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Impact of EdTech on Student Learning: Integration, Motivation, Literacy and Support

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Abstract

Purpose: This study examines the impact of educational technology on students' learning outcomes, focusing on technology integration, student motivation and engagement, digital literacy, and institutional support and policies.

Design/Methodology/Approach: Using a quantitative research design, data were collected from 317 students in Kathmandu Valley through purposive sampling. Regression analysis was conducted to evaluate the effects of these variables on learning outcomes.

Findings: Results indicate that technology integration, student engagement and motivation, digital literacy, and institutional support and policies significantly and positively influence student learning outcomes.

Implications: Insights from this study assist educational stakeholders in formulating effective strategies and policies to enhance technology use in learning environments, ultimately improving student experiences and outcomes.

Originality: Grounded in engagement-driven technology integration and collaborative learning theories, this research offers novel empirical evidence on multiple factors affecting digital learning platforms and their role in student achievement, contributing to emerging literature in educational technology.

Keywords: technology integration, digital literacy, student engagement and motivation, learning outcomes, institutional support

Introduction

The rapid development of information and communication technology (ICT) has profoundly transformed multiple sectors, including education. The integration of educational technology (EdTech) plays a critical role in enhancing student learning outcomes by complementing and supporting traditional teaching and learning practices. Bester and Brand (2013) asserted that technology enables students to set learning objectives, formulate hypotheses, and evaluate their validity effectively. Empirical evidence indicates that student performance is significantly influenced by technology-enhanced education. Furthermore,

perceived usefulness and ease of use of educational technology have a substantial impact on student achievement (Murad et al., 2019).

The unprecedented emergence of EdTech has revolutionized pedagogy worldwide, offering abundant opportunities for collaboration and coordination that enrich educational experiences (Rahimi & Oh, 2024). The increasing prominence of educational technology in diverse learning environments has attracted considerable scholarly interest internationally (Akram et al., 2022; AlAjmi, 2022). Consequently, research focus has shifted toward understanding the extent to which EdTech enhances student learning outcomes and identifying prerequisites for successful technology adoption in educational contexts.

In Nepal, educational technology integration has markedly increased since the COVID-19 pandemic. According to the Nepal Telecommunication Authority, internet penetration rose from 72.9% in 2019 to 86.2% in 2023, expanding access to online learning resources (UNESCO, 2023). By 2023, approximately 45% of schools utilized digital instructional materials, with around 65% of the population engaging with mobile devices for educational purposes. Despite these technological advances, challenges remain regarding data privacy, technical issues, and the risk of exacerbating educational inequities due to uneven access to digital infrastructure (Hussain et al., 2024).

Although digital learning tools and platforms are increasingly prevalent, their impact on educational outcomes remains contested. Some studies emphasize that EdTech fosters student engagement and enables personalized learning, leading to improved outcomes. However, Bergdahl et al. (2024) warn that improper reliance on such tools may encourage superficial comprehension and hinder the development of critical thinking.

The adoption of EdTech in Nepal offers promising opportunities alongside notable impediments. Investments in digital tools have increased, yet clear evidence linking these technologies to improved student performance is limited. The effectiveness of EdTech is often context-dependent; students in regions with limited internet access or insufficient devices may not fully benefit (Rodriguez-Segura, 2022). Moreover, access alone does not address the challenges educators face in effectively integrating technology. Without adequate training and infrastructure, EdTech can complicate rather than simplify pedagogical processes (Hyndman, 2023).

This study investigates whether EdTech enhances student learning outcomes amid its expanding role in facilitating teaching and learning across diverse educational settings. It acknowledges that multiple factors may influence these outcomes, exerting direct, indirect, positive, or even negative effects. The study is framed in light of Mishra (2025), who emphasizes the importance of strategic integration and assessment of educational technologies to optimize learning benefits.

Research Objective

To investigate the impact of technology integration, student engagement and motivation, digital literacy, and institutional support and policies on the learning outcomes of students in Kathmandu Valley.

Literature Review

Educational technology (EdTech) has emerged as a transformative catalyst in education globally, fundamentally reshaping teaching and learning processes through digital tools such as computers, tablets, interactive whiteboards, educational software, and e-learning platforms. These technologies aim to enhance student engagement, motivation, and overall academic effectiveness. Empirical studies consistently show that EdTech can improve learning outcomes by fostering essential skills like critical thinking, collaboration, and creativity, while also personalizing learning experiences to cater to individual needs and pacing (Criollo-C et al., 2023; Rahimi & Oh, 2024). However, the effectiveness of EdTech depends heavily on factors including the

nature of the technology, pedagogical integration by educators, and learners' socio-economic status, which influence access and usability (Haleem et al., 2022).

