Report Writing on

TEACHERS' PERCEPTIONS OF ICT INTEGRATION AND ITS IMPACT ON TEACHING AND LEARNING AT NILKANTHA MULTIPLE CAMPUS

A Report Submitted to:

Tribhuvan University

Department of Education

In Partial Fulfillment of Requirement in

Research Project (Ed.472) for Bachelor Degree in Bachelor of Information and Communication Technology Education (BICTE)

By

Abhishek Shah

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Department of Education

BICTE Program

Nilkantha Multiple Campus

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LETTER OF RECOMMENDATION

This is to certify that the research report entitled “Teachers’ Perceptions of ICT Integration and its Impact on Teaching and Learning at Nilkantha Multiple Campus” has been prepared by Mr. Abhishek Shah, under my supervision. This report is submitted in partial fulfillment of the requirements for the BICTE degree under Tribhuvan University. The work is original and meets the academic standards of the program. I hereby recommend this research report for evaluation.

……..

Yuba Raj Subedi

Report Supervisor

Letter of Approval

The research report entitled "Teachers' Perceptions of ICT Integration and its Impact on Teaching and Learning at Nilkantha Multiple Campus"submitted by Mr. Abhishek Shah has been evaluated and approved by the undersigned members of the evaluation committee. We find the report satisfactory in its scope, methodology, and academic contribution, and it fulfills the requirements for the Bachelor of Research Project in the BICTE program.

Members of Evaluation Committee:

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Mr. Yuba Raj Subedi

Report Supervisor

_____

Mr. Prakash Shrestha

Head of Department

_____

Dr. Murari Adhikari

Campus Chief

_____

Prof. Narayan Belbase

External Examiner

Declaration

I hereby declare that this research report entitled " Teachers' Perceptions of ICT Integration and its Impact on Teaching and Learning at Nilkantha Multiple Campus ", is my original work and has been prepared under the guidance of my supervisor, Mr. Yuba Raj Subedi as per the guidelines provided by the Bachelor of Information Communication Technology in Education (BICTE) Program of the Department of Education

I affirm that this report is my original work, and all the information and data presented have been collected and analyzed through surveys and research. It has not been submitted to any other institution for the award of any degree or diploma. To the best of my knowledge, all the data, analysis, and content presented herein are authentic, and all sources of information have been duly acknowledged through citations and references.

Date:

Name: Abhishek Shah

Program: Bachelor of Information Communication Technology in Education (BICTE)

Department: Department of Education

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The contributions of all these individuals have been invaluable, and any shortcomings in this work are solely my own.

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Abhishek Shah

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ABSTRACT

This study investigated teachers' perceptions of ICT integration and its impact on teaching and learning at Nilkantha Multiple Campus. The research assessed faculty perceptions regarding the usefulness, ease of use, and institutional support associated with ICT adoption, while also exploring the influence of demographic factors such as age, teaching experience, and academic department.

A quantitative survey design was employed, utilizing a structured questionnaire grounded in the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Data were analyzed using descriptive statistics to summarize perception patterns, and inferential statistics (t-tests and ANOVA) were applied to examine group differences.

The findings reveal that faculty possess a strong positive perception of ICT's pedagogical value. However, this potential is critically constrained by severe infrastructural barriers, notably unreliable internet connectivity and inadequate technical support. Significant differences in adoption rates were observed based on departmental affiliation and teaching experience. The study concludes that strategic institutional investments in infrastructure and targeted professional development are essential for effective ICT integration. These insights offer valuable guidance for administrators and policymakers in enhancing technology-enabled education.

Keywords: ICT integration, teachers' perceptions, TAM, UTAUT, higher education, institutional support.

CHAPTER - I: INTRODUCTION

1.1 Background of the Study

In recent decades, the integration of Information and Communication Technology (ICT) in education has transformed teaching and learning processes globally. ICT tools such as digital content, learning management systems (LMS), multimedia presentations, and online collaboration platforms have enhanced accessibility, interactivity, and the overall quality of education (UNESCO, 2021). Studies indicate that effective ICT integration fosters student-centered learning, improves engagement, and supports personalized instruction (Tondeur et al., 2017a).

