



Practice and Challenges of Technology-Assisted Learning in Eastern Hillside Model Schools of Nepal

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Submission:

May 4, 2026

Acceptance:

May 26, 2026

Published:

Jun 30, 2026

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<https://doi.org/10.66412/ed.v35i2.118>

Abstract

This study aimed to find the status of technology-assisted learning in the eastern hillside *Namuna* (model) Schools of Nepal, and to identify the challenges in teaching and learning. Under a quantitative research design, a survey method with a 5-point Likert scale questionnaire was administered to a cluster sample of 254 students from grades 9 and 10 in the *Namuna* Schools. The analysis of the data revealed that students are uncertain about the extent to which technological facilities are at schools. A contrasting pattern demonstrates a clearer perception that technological resources are limited in availability and accessible to only a small proportion of students. Despite these constraints, students agreed with the usability of digital technologies. The perceived challenges, irrespective of the gender and ethnicity of students, are explained by the availability and accessibility of technology, where grade 10 students perceived it to be higher than others. However, students do not consider the lack of technology to be a major barrier to their learning. Considering the usability of technology in learning, it is advisable that a collaborative effort among stakeholders might be useful to foster motivation for learning and mitigate the challenges associated with the technology practice, particularly for students in *Namuna* Schools.

Keywords: technology, students, learning, challenges, schools

To cite this article:

Khadka, J., Acharya, U., & Subedi, N. (2026). Practice and challenges of technology-Assisted learning in eastern hillside model schools of Nepal. *Education and Development*, 35(2). 134–142. <https://doi.org/10.66412/ed.v35i2.118>

Introduction

In broader term, technology refers to the practical application of methods and techniques that are supposed to enhance the efficiency of human activity where as digital technology includes electronic tools, devices, resources or systems for supporting communication, collaboration, access or creativity (Ellu, 1964; Rouse, 2019). Educational technology refers to the use of technology including digital tools or techniques in teaching and learning activities (Januszewski & Molenda, 2008). In the age of rapid technological advancement, education systems worldwide are embracing digital tools and methods to foster learning experiences and going beyond traditional teaching. Technology is useful for both teaching and learning that enhances personalized learning, engagement, motivation and better retention of learning, and prepares students for future careers (Ascione, 2024). In education, digital technology caused a paradigm shift, besides providing knowledge, supports as a co-creator of information, a mentor, and an assessor (Haleem et al., 2022).

In pedagogy, not only transforming from traditional to modern approaches of education, when learning is mediated by technology, transformative learning, including literature, can enhance engagement, deepen understanding, and cultivate essential skills like critical thinking and adaptability (Singh, 2019; Taylor, 2008). Despite the significant role of digital technology, the teachers, students, and educators have faced several problems and challenges. For example, in developing countries like Nepal, Singh (2019) found insufficient infrastructure for the use of technology that does not sufficiently support the students' learning. In Sub-Saharan Africa, secondary schools are struggling with issues of digital technology around access, quality, and equity (Burns, 2025). Even in advanced countries like the United States, research shows external challenges to classroom technology (e.g., first-order barriers to the successful integration of technology: access termed as insufficient equipment or connectivity, inadequate training related to technology) and internal challenges, such as teacher attitudes and beliefs, teacher resistance to technology in

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the classroom, and teacher skills and knowledge (Johnson, 2016).

Considering the significant role of technology in school education in Nepal, the government has introduced the concept of *Namuna Schools* (model schools) as a part of an initiative to improve teaching methods, including technology (MOEST, 2021). *Namuna Schools* are institutions designated to lead in the implementation of modern educational techniques and to establish standards that can be transferred throughout the public-school system. In the schools, some research like Center for Education and Human Resource Development (CEHRD, 2024) revealed some findings in the field of physical infrastructure, teaching, training and other resources, and focuses little on the integration of technology for learning.