Learning outcomes encompass measurable gains in knowledge, skills, and competencies, extending beyond academics to include analytical reasoning and teamwork (Wang, 2024). In Nepal, innovative digital interventions such as virtual labs have proven particularly beneficial in STEM education, yet barriers like inequitable technology distribution and varying digital literacy levels hinder equitable benefit across regions (Demmers et al., 2020; Joshi & Khatiwada, 2024; Rana, 2023). These constraints are aggravated by infrastructural challenges, including inconsistent electricity and limited training for teachers, especially in rural areas (Huq Shamim et al., 2024).

Digital literacy—students' ability to navigate, evaluate, and use digital tools effectively—is increasingly recognized as a critical prerequisite for benefiting from EdTech. Despite rising internet penetration (UNESCO, 2023), many students grapple with inadequate skills and infrastructure, accentuating the digital divide (Phyak et al., 2019). Bridging this gap is essential to optimize how technology enhances learning.

Student engagement and motivation are vital mediators of EdTech's impact on learning. Interactive and gamified platforms can significantly boost participation and drive academic success (Urhahne & Wijnia, 2023; Nivedhitha, 2022). However, challenges such as limited infrastructure and uneven access complicate scaling these benefits across Nepal's diverse educational landscape (Suman, 2023).

Successful technology integration requires strategic implementation incorporating adaptive software, learning management systems, and virtual learning environments aligned with curricular goals (Mdhlalose, 2023; Haleem et al., 2022). Institutional support—including financial investment, infrastructure, and professional development—is critical to overcoming barriers and enabling sustainable, equitable adoption of EdTech (Mdhlalose, 2023). Nepal's policies like the ICT in Education Master Plan exemplify efforts to enhance digital education but face ongoing resource disparities (Mishra, 2024).

Socio-emotional considerations also matter: research highlights that purely digital learning may increase student isolation, recommending hybrid models that balance online tools with interpersonal interaction for holistic development (Hutasuhut et al., 2022; Kokoç, 2019).

In sum, while research affirms EdTech's capacity to significantly enhance learning outcomes—through improved engagement, personalized instruction, and development of 21st-century skills—the realization of its full potential in Nepal requires addressing infrastructural deficits, digital literacy gaps, equitable access issues, and teacher competency development. Coordinated policy interventions, targeted investments, and culturally sensitive implementation strategies are imperative to bridge the digital divide and foster inclusive educational progress (Mishra, 2023; Huang et al., 2024).

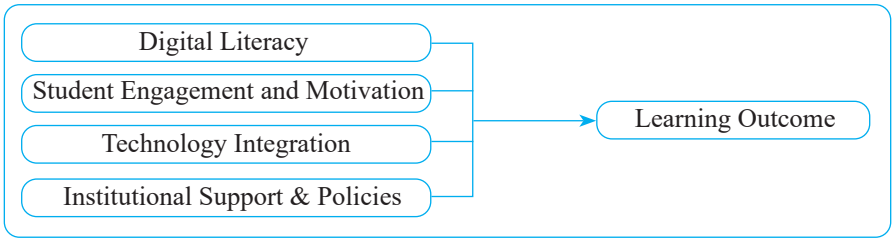
Conceptual Framework

The contemporary educational systems have recognized the fact that technology integration is fundamental component for enhancing academic achievement (Nantha et al., 2024). On the basis of engagement-driven technology integration theory (EDTIT) and collaborative learning engagement theory (CLET), this research examines five key variables: digital literacy, learner engagement and motivation, technology integration in pedagogy, institutional support & policies, and learning outcome for the purpose of exploring the subject matter of the study. EDTIT argues that effective technology use in education hinges on student engagement, which in turn improves student learning outcomes (Demmers et al., 2020; Zhang et al., 2019). According to this theory, when technology is combined with teaching methods that encourage

interaction and motivation, it can cultivate an interactive and stimulating learning atmosphere that enhances student involvement. Furthermore CLET emphasize on collaborative learning which will eventually enhance learner engagement and the learning outcome (Lowyck & Poysa, 2001). The interconnected study variables collectively shape how students obtain, assimilate, and utilize knowledge in digital learning environments. The incorporation of technology signifies enhanced instructional methodologies, and institutional backing encompasses both physical resources and governing protocols that facilitate digital education (Chuaphun, & Samanchuen, 2024).