In Nepal, the government has recognized the importance of ICT in education through policies such as the ICT in Education Master Plan (2012–2017) and the National Education Policy (2019), which emphasize digital literacy and infrastructure development in schools and colleges(Ministry of Education, 2013). However, despite these initiatives, challenges such as uneven access to technology, insufficient teacher training, and limited institutional support persist, particularly in rural and semi-urban areas.

Nilkantha Multiple Campus, a public higher education institution in Dhading District, has introduced ICT tools such as computer labs, projectors, and internet-based communication platforms (e.g. Microsoft Teams, Moodle,) to modernize teaching practices. However, the actual impact of these technologies on pedagogy and student learning remains understudied. Teachers, as the primary facilitators of ICT integration, play a crucial role in its success. Their perceptions, attitudes, and challenges shape how effectively these tools are adopted in classrooms (Hennessy et al., 2005).

While several studies have explored ICT integration in Nepal, most have concentrated on school settings or urban colleges. There is a notable gap in understanding higher education teachers' perspectives in semi-urban contexts like Nilkantha Multiple Campus. This study seeks to fill that gap by assessing how teachers perceive ICT integration and how they believe it affects teaching and learning outcomes in their classrooms.

1.2 Statement of the Problem

Despite the growing emphasis on ICT integration in education globally and through Nepal's policies like the ICT in Education Master Plan (2012-2017) and National Education Policy (2019), its implementation at Nilkantha Multiple Campus remains inconsistent due to factors such as underutilization, resistance, or inadequate institutional support. Despite having basic ICT infrastructure, there is no systematic understanding of teachers' perceptions regarding its effectiveness, challenges, and impact on pedagogy. Existing research predominantly focuses on urban schools, neglecting semi-urban higher education contexts. Without examining these factors, the campus risks inefficient ICT use, wasted resources, and a misalignment between national digital education goals and actual classroom practices. This study addresses this gap by investigating teachers' perceptions of ICT integration, including its benefits, barriers, and influence on teaching and learning.

1.3 Objective of the Study

To analyze teacher’s perceptions of ICT integration in teaching and learning practices at Nilkantha Multiple Campus.

1.4 Research Questions

The study was guided by the following research questions:

a. How do teachers at Nilkantha Multiple Campus perceive the impact of ICT tools on student engagement, learning outcomes, and instructional efficiency?
b. What key benefits and barriers do teachers encounter in their use of ICT for teaching and learning?
c. Do demographic factors such as age, teaching experience, and academic department influence ICT integration?
d. What recommendations do teachers have for enhancing ICT integration in their classrooms?

1.5 Significance of the Study

This study provides crucial insights by centering on teachers' perceptions of ICT integration at Nilkantha Multiple Campus. As primary implementers, teachers’ acceptance, confidence, and perceived utility determine whether ICT enhances or hinders learning.

Practically, the research identifies actionable barriers (e.g., training gaps, infrastructure limitations) and benefits reported by teachers, enabling targeted interventions. For institutions, findings will guide investments in cost-effective technologies and support system aligned with faculty needs. Policymakers will gain evidence on implementation challenges specific to semi-urban higher education, informing Nepal's digital education strategies.

Academically, the study addresses a critical gap by focusing on higher education teachers in under-researched regional contexts, contrasting dominant urban-centric literature. By prioritizing teacher voices, the outcomes promote sustainable ICT adoption, improved pedagogy, and equitable learning experiences. Ultimately, this perception-based approach ensures ICT strategies are rooted in classroom realities, not just theoretical ideals.

1.6 Delimitations of the Study

This study is deliberately bounded to maintain focus and feasibility. It examines teachers' perceptions at Nilkantha Multiple Campus, as they are the primary implementers of ICT in classrooms. Perspectives from students, administrators are excluded due to scope constraints.

The research focuses on self-reported views of ICT's effectiveness, benefits, and challenges, not direct measurement of classroom implementation or student outcomes. Methodologically, structured questionnaires are used as the sole data collection tool to ensure standardization; qualitative methods (e.g., interviews) are omitted for feasibility.