In the schools, it is expected that students get a favorable environment to enhance their learning through technology in terms of availability, access, and usability. In light of this fact, this study aimed to find the status of technology-assisted learning in the eastern hillside *Namuna Schools* of Nepal, and further identify the challenges arising in the integration of technology in teaching and learning from the perspectives of student. This study is expected to contribute to teachers, students, schools, and policy makers by systematically examining the status of technology integration in learning, and identifying the problems in its implementation in the schools. The findings are anticipated to provide research-based insights that can inform stakeholders in designing and implementing necessary improvements and interventions.

Research Questions and Hypothesis

Research Questions:

1. What is the perceived level of Technology Practice and its challenges in Eastern Hillside *Namuna Schools* of Nepal?
2. What relation exists between the perceived level of Technology Practice and its challenges in the Eastern Hillside *Namuna Schools* of Nepal?

Hypothesis:

H: There is an effect of Technology Practice on the challenges of using them in the Eastern Hillside *Namuna Schools* of Nepal

Technology Integration in Education

As aforementioned, technology enhances student-learning achievement, helps them solve problems, or prepares them for their future career (Alshahrani & Mahmoud, 2020). Further, it benefits in collaborative learning through teamwork online or offline, regardless of geographical barriers (Ascione, 2024). Advancements in educational technology have significantly simplified students' learning and lives (Finn & Zimmer, 2012; Ertmer & Ottenbreit-Leftwich, 2010; Tuwairiq et al., 2022). Rather than relying on traditional pen-and-paper methods, students now use a

range of digital tools and software to develop presentations and complete projects. Compared to carrying multiple notebooks, devices like an iPad are much more convenient and lightweight (Haleem et al., 2022). Some of these references indicate that educational technology supports students' learning and enhances their achievement.

Using digital tools, learning management systems (LMS), and interactive platforms, educational technology has transformed learning by establishing interactive settings in which students interact with the material. Devices like tablets, laptops, or smartboards facilitate individualized learning and offer access to a variety of materials. By centralizing coursework and assessments, learning management systems (LMS) like Google Classroom, Moodle, or Canvas simplify communication and instruction. Through collaboration, polling, and real-time quizzes, interactive systems like Kahoot or Nearpod encourage active learning while improving peer connection and student engagement. In addition to accommodating various learning styles and fostering a more inclusive, individualized educational experience, these technologies increase the accessibility of learning resources (Koehler & Mishra, 2009; Andrei, 2025). In the fast-growing era of technology, Artificial Intelligence (AI)-assisted pedagogy has also become a pivotal force of transformative and innovative teaching and learning (Siddiqui et al., 2025), where AI-driven tools or techniques like ChatGPT, Google Gemini, QuillBot, and Canva make learning more accessible and engaging. While summarizing the digital technologies in education, the presentation in table 1 presents a simplified framework of these technologies:

Table 1: Digital Technology in Education

S.N.	Type of Digital Technology	Examples
1	Learning Management Systems (LMS)	For example: Moodle, Canvas, Chalkboard
2	E-Learning Platforms	For example: Coursera, edX, Khan Academy
3	Mobile Learning Tools	For example: Smartphones, Mobile Learning Apps
4	Virtual and Augmented Reality	For example: Google Expeditions, Oculus VR
5	Artificial Intelligence (AI)	For example: ChatGPT, Claude, Perplexity
6	Gamification	For example: Kahoot!, Class craft
7	Cloud-Based Solutions	For example: Google Drive, Microsoft OneDrive, Dropbox
8	Data Analytics	For example: Tableau, Power BI, Canvas Analytics, Moodle Analytics

Source: Kumari (2026) and Table drawn by ChatGpt

Problems and Challenges of Technology Integration in Education

Although technology offers significant advantages in education, both teachers and students frequently encounter challenges, particularly in low-income and resource-constrained countries such as Nepal. Limited device access and reliable internet are common constraints that hinder effective use of digital tools and learning platforms (Adhikari, 2021). Low-income children lack access to devices and the internet, exacerbating the digital gap (Becker, 2000). Nkhata et al. (2021) reveal that cultural beliefs influence instructors' willingness to use digital technology in rural South Africa. Institutional barriers, such as rigid curricula and a lack of administrative support, impede teaching innovation. Flexibility and technological innovation are constrained in Nepal due to tight budgets and curricula in public schools (Poudel, 2020).