Figure 1

Conceptual Framework



Note. Enhancing student learning outcomes Aljehani, (2024)

Methodology

Research Design

This study used a quantitative method for data collection and analysis. Quantitative approach seeks to measure data systematically and explore results from a representative sample across diverse viewpoints (Ghanad, 2023). This approach involves gathering, examining, and interpreting numerical data to validate hypotheses formulated within a particular study. Grounded in empiricist and positivist principles (Bryman, 2007), quantitative methodology emphasizes structured data collection and statistical analysis, prioritizing theory testing through objective, logical processes.

Population, Sample Size and Sampling Method

According to data from the University Grants Commission (2024) of Nepal, the country's higher education institutions currently serve 633,053 enrolled students. At the primary and secondary education levels, enrollment figures reach approximately 7.47 million students nationwide. The target population of this study were the students from the school and college that has used education technology for the purpose of teaching learning process.

This study employed non-probability purposive sampling to ensure the rightful representation of respondents and also randomization is not possible because of the size of the population (Etikan et al., 2016). Respondents were required to possess prior experience with technology-enhanced education, including digital classrooms, e-learning platforms, or interactive instructional software. To examine potential disparities in technology access and utilization, schools were strategically

Research Instrument and Data Collection

The study employed a structured questionnaire adopted from Aljehani, (2024), self-administered through both email (Google Forms) and printed formats, to gather responses from the target population. The questionnaire divided into two distinct section including demographic information and variable specific questions with 5 point Likert scale ranging from 1 strongly disagree to 5 strongly agree. Software like SPSS and Microsoft Excel were used to organize and analyze the data which helps to make easier to understand the results.

The total of 406 distributed questionnaires, 370 were returned. Following initial screening, 31 incomplete responses were excluded from analysis. Additionally, 22 questionnaires were identified as duplicates and subsequently removed. Consequently, the final dataset comprised 317 valid responses, which were utilized for subsequent analysis. The data were collected from November 2024 to March 2025 from the schools/colleges within Kathmandu Valley.

Ethical Considerations

Ethical issues remain paramount to ensure that research involving human subjects maintains validity, integrity, and transparency. In this context, a number of steps were followed to ensure that ethics were maintained during the research process. Free and informed consent was sought from all respondents after having clearly explained the purpose and aims of the study, and how the data collected would be used. Participants were made aware that their involvement in the study was completely voluntary and that they could leave at any moment without having to give a reason or fear of consequences.

Results and Discussion

Demographic Profile of the Respondents

This section represents the demographic distribution of respondent's including gender, education and age. Refer to table 1.

Table 1

Demographic Information (Respondents N =80)

Variables	Frequency	Percentage (%)
Gender		
Male		
Female	142	44.8
Education		
High School	109	34.4
Bachelor's	156	49.2
Masters and Above	52	16
Age (in Year)		
15-20 Years	123	38.8
21-25 Years	120	37.85
26-30 Years	60	18.9
30 + Years	14	4.4

As presented in table 1, the gender distribution among the 317 study participants showed a predominance of male respondents (55.2%) over female respondents (44.8%). Regarding educational attainment, bachelor's degree students constituted the largest subgroup (49.2%), followed by high school students (24.4%), with master's degree students and above comprising the smallest proportion (16%). Age distribution analysis revealed that the 15-20 years (38.8%) and 21-25 years (37%) cohorts represented the majority of participants, with remaining age groups accounting for the balance.

Descriptive Statistics, Correlation and Internal Consistency

The descriptive statistics is used to summarize the data so that some meaningful information can be extracted. It supports to describe the key

characteristics or features inherited in the collected information. Furthermore, it is instrumental in any quantitative analysis and sets the foundation tone for inferential analysis to draw a meaningful conclusion (Green et al. 2023). In a similar way correlation analysis shows the correlation between study variables. Internal consistency of the instrument is measured using Cronach's alpha.