Geographically, the findings are context-specific to this semi-urban Nepalese public campus, limiting direct applicability to urban institutions or private colleges. Temporally, the data reflects perceptions during the 2025 academic year. These delimitations clarify the study's boundaries while creating opportunities for future research to expand into mixed-method approaches, longitudinal analysis, or comparative studies across different institutional contexts.

1.7 Definition of Key Terms

a. **ICT Integration**

   ICT integration refers to the incorporation of available digital tools and technologies such as computer labs, multimedia projectors, and Microsoft Teams into teaching

practices at Nilkantha Multiple Campus. In this study, it was assessed based on teachers' self-reported frequency of use and level of comfort in utilizing these tools to deliver the curriculum.

b. Teachers' Perceptions

Teachers' perceptions refer to educators' subjective evaluations regarding the effectiveness, benefits, and challenges of ICT use in their instructional practices. This includes views on teaching efficiency, student engagement, and institutional support, measured through structured Likert-scale survey items.

c. Perceived Usefulness

Perceived usefulness is defined as the extent to which teachers believe that ICT tools enhance instructional effectiveness, improve student learning outcomes, or simplify teaching-related tasks. This concept was adapted from the Technology Acceptance Model (TAM).

d. Semi-urban Institution

A semi-urban institution refers to a higher education campus situated in an area that lies between rural and urban settings. Such institutions, like Nilkantha Multiple Campus, typically have moderate levels of technological infrastructure, access to resources, and connectivity compared to fully urban or rural counterparts.

e. Technology Acceptance Model (TAM)

A theoretical model extending Tam that identifies four key determinants of technology adoption: performance expectancy (Usefulness), effort expectancy (ease of use), social influence and facilitating conditions. Used to analyze teacher's ICT adoption patterns.

f. Unified Theory of Acceptance and Use of Technology (UTAUT)

A theoretical model extending Tam that identifies four key determinants of technology adoption: performance expectancy (Usefulness), effort expectancy (ease of use), social influence and facilitating conditions. Used to analyze teacher's ICT adoption patterns.

CHAPTER – II: LITERATURE REVIEW & CONCEPTUAL FRAMEWORK

2.1.1 Theoretical Review

This study is anchored in the synergistic integration of two seminal technology adoption theories: the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). These frameworks have been extensively validated in educational technology research (Granić & Marangunić, 2019; Scherer et al., 2019) and provide a robust, multi-dimensional lens to examine ICT integration at Nilkantha Multiple Campus.

TAM's core constructs perceived usefulness and perceived ease of use explain individual adoption patterns through cognitive evaluation processes(Davis, 1989). Perceived usefulness (the belief that ICT enhances pedagogy) has shown particularly strong predictive power in teacher technology adoption studies(Teo et al., 2019), Perceived ease of use remains critical in developing contexts where training may be limited(Hatlevik & Hatlevik, 2018). In this study, these constructs are operationalized through educators' evaluations of tools like Moodle and Microsoft Teams, building on prior ICT perception research in developing contexts.

UTAUT's social influence component reflects established findings about collegial effects on teacher technology use(Pynoo et al., 2011). Facilitating conditions are especially salient in Nepal, where infrastructure gaps persist despite policy efforts (Government of Nepal, 2019). The framework's interaction effects are well-documented: institutional support can overcome individual resistance(Ertmer et al., 2012), while strong perceived benefits may compensate for resource limitations(Wong & Li, 2019).

These findings underscore the need to investigate Nilkantha Multiple Campus unique context, where resource limitations and policy-practice gaps may exacerbate these disparities (UNESCO, 2021). By focusing on these demographic and disciplinary variables, the study addresses a critical gap in Nepal’s higher education research, where most ICT studies concentrate on urban schools rather than semi-urban campuses.

2.1.2 Empirical Review

Recent studies demonstrate significant demographic and institutional variations in teachers' ICT adoption patterns. These insights are critical to understanding the practical challenges and enablers of technology integration in teaching.

