard deviation (6.35) still shows the noticeable variation in teacher' experience. In overall, result pointing to the need of professional development training program for enhance technical skill to emphasizing instructional design, assessment technique.

The mean score (M=7.75) for lack of administrative support and the mean score (M=8.00) for system incompatibilities shows the both lack of administrative support and system incompatibilities are notable barrier to effective integration of ICT in education. The lowest standard deviation (SD=4.11) for administrative support suggests a relatively consistent perception among the respondents and the standard deviation (SD=5.48) for System incompatibilities indicate moderate level of variation, that reflect the many respondents encounter such kinds of problems

but some are not. The finding indicates the important of system combability and strong administrative engagement is required.

Administrative and Systemic Barriers

Table 5: Administrative and Systemic Barriers

S. N.	Statement	Mean	S. D.
1.	Lack of administrative support	7.75	4.11
2.	System incompatibilities	8.00	5.48

The current research results align closely with established literature and theoretical models. The challenge encountered by educators in this research are not unique but signify a worldwide trend of obstacles to the integration of ICT in education. These similarities enhance the credibility of the present results and highlight the pressing need for organized initiatives such as infrastructure upgrades, specialized teacher training, and curriculum changes to guarantee the effective implementation of ICT in classroom instruction

Discussion

The finding of this study expose that teachers are face multiple challenges and problems in effectively using ICT in classroom. Lack of essential recourses are the major barrier to effective integration of ICT in school. Less number of computers, Lack of hardware resource, lack and outdated software are the current situation of the many schools. That are the major barrier to implement the interactive teaching and also makes difficulties to access the resource to the students. Unreliable internet connections often restrict the use of inline tools and platform. Such types of problems highly impact to effective use of ICT in the classroom. Less technical support is another significant challenge. Teachers are repeatedly facing the application, system or hardware related problems and they also loss their instructional time as well. Moreover, many training program are also not focus on real technical or real classroom-relevant issue. This leaves teacher underprepare to incorporate ICT into pedagogy meaningfully. So, without proper support, the teacher often fell discouraged from integrating ICT into classroom teaching.

To adopt ICT, teacher skill and attitude play a vital role. Less technological competence such as techno-pedagogical skill prevents many teachers from maximum utilization of digital tool and resource in more effective manner. Teacher without confidant on technology discourage and create fear of failure them to use technology. Teacher belief and internal thinking on the integration is factor for resistant change. Insufficient training and support contribute to law enthusiasm to use ICT in teaching practices. Teacher with the skill and willing to integrate ICT in education often struggle to align the existing curriculum with ICT tool. Many education-oriented system focus on exam based teaching and rote learning, making it more difficult to integrate student centric interactive based learning tool. Less time to redesign lesson plan or develop ICT based activity is another burdened. The lack of appropriate digital models only create confusion to evaluate the student performance effectively in ICT-enhance environments. This is also affecting factor to discourage the effective integration of ICT into classroom.

Weak organizational leadership and less strategic planning at the policy level is another barrier to adopt ICT in education. Unclear policies and less support from school administrator is another barrier to technology integration. Because without recognition from organization create less motivation to innovate. Poor coordinate planning and coordinate mechanism causes ICT initiatives to remain fragment, temporary of dependent on individual effort which is not sufficient in many cases.

On the basis of analysis and discussion, several key points have been found to which help to address such problems and challenge face by teacher while integrating ICT into the instructional process. It is more essential to enhance ICT infrastructure with the increasing the number of functional computer and hardware devices, access to updated software and reliable and high-speed internet access across the school premises to effective use of digital tools. Continuous teacher training should be in high priority and also focus on pedagogical integration of ICT in to instructional activity to building teacher's confidence and competence. Allocated on-time technical support to reduce the disruption is necessary to ensure the timely resolve the technical issue and promoting the smoothly use of ICT in classroom. Training and workshop for teachers are necessity to encourage and develop positive attitude through which resistant to adopt technology can be reduce. Curriculum should be aligned with digital resource so that integration of ICT with curriculum is so easy and that can ensure purposeful use of technology on classroom. Similarly strong support from administrator and active role in enforcing clear ICT policy from policy maker is equally important. Additionally, development and implement of ICT based assessment tool can enhance evaluation process, provide timely feedback and provide more accurate tracking the teaching outcome.

Conclusion

The study focuses on the challenges to integration the ICT in classroom teaching. Insufficient access to the digital resource like computer, updated software, reliable internet access are the major barrier for many schools. However, only addressing to hardware limitation is not sufficient to address these issues. less technical support and less opportunities to professional development is another hinder to integrated ICT in Teaching and learning. Similarly internal factor such as less confidence on digital tool and resistance to adopt the technology are the internal factor to use ICT in teaching for teachers. Although the teachers are often struggle to align ICT tool with pedagogy and curriculum requirements. At the institutional level, less administrative support is the another hinders of effective integration. To effective implementation, infrastructure development, teacher empowerment, administrative support, technical support are highly essential.

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