Table 2

Descriptive Statistics, Correlation and Internal Consistency

Construct	Mean	Standard Deviation	1	2	3	4	5
1. DL	3.627	0.912	*0.826*				
2. SEM	3.689	0.802	.878**	*0.729*			
3. TI	3.712	0.923	.863**	.912**	0.712		
4. ISP	3.532	0.974	.805**	.817**	.808**	*0.801*	
5. LO	3.654	0.894	.836**	.871**	.881**	.806**	*0.894*

Note. Based on authors' calculation; ** 0.01 level (2-tailed); diagonal values in italics are the Cronbach's alpha values; DL: Digital literacy; SEM: Student engagement and motivation; TI: Technology integration; ISP: Institutional support and policies; LO: Learning outcome

Table 2 presents the descriptive statistics and correlations among the study variables: Digital Literacy (DL), Student Engagement and Motivation (SEM), Technology Integration (TI), Institutional Support and Policies (ISP), and Learning Outcomes (LO). The mean scores and standard deviations were as follows: DL (M = 3.627, SD = 0.912), SEM (M = 3.689, SD = 0.802), TI (M = 3.712, SD = 0.923), ISP (M = 3.532, SD = 0.974), and LO (M = 3.654, SD = 0.894).

These results suggest that students leaned toward agreement though not overwhelmingly on items related to digital literacy (DL: M = 3.627), engagement and motivation (SEM: M = 3.689), and learning outcomes (LO: M = 3.654). However, the standard deviations (SDs), which ranged from 0.802 (SEM) to 0.974 (ISP), reveal notable variability in responses, particularly for ISP and TI (SDs > 0.9). This implies that while most students agreed, opinions were more polarized on institutional support and technology integration, with some strongly agreeing and others expressing neutrality or disagreement. The lower SD for SEM (0.802) suggests greater consensus around engagement and motivation, highlighting areas where institutional practices might be more consistently effective or, conversely, where disparities in digital access or policies create divergent student experiences.

The correlation analysis revealed significant positive relationships at the 0.01 level (2-tailed); DL showed strong correlations with SEM (r = .878), TI (r = .863), ISP (r = .805), and LO (r = .836). Similarly SEM also has high level of correlation with TI (r = .912) and ISP (r = .817), and strongly linked to LO (r = .871). TI demonstrated significant relationships with ISP (r = .808) and LO (r = .881). Furthermore ISP was positively associated with LO (r = .806).

The diagonal values (italicized) represent Cronbach's alpha reliability coefficients, ranging from 0.712 (TI) to 0.894 (LO). Abraham & Barker (2014) states that Cronbach's alpha value 0.7 or above is considered acceptable and is good indicator of internal consistency.

Table 3

Regression Analysis

	Unstandardized Coefficients				95% Confidence Interval for B					
	B	Std. Error	t	Sig.	Lower Band	Upper Band	R Square	Adjusted R Square	F	Sig.
(Constant)	0.291	0.093	3.13	0.002	0.108	0.473	0.719	0.717	353.865	<.001b
DL	0.124	0.051	2.424	0.016	0.023	0.225				
SEM	0.248	0.066	3.374	<.001	0.117	0.378				
TI	0.393	0.061	3.398	<.001	0.272	0.514				
ISP	0.164	0.043	3.804	<.001	0.079	0.248				

Note. Based on authors' calculation; DL: Digital literacy; SEM: Student engagement and motivation; TI: Technology integration; ISP: Institutional support and policies; LO: Learning outcome

A regression analysis was conducted to assess the influence of four independent variables Digital Literacy Level, Student Engagement and Motivation, Technology Integration, and Institutional Support and Policies on the dependent variable (Learning Outcomes). The model demonstrated strong explanatory power, with an R^2 value of 0.719 indicating that 71.9% of the variance in Learning Outcomes was accounted for by these predictors. The adjusted R^2 (0.717) confirmed the model's reliability after accounting for the number of predictors.

The results revealed a highly significant collective impact of these variables on Learning Outcomes ($p < 0.001$), supported by a strong correlation coefficient ($R = 0.881$). This robust statistical evidence underscores the critical role of digital literacy, student engagement, technology integration, and institutional policies in shaping educational outcomes. Consequently, these factors should be prioritized in initiatives aimed at improving learning effectiveness.

Hypothesis Testing

Hypothesis testing is the statistical procedure applied to evaluate assumptions or claims about a population based on sample data. It provides the proper analysis of observed differences between groups or variables that could be real or just by chance. This allows the researcher to draw a reasonable conclusion from the relationship of variables under study. In this research also, four hypotheses have been evaluated to establish a relation between the dependent and independent variables.