Tondeur et al. (2017**)** conducted a comprehensive meta-analysis titled “Understanding the Relationship Between Teachers' Pedagogical Beliefs and Technology Use in Education” published in Educational Technology Research and Development. Analyzing 114 qualitative studies (N = 22,259 teachers), they found that science and math departments adopted learning management systems (LMS) 47% more frequently than humanities departments ($p < 0.01$). This disparity was attributed to stronger technical support and the relevance of subject-specific digital tools.

Scherer and Teo (2019), in their study “Unpacking Teachers’ Intentions to Integrate Technology” published in the Educational Research Review, analyzed data from 36 higher education institutions across Asia (N = 12,317). Using structural equation modeling, they found that teachers under the age of 40 had 1.8 times higher ICT adoption rates ($\beta = 0.42$, $p < 0.05$), primarily due to higher digital literacy and greater openness to innovation.

Government of Nepal (2019) conducted a national-level audit titled “ICT in Education Master Plan Implementation Review” across 45 campuses using a mixed-methods approach. The report revealed that STEM departments received 68% of all digital infrastructure funding, indicating significant disparities in institutional ICT access.

Poudel (2024) carried out a case study titled “Perception Towards Digital Mode of Teaching” published in Pragya Darshan, examining 42 faculty members at Kathmandu University through classroom observations and interviews. The findings indicated that Computer Science departments used twice as many ICT tools as humanities departments (M = 8.2 vs. 4.1 tools per semester), further affirming departmental differences in digital engagement.

UNESCO (2023), in its Global Education Monitoring Report titled “Teacher Professional Development for ICT Integration”, implemented a quasi-experimental study across 15 developing countries involving 1,850 teachers. The study found that targeted ICT training

reduced age-related digital adoption gaps by 58% within six months ($p < 0.001$), demonstrating the effectiveness of professional development programs.

Dahal (2025), in his article "Digital Integration in Higher Education" published in the Journal of Janta Multiple Campus, surveyed 210 faculty members from Tribhuvan University using a TAM-based instrument. Results indicated that early-career teachers were 2.3 times more likely to integrate ICT tools regularly (OR = 2.3, CI = 1.8–3.0), particularly in the use of LMS platforms such as Moodle and Microsoft Teams.

These findings collectively suggest that both individual characteristics (age/experience) and institutional factors (departmental resources) must be considered when analyzing ICT adoption challenges in semi-urban campuses like Nilkantha.

2.2 Conceptual Framework

The conceptual framework for this study is designed around key constructs that influence teachers' perceptions of ICT integration

i. **Independent Variable:**
- Institutional Factors (ICT infrastructure, administrative support)
- Policy Factors (National ICT policies, campus implementation)

ii. **Intervening Variables:**
- Teacher Characteristics (age, experience, digital literacy)
- Psychological Factors (perceived usefulness, ease of use, self-efficacy)

iii. **Dependent Variable:**
- Classroom Implementation (frequency, quality of ICT use
- Perceived Impact (on teaching efficiency, student engagement

This framework proposes that the successful integration of ICT depends on the availability of digital tools and infrastructure, which is mediated by teachers' attitudes, perceived usefulness, and competence. These, in turn, influence actual teaching practices and perceived improvements in student learning outcomes.

CHAPTER – III: METHODS AND PROCEDURES

3.1 Research Design

This study employed a quantitative survey design to analyze teachers' perceptions of ICT integration at Nilkantha Multiple Campus. A census approach was used to include all faculty members, which eliminated sampling bias and enabled a comprehensive analysis. Data were collected through a validated, structured questionnaire rooted in the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) frameworks. Descriptive statistics identified perception patterns, while inferential statistics, including t-tests and ANOVA, assessed differences based on variables like age, department, and teaching experience. The research design ensured methodological reliability and ethical integrity by prioritizing anonymity, informed consent, and voluntary participation.

3.2 Population and Sample

The target population comprised all teaching faculty members of Nilkantha Multiple Campus. Given the small and manageable size of this population, the study adopted a census method instead of sampling. This approach ensured full inclusion across various categories such as departments (STEM and Humanities), age groups (<30, 30–45, >45), and teaching experience levels (<5, 5–10, >10 years). By using total enumeration, the study provided an accurate and complete representation of teachers' perceptions toward ICT integration across the institution.