This stresses the need to consider local cultural contexts and raises the prospect that Nepal's diverse educational system may face similar obstacles when seeking to employ technology-mediated transformative strategies. Teachers who have received insufficient training are found to be less confident and competent in using technology effectively, affecting teaching quality and learning outcomes (Rabah, 2015). Some strategies are also suggested to face such challenges. A joint strategy can address infrastructure issues in Nepal, where resources are few, allowing schools to successfully enhance instruction and learning (Poudel, 2020). By using these approaches, Nepali teachers may create flexible, resourceful learning environments that had better suit the requirements of their pupils by methodically integrating technology.

Context of Namuna Schools of Nepal and Technology Integration Policy

To enhance public school education by constructing *Namuna Schools* (model schools) with technology and facilities that emphasize ICT, science, math, and English, the Nepali government has been working with the Asian Development Bank and other partners (Asian Development Bank, 2022). To improve teaching quality and student engagement, particularly in rural locations, certain Nepali *Namuna Schools* have integrated online platforms, multimedia materials, and digital learning technologies (Subedi & Pant, 2019).

Regarding policies related to technology in education, Nepal's National Education Policy emphasizes the use of technology in the classroom. The goal of supporting policies like the Digital Nepal Framework (2020), School Sector Development Plan (2016–2023), and ICT in Education Master Plan (2013–2017) is to integrate ICT at all educational levels. ICT training for teachers, improving school facilities, and encouraging student-centered, interactive learning are among the objectives. The goals of the ICT Master Plan are still crucial as schools continue to adjust to new technology, even if its timeline has finished (Ministry of Education, 2022; Government of Nepal, 2020). The increasing awareness of the value of technology in Nepali education is reflected in these policy regulations.

Systems Theory: A Theoretical Perspective

In school organization, systems theory posits that the relationship between technology practice and perceived challenges involves interconnectedness and interdependent 'inputs, processes, and outputs' (Harney, 2024). In this study, availability, access, and usability of technology in teaching and learning represent inputs and process which collectively enhance the students' learning outcomes as outputs. In this techno era variety of digital technologies in education that students can use inside or outside the schools. Computer, Projectors, Video/Camera, TV, Radio/FM, or Smart board, with internet and power backup are general digital facilities concerning the digital technology in the schools.

The digital technologies can be used as teaching aids as an alternative to traditional teaching (teacher-centered) aids like chalkboard, hard books, and concrete materials. Besides these digital aids, different digital learning platforms, software, or applications can be used as a transforming teaching (student-centered) approach in onsite, online, or blended mode. The smooth functioning of technology promotes students' learning, it creates challenges. When these inputs or processes are inadequate, they generate challenges in technology use as a byproduct of the system. From the system theory perspective, the challenges of using technology can be understood as the by-products of weak inputs and ineffective processes of technology in the schools, which is also a hypothetical statement for this study

Methods

Under a quantitative research design, the survey method is employed considering 'a generalizable sample size' (Cohen et al., 2018) of the grade 9 and 10 students of two *Namuna Schools* of Dhankuta district, which is located in the eastern hillside of Nepal. In this district, there are 461 students in the grades (Source: CEHRD, 2025). Using Yamane's (1973, p. 727) formulae, the sample size (n) was determined as 215.