Table 4

Summary of Hypothesis Testing

Hypothesis	Sig.	Remark
H1: Digital literacy has significant impact on learning outcome of the students	0.016	Accepted
H2: Student Engagement and motivation significantly impact learning outcomes of the students.	<.001	Accepted
H3: Technology integration has significant influences in learning outcomes of the students.	<.001	Accepted
H4: Institutional support and policies has significant influence in learning outcome of the students.	<.001	Accepted

H1: Digital literacy has significant impact on learning outcome of the students

The study reveals a strong connection between digital literacy and academic performance essentially, students with stronger digital skills tend to achieve better learning outcomes. Statistical analysis confirms this positive relationship, showing that for each level increase in digital literacy, learning outcomes improve by 0.124 points. This demonstrates that digital competence plays a meaningful role in academic success.

The results are statistically robust, with a t-value of 2.424 and significant p-value of 0.016 (below the standard 0.05 threshold), indicating this relationship is highly unlikely to be due to chance. Thus, hypothesis (H1) that greater digital literacy leads to improved academic performance/ outcome is accepted. As students develop digital competencies, they become better equipped to handle learning materials and consequently show enhanced academic achievement. These findings underscore the importance of fostering digital skills in educational settings.

H2: Student Engagement and motivation significantly impact learning outcomes of the students.

The regression analysis provides strong support for this hypothesis, showing a clear positive relationship between student engagement/ motivation and learning outcomes. The unstandardized coefficient (B = 0.248) indicates that for every single point increase in engagement and motivation, student learning outcome improves by 0.248 points, even when accounting for other factors. This relationship is statistically significant ($t = 3.374$, $p < 0.001$), meaning there's less than a 0.1% probability these results occurred by chance. The findings demonstrate that greater student engagement and motivation directly correlate with learning outcome.

The results confirm that second hypothesis (H2) is accepted, which highlight how increased involvement and motivation prepare students to actively participate in learning. These findings emphasize the need to create educational environments that foster student engagement and motivation to optimize learning outcomes.

H3: Technology integration has significant influences in learning outcomes of the students.

Hypothesis 3 Technology integration has significant influences in learning outcomes of the students. The regression analysis strongly validates this hypothesis, demonstrating a significant positive relationship between technology integration and learning outcome. With the beta coefficient (B = 0.393, the results indicate that each unit increase in technology integration corresponds to a 0.393 unit improvement in learning outcomes when other factors remain constant. This substantial effect size suggests that technological implementation exerts a powerful influence on student achievement. The highly significant statistical values ($t = 6.398$, $p < 0.001$) confirm this relationship is extremely unlikely to occur by chance.

These findings not only confirm H3 but also highlight technology integration as a crucial component of effective educational strategies. The results suggest that systematically incorporating technology into learning environments could substantially enhance student performance, underscoring its potential as a transformative element in modern education.

H4: Institutional Support and Policies have a significant effect on Learning Outcomes of Students.

The regression analysis confirms that Institutional Support and Policies (ISP) significantly enhance student learning outcomes. The results demonstrate that for every unit increase in institutional support, learning outcomes improve by 0.164 units when controlling for other variables. This positive relationship ($\beta = 0.170$) establishes ISP as a meaningful predictor of academic achievement. The highly significant statistical values ($t = 3.804$, $p < 0.001$) provide robust evidence that this effect is not due to random variation.

These findings validate Hypothesis 4 (H4), confirming that strong institutional frameworks and supportive educational policies create an environment conducive to improved academic performance. The results underscore how institutional initiatives serve as foundational elements that facilitate better learning outcomes. This suggests that investing in comprehensive support systems and well-designed educational policies is essential for optimizing student success.

Discussions

The findings of this study demonstrate significant relationships between key factors influencing student learning outcomes, namely digital literacy, student engagement and motivation, technology integration, and institutional support and policies. Notably, technology integration and student engagement emerge as critical drivers of enhanced learning outcomes. Effective integration of technology into the curriculum and pedagogical practices facilitates not only content delivery but also fosters interactive, personalized learning experiences that accommodate diverse learning styles, thereby deepening students' comprehension and knowledge retention (Tamim et al., 2011; Henrie et al., 2015). This aligns with prior research underscoring the multifaceted role of educational technology as a catalyst for improving educational achievement across grade levels and subject areas.

Student engagement and motivation are closely linked to active participation and cognitive investment in learning activities, which are essential for deeper exploration and mastery of subject matter (Chuang, 2014). As such, the synergy of pedagogical strategies with technology-mediated tools is imperative to cultivate sustained student involvement and intrinsic motivation, which translate into superior academic performance. This confirms the theoretical perspectives indicating that engagement-enhanced learning environments facilitate better student outcomes by promoting persistence, interaction, and critical thinking (Mishra, 2023).