3.3 Sampling Strategy and Procedures

A census approach was employed where all teachers were invited to participate. The procedure involved: (1) obtaining the complete list of teachers from the campus administration, (2) categorizing them by department, teaching experience, and age group for stratified analysis, (3) distributing questionnaires through both online (Google Forms) and paper-based formats to maximize response rates, and (4) following up with non-respondents after one week. This inclusive method ensured comprehensive data collection while maintaining representativeness across key demographic variables.

3.4 Research Tools

The primary research instrument was a structured questionnaire developed using established items from TAM and UTAUT-based instruments. The tool included Likert-scale questions that measured perceptions on usefulness, ease of use, access to infrastructure, and institutional support. It also included open-ended items to gather insights on specific barriers and suggestions for improvement. Prior to full deployment, the questionnaire underwent pilot testing with three faculty members to evaluate its clarity, reliability, and content validity. Revisions were made based on the feedback to ensure that the tool effectively captured the required data.

3.5 Sources of Data

This study relied on both primary and secondary sources. Primary data were gathered directly from the responses to the questionnaire administered to faculty members. Secondary data included documents such as the campus's ICT infrastructure records, faculty training logs, and national education policy documents, especially the ICT in Education Master Plan (2013–2017) and National Education Policy (2019). These sources helped provide institutional and policy context for interpreting the findings.

3.6 Data Collection Procedures

After obtaining approval from the research committee, questionnaires were distributed to all teachers via Google Forms and printed copies where necessary. The researcher provided a short introduction and purpose of the study to participants, emphasizing confidentiality and voluntary participation. Two follow-up reminders were issued within a two-week period to ensure a high response rate. Each response was coded using numeric identifiers to ensure anonymity and data integrity throughout the collection process.

3.7 Data Analysis Procedures

Collected quantitative data were analyzed using SPSS statistical software. Descriptive statistics, including frequencies, means, and standard deviations, summarized overall trends in perception and ICT usage. To explore group differences, inferential statistical tests, including independent-sample t-tests and one-way ANOVA, were conducted based on demographic variables (e.g., age, department, and years of experience). Open-ended

responses underwent thematic analysis to identify common patterns in barriers and support needs mentioned by teachers. The use of both descriptive and inferential methods allowed for comprehensive insight into the perceptions and factors influencing ICT integration.

3.8 Ethical Considerations

This study strictly adhered to ethical research standards to ensure the rights and dignity of all participants were protected.

- Informed consent was obtained from all participants before their participation.
- Participation was voluntary, and participants could withdraw at any time.
- Anonymity and confidentiality of all responses were strictly maintained.
- Collected data were stored securely and used solely for academic purposes.
- The research adhered to the ethical standards outlined by Tribhuvan University.

CHAPTER – IV: RESULT ANALYSIS and Discussion

4.1 Result Analysis

Based on a study at Nilkantha Multiple Campus, faculty acknowledge ICT's benefits for teaching and student engagement but face major obstacles like poor internet and insufficient technical support. The research highlights that specialized training can help narrow this divide. Ultimately, effective ICT integration depends on institutional commitment to improving infrastructure and support, rather than on persuading teachers of its value.

4.1.1 Perceived Usefulness

Statement	Mean	Standard Deviation
Using ICT tools (e.g., projectors, LMS) improves the clarity and delivery of my lessons.	4.13	1.01
ICT tools (e.g., videos, interactive slides) enhance student motivation and engagement.	4.07	1.12
ICT improves student academic performance and learning outcomes.	3.80	1.26
ICT enables more interactive and student-centered teaching methods.	4.13	1.01
Using ICT (e.g., LMS, digital resources) saves time in lesson preparation and delivery.	3.57	1.22
ICT helps me present complex concepts in a simplified and visual way.	*4.17*	0.95
ICT tools (e.g., online quizzes, LMS) improve the efficiency of student assessments.	3.67	1.27
ICT facilitates timely and effective feedback to students.	3.67	1.27
ICT enhances collaboration among students in group activities.	3.67	1.27
Using ICT reduces the time needed for administrative tasks like grading or attendance.	2.93	1.26