A survey questionnaire is constructed based on existing literature, like Eslit (2023), Wang et al. (2021), Abubakar and Tukur (2015), and other similar literature. The questionnaire (in Nepali version) includes three components of technology integration related questions that consist of 35 items. Two experts reviewed the questionnaire. After its validation, 12 items in *Availability of Technology*, 12 items in *Access to Technology*, 8 items in *Usability of Technology*, and 3 items in challenges-related questions were included in the questionnaire. The survey questionnaire is prepared in 5-point Likert scale. Besides these, demographic information of the respondent students: gender, grade, and ethnicity are also included in a separate section. The consistency of the questionnaire is also ensured using reliability through a pilot test conducted in a *Namuna School* of Kathmandu district. The result is as follows:

Table 2: Cronbach Alpha for Reliability Test of Technology-Integration in Learning Survey Items

Technology-Integration in Learning	No. of Items	Cronbach's Alpha
Availability of Technology	11	0.894
Access to Technology	11	0.924
Usability of Technology	8	0.734
Average of Technology Integration in Learning	30	0.948
Average Challenges of Technology in the schools	3	0.600

The values of Cronbach's alpha at the level of acceptance, which are more than .60 (Cohen et al., 2018). After a round of self-review with respect to its physical aspects, such as font, font size, and the possibility of difficulty level of understanding the items, a final set of questionnaires was developed to use for the final survey. The data were collected using cluster random sampling in which a hillside district was first randomly selected, followed by the selection of a *Namuna* school. Reason behind the use of cluster sampling, the schools are geographically scattered and located in similar ecological regions (Cohen et al., 2018) which covers around 68% of the land and 40% of the population (National Statistics Office, 2021). As the available students of grade 9 and 10 did not the minimum sample size, another school was selected in a similar process. All the students of grade 9 and 10 of the second school met the predetermined sample size. Finally, after cleaning the data, 254 questionnaires were included in the analysis. The data collected from the field were analyzed using both descriptive and inferential statistics.

To safeguard participants and preserve data integrity, ethics and safety concerns was given top priority in research. Getting informed consent from the schools, teachers and student participants is a crucial ethical step (Creswell & Poth, 2018). In order to safeguard students from improper material and data privacy breaches, the research examined possible hazards to participant safety, specifically with regard to digital tools and online platforms (Johnson, 2014).

Result

Table 4: Status of Technology Practice in Namuna Schools

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Availability of Technology	254	2.79	0.65	-0.05	0.15	-0.33	0.30
Access to Technology	254	2.64	0.83	0.01	0.15	-0.78	0.30
Usability of technology	254	3.64	0.60	-0.83	0.15	1.82	0.30
Aggregate of Technology	254	3.02	0.56	-0.15	0.15	-0.20	0.30
Valid N (list-wise)	254						

From the table 2, the mean of overall status of technology practice is slightly more than '3' which represent 'undecided' or slightly toward 'agreed' level (mean = 3.02), the

The data were entered into SPSS, and the database was cleaned by addressing non-responsive items and outliers. Then, both descriptive and inferential statistics were employed to obtain the results. First, the demographics of the 254 respondents were analyzed, followed by the status of technology practice and challenges in the schools. Then, the challenges were explained in relation to the status of digital technology in the schools as follows:

Respondents' Demography

Respondents' demography: Gender, Grade, and Ethnicity are analyzed using frequency and percentage as follows:

Table 3: Respondents' Demography

Demography		Frequency	Percent
Gender	Male	115	45.3
	Female	139	54.7
	Total	254	100.0
Grade	Grade 9	101	39.8
	Grade 10	153	60.2
	Total	254	100.0
Ethnicity	Bhramin/Chhetri	82	32.3
	Janajati	159	62.6
	Madhesi	1	0.4
	Dalit	11	4.3
	Others	1	0.4
	Total	254	100

In the sample, female students have higher participation rate, that is similar to the population distribution across gender (91.49 Male per 100 Female) as per the census of National Population and Housing Census 2021 (National Statistics Office, 2023) *Janajati* students have dominant ethnic participation as *Janajati* people reside in majority in the district that normally reflects in this sample, and followed by *Bhramin/Chhetri*, and *Dalit* caste.