While technology integration and student engagement serve as primary mechanisms, this study highlights the foundational role of digital literacy and institutional support systems. Digital literacy equips students with the necessary skills to effectively navigate, evaluate, and utilize digital tools, addressing the digital divide and empowering learners to fully benefit from technology-enhanced education (Phyak et al., 2019; Mishra & Nepal, 2022). Moreover, institutional leadership and coherent policy frameworks provide the essential scaffolding for sustainable technology adoption by ensuring resource allocation, staff training, and promotion of innovation (Kafa, 2025). This finding corroborates empirical evidence suggesting that institutional commitment significantly influences teacher receptiveness and the success of technology-based instructional initiatives, which in turn positively impact student learning outcomes (Mishra, 2022).

The dynamic educational landscape shaped by rapid technological evolution necessitates holistic and strategic approaches at the institutional level. Prioritizing seamless technology integration coupled with student-centered pedagogy, enhancing digital competencies, and fostering motivational learning environments form the cornerstone of such strategies (Mishra, 2024; Haleem et al., 2022). Additionally, continuous research and evidence-based practices are vital to iteratively refine and optimize educational technology applications tailored to contextual needs, thereby maximizing their positive impact on learning (Mishra & Jha, 2023).

In summary, an integrated framework that values technology integration, fosters student engagement, develops digital literacy, and is supported by robust institutional policies is essential to advancing meaningful learning outcomes in contemporary educational settings. Institutions in Nepal and similar emerging contexts must invest systematically in these domains to bridge existing gaps and fully harness the transformative potential of educational technology.

Conclusion

The study examines the relationship between digital literacy, technology integration, student engagement & motivation, institutional support & policies and the learning outcome of the students. Additionally, it reveals the impact of educational technology on students' learning outcome. The findings have highlighted that the technology integration into curriculum and pedagogical approach is instrumental for learning outcome. Furthermore technology integration is significant in enhancing student motivation and their engagement towards educational content and modalities as it facilitates in creating learner centric and engaging environment that promotes deeper learning. Student motivation & engagement with technology integration emerged as a crucial factors in enhancing overall learning outcome. Moreover, the study found significant role of institutional support and policies in technology integration into curriculum and pedagogical approaches, accumulation of related resources, fostering the learning environment for student engagement and motivation, empowering teachers for innovation in teaching learning practices. The explorative analysis and findings of the study provides valuable and evidences based insights for stakeholders for integration and optimization of educational technology for better students' learning outcome. As more and more educational technologies are emerging and educational institutions seeks to adopt those technologies, it is important to understand the factors that might influence learning outcome. Strategic approach in technology integration that facilitates student engaging & motivating pedagogies supported by institutional leadership and policies for empowerment of students and teacher in the dynamic digital learning platform can pave the way for better educational experience and learning outcome of the students.

Implications

This study intends to provide valuable & evidence based insights for educational stakeholders in regard educational technology and its application for better learning outcome of the students. Educational stakeholders including policy makers need to emphasize on integration of educational technology into pedagogical approach which is significant to enhance student learning in the ever emerging digital learning landscape. The integration of technology into pedagogy and curriculum need to consider the modalities and approach that best suits for student motivation and engagement. In the process of technology integration, it is important to emphasize on students and teacher empowerment in order to foster the innovative and engaging learning environment. In the process of adopting ever emerging educational technology; institutional leadership, support and policy for technology integration, empowerment of students and teachers must be intact with the need and requirement of dynamic & engaging digital learning landscape to promote better students' learning outcome.

The use of educational technology is not one stop solution for educational institutions to promote learning in digital world. Educational technologies should be adopted in a way that best fits their need and objectives, which is aligned with creating an enabling environment to integrate, emphasize on teacher training and curriculum development using technology to enhance student learning outcome.

Limitations

Student learning outcome may be the outcome of multiple factors apart from the factors considered in the study. Though findings of the study demonstrates significant relationship, contextual moderators likely to exist that could be examined using qualitative approach, longitudinal study needed to fully understand the evolving factors as technology keeps on changing. Also the subject wise and level of education wise analysis might give more comprehensive understanding of how educational technology might impact the learning outcome of the students. In context of Nepal different educational setting might have different implications in regard to use of technology and its impact on learning outcome, which could be new avenue for further research.

Moreover, future research can explore the influence of socioeconomic influences, geographic disparities, and student teacher relationship. The integration of such factors on the existing study variables; technology integration, student engagement & motivation, digital literacy, institutional support might provide more comprehensive understanding of how educational technology shapes student learning experiences in the broader and dynamic digital learning environment.

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