Practice of Technology in Namuna Schools: To find the status of the practice of technology in *Namuna Schools*, 5- point Likert scale was used; however, five points were changed into three levels: Lower (1,2), Neutral (3), and High (4 and 5) for the analysis.

responses on it moderately scatter (s. d. = .56). Regarding the components of technology practice, availability of technology in the schools was assessed in five scales (1: not

availability at all, 2: availability to a small extent, 3: not sure, 4: availability to a greater extent, 5: fully availability). As aforementioned, the analysis is made in three scales: low, not sure about, and high level of availability of technology in the schools. From this criterion, in average, there seems a low level of availability of technology in the schools (mean = 2.79) which is representative response at moderate level (SD = .65). However, the mean score is more than scale '2' and closer to '3' that indicates, respondents are tending to 'not sure' to say the availability of the technology in their schools,

In the similar criterion of the analysis of 'access of technology', the respondent students have low level of access of technology (mean = 2.64) which is also lower than the availability of technology and consistency of responses is at moderate level (SD = .83). This SD indicates, there is no uniform access of technology to all students, and further, all available technologies are not available to all as mean of 'access of technology is lower than the 'availability of technology' at schools. In 'usability of technology',

respondents rated at a higher level (mean = 3.64), which is closer to '4' that indicates, indicating they have realized the use of technology where responses are more consistent as compared with others (SD = 0.60).

The values of skewness and kurtosis across 'availability of technology' and 'access to technology' 0) indicate, responses are almost symmetric (normal) as both values lie between -2 and +2, (Meinert, 2011), and the respective values of kurtosis (-0.331, -.779) indicate, slightly flat, and negative however it is closer to normal as both vales lie in between +2 and -2.

Challenges of Technology

Concerning the 'Challenges of Technology' in the schools, three statements were asked to rate into one of the five scales (from strongly disagree to strongly agree). In the statements, challenges of using audio-video related technology, in 2, internet-assisted technologies, and multimedia assisted technologies were included.

Table 5: Status of Challenges of Technology

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
1. Challenges in using Audio-video assisted learning in the classrooms	253	2.59	1.18	0.19	0.15	-0.93	0.31
2. Challenges in internet assisted learning	254	2.95	1.22	-0.01	0.153	-0.90	0.30
3. Challenging in multimedia-based learning	254	2.90	1.35	-0.12	0.153	-1.28	0.30
4. Average Challenges of Technology	254	2.81	0.92	-0.00	0.153	-0.58	0.30

The table 3 presents the challenges faced by the teachers and students in using technology-based teaching and learning in *Namuna Schools* of eastern hillside of Nepal. The statistical values (mean = 2.59, SD = 1.18) indicate that respondents slightly lean towards low to moderate level of challenges in using audio-video technology in classrooms. Regarding 'Challenges in internet assisted learning' scores (mean = 2.95, SD = 1.22) close to '3', that indicate, respondents are moderately challenged or uncertain with internet-based technology in the schools. The values 'Challenging in multimedia-based learning' mean = 2.90, 1.36) indicate some challenges in using multimedia, such as smartboard, projector, and interactive multimedia.

Regarding response distribution, the values of skewness indicate a slight skewness. In the distribution, in audio-visual technology, the responses are slightly positive whereas they

are slightly negative in others (values: 0.19, -.01, -0.12, average = -0.00). In kurtosis, the values (-.93, -.89, -1.28, average = -0.58) show a flat distribution. In both skewness and kurtosis, the values lie between +2 and -2 that show they're approximately a normal distribution of responses toward challenges of using technology in the schools.

Relationship between Practice and Perceived Challenges of Technology in *Namuna Schools*

Before examining the relationship between practice and perceived challenges of integrating technology in *Namuna Schools*, some assumptions: normality, linearity and homoscedasticity are tested where *Perceived Challenges of Technology* as a dependent variable and *Practice of Technology* as independent variable. Regarding normality, it is at acceptable level as presentation the tables 2 and 3. The results of other two assumptions are presented below:

Table 6: Test of Linearity

ANOVA Table			Sum of Squares	df	Mean Square	F	Sig.
Challenges of Technology * Aggregate of Technology Practice	Between Groups	(Combined)	194.892	194	1.005	3.127	0.000
		Linearity	8.503	1	8.503	26.469	0.000
		Deviation from Linearity	186.389	193	0.966	3.006	0.000
	Within Groups		18.954	59	0.321		
	Total		213.846	253			

The linearity from ANOVA, table 4, shows the significant linearity between perceived challenges of technology and practice of technology in the schools as $p = .000 < .05$ (5%) where $F = 26.469$, however, deviation from linearity is also significant. Finally, it is considered to be assumed as the linearity between the variables at a moderate level.

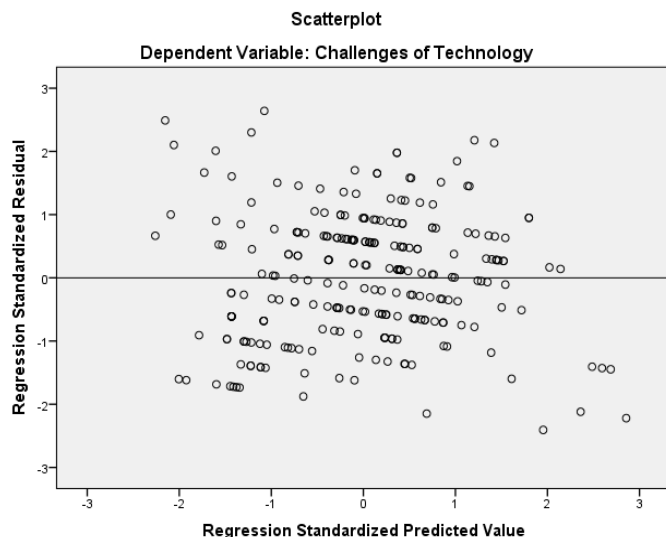


Figure 1: Challenges of Technology

Table 5 shows that the scatter of residuals appears roughly constant across all predicted values, and the points are

randomly scattered around the horizontal line (0). This result indicates that homoscedasticity is satisfied. After satisfying undelaying assumptions, regression analysis is conducted to examine whether practice of technology explains the perceived challenges of technology in the schools. In the analysis, gender (male recoded by '1' with reference to, wrt, female students recoded by '0'), grades (grade 10 recoded by '1', with reference to grade 9 recoded by '0'), and ethnicity (*Janajati* students recoded by '1' with reference to *Bhramin/Chhetri* and others recoded by '0') are used as control variables.

Dependent Variable: Challenges of Technology

Table six shows the coefficients of regression analysis of technology practice on perceived challenges where students' gender, grade and ethnicity are control variables. The results show, technology practice significantly explain the perceived challenges of technology ($p = .001 < .05$), indicating that decreasing the practice of technology practice increases the perceived challenges. When one-unit practice of technology decreases, perceived challenges increases by $-.361$ units while controlling the effects of gender, grade and ethnicity of students. Regarding the variables: gender and ethnicity of students, they are insignificant explanatory variables however grade seems moderately explanatory variable as $p = .056$ closer to $.05$ that explains, grade 10 students tend to slightly perceive more challenges in technology use as compared with others.

Table 7: Coefficients of Regression Analysis of Technology Practice on Perceived Challenges

Model B		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	4.056	0.348		11.671	0.000
	Integrating Technology	-0.361	0.103	-0.221	-3.493	0.001
	Male wrt Female Students	0.103	0.115	0.056	0.900	0.369
	Grade 10 wrt grade 9 students	-0.224	0.115	-0.120	-1.946	0.053
	<i>Janajati</i> Students wrt <i>Bhramin/Chhetri</i> and others	-0.098	0.120	-0.051	-0.815	0.416

Discussion

Overall findings indicate that students' perception of technology remains at 'undecided level'. This suggests that students are uncertain about the extent to which technological facilities are available in schools, their level of access to these resources, and the ways in which such technologies are utilized to support learning. However, a contrasting pattern emerges in the eastern hillside *Namuna* Schools. In this context, students demonstrate clearer perceptions, indicating that technological resources are limited in availability and accessibility to only a small proportion of students. Despite these constraints, students agreed with the usability of available technologies in their learning. These results are consistent with the findings of Singh (2019) in the Nepali schools. Similarly, Burns (2025) reports comparable challenges in Sub-Saharan African schools, particularly in relation to access, quality, and equity in technology practice.

When item-wise analysis was carried out across the components of technology practice in the schools, some positive aspects were also observed, as the mean score is '4' or more, which indicates that the digital resources are available to most of the students. For example, computers, digital camera (CC TV), and reliable power supplies such as electricity or a generator are available at schools, which justified the evaluation report of CEHRD (2024). Further, the students perceive, only a few of other digital technologies, supporting teaching and learning digital resources, like AI tools like ChatGPT, Google Gemini, QuillBot, Canva use of Learning Portal of CEHRD, learning platforms such as Moodle, Coursera, Google Meet, Zoom, MS Teams, Google Classroom, e-library, e-books or articles, learning portals, or brewers are neither available nor access to the students as they responded the scales of 'a few of them available at schools' and access to lower than the availability. Despite the availability and accessibility of technology at schools,

they are taking advantage of the technology that might be available at home or other resources. They are confident that they benefit more from the modern learning with the support of technology rather than traditional approach of learning. They have positive impact of technology on their learning as well.

Students perceive that there are challenges in the use of technology; however, they do not consider the lack of technology to be a major barrier to their learning. The relationship between technology practice and its associated challenges is found to be inverse, indicating that lower levels of technology practice are associated with higher levels of challenges perceived by the students in their learning processes. The lens of system theory, which reveal, inadequate inputs and weak process produce challenges of technology practice, ultimately affecting learning outcomes (Harney, 2024), can interpret this relationship. Further, it is the hypothesis that proper and sufficient practice technology reduces the challenges associated with its use. As discussed earlier, inadequate or ineffective practice of technology, may create various problems, issues or challenges for the students of Namuna schools located in the eastern hillside of Nepal.

Conclusion

This study on technology practice and their challenges in eastern hillside *Namuna Schools* of Nepal identifies three aspects: availability and access to technology, usability of technology in learning processes, and challenges experienced by students. The findings indicate that the objective of establishing *Namuna Schools* to be adequate infrastructures, including ICT facilities, has been partially achieved, particularly at the level of basic infrastructures. Moreover, schools and teachers have made limited progress in transforming student learning through technology. The evidence concludes that digital resources are largely used as substitutes for traditional teaching aids rather than as tools for fostering transformative student-centered learning. Despite the limited availability of technology resources, students perceive a clear need for technology in learning; however, they do not perceive these limitations as a significant barrier to their learning outcomes.

Implications

Students feel a need for the integration of technology in their learning. In response, schools and teachers can enhance the learning environment through the effective use of digital platforms and e-learning resources, both within schools and at home. Achieving the requires, a collaborative effort among schools, students, parents, local and federal government agencies, and other supporting stakeholders is essential. Such coordinated engagement can help foster motivation for learning and mitigate the challenges associated with the technology practice, particularly for students in *Namuna Schools*.

Authorship

With the primary contribution of the first author, this

manuscript has reached its present form, particularly through leading the writing of the introduction, literature review, data analysis, and discussion. The second author contributed mainly to the development of the questionnaire, data collection and entry, literature review, and assistance in report writing. The third author contributed to the translation of the questionnaire, data entry and analysis, and formatting and editing of the manuscript.

Acknowledgements

This study was conducted as a part of the Faculty Research project funded by the University Grants Commission, Sanathimi, Bhaktapur.

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