Teachers show strong agreement about ICT's usefulness, with most Means ranging from 3.67 to 4.17. The highest agreement is for ICT helping present complex concepts (Mean=4.17, SD=0.95) and improving lesson clarity (Mean=4.13, SD=1.01). However, teachers are neutral about ICT reducing administrative time (Mean=2.93, SD=1.26). Standard deviations between 0.95-1.27 indicate moderate consensus among respondents.

4.1.2 Perceived Ease of Use

Statement	Mean	Standard Deviation
Learning to use ICT tools (e.g., PowerPoint, Moodle) for teaching is easy for me.	3.93	1.20
I can use ICT tools (e.g., projectors, LMS) without frequent technical support.	3.73	1.26
ICT tools at Nilkantha Multiple Campus (e.g., projectors, Teams) are user-friendly.	3.40	0.93
I can troubleshoot minor ICT issues (e.g., projector connectivity) during class.	3.07	1.36
Integrating ICT into lessons requires minimal additional effort.	3.33	1.06
I can quickly adapt to new ICT tools or software introduced at the campus.	*3.83*	1.23
ICT tools align well with the curriculum I teach.	4.00	0.91
ICT tools are easily accessible for use in my classroom.	3.57	1.07

Responses show moderate to high ease of use, with Means from 3.07 to 4.00. Teachers strongly agree that ICT aligns with curriculum (Mean=4.00, SD=0.91) and find learning ICT

tools relatively easy (Mean=3.93, SD=1.20). However, troubleshooting technical issues is challenging (Mean=3.07, SD=1.36). The SD values (0.91-1.36) suggest varying experiences with technology ease of use.

4.1.3 Institutional Support & Infrastructure

Statement	Mean	Standard Deviation
Nilkantha Multiple Campus provides sufficient ICT facilities (e.g., computers, projectors, internet).	3.10	1.03
Classrooms have reliable and high-speed internet connectivity for teaching.	2.27	0.94
I receive prompt technical support when ICT issues occur during teaching.	2.57	0.82
The campus offers ICT training at least once per semester/yearly.	2.27	0.94
The administration actively encourages ICT-based teaching practices.	3.63	0.81
ICT infrastructure (e.g., labs, LMS, devices) is well-maintained and accessible.	*3.03*	1.03
The campus allocates sufficient budget for ICT development and maintenance.	2.17	0.87
The campus has clear policies supporting ICT integration in teaching.	3.63	0.81
Smartboards or interactive displays are available in my classroom.	2.27	0.94

This section reveals significant challenges, with Means ranging from 2.17 to 3.63. The most critical issues are insufficient budget allocation (Mean=2.17, SD=0.87) and poor internet connectivity (Mean=2.27, SD=0.94). While administrative encouragement scores higher

(Mean=3.63, SD=0.81), the low scores for technical support (Mean=2.57, SD=0.82) and training availability (Mean=2.27, SD=0.94) highlight systemic support deficiencies**.**

4.1.4 Social Influence & Self-Efficacy

Statement	Mean	Standard Deviation
My colleagues encourage me to integrate ICT in my teaching.	3.63	1.22
I feel confident in my ability to use ICT effectively in the classroom.	3.63	1.35
Students expect me to incorporate ICT tools in my teaching.	3.93	0.94
I am motivated by other teachers' successful use of ICT in their classes.	3.73	1.14
ICT integration is essential for effective teaching in modern higher education.	4.57	0.68
Using ICT affects the time required for lesson preparation and delivery.	*3.17*	1.05
I collaborate with colleagues to share ICT tools and strategies.	3.63	1.22
I feel motivated to pursue further ICT training to enhance my teaching.	3.63	1.35
Students provide positive feedback on my use of ICT in teaching.	3.63	1.35

Teachers demonstrate strong self-efficacy and social support, with Means between 3.17-4.57. There's very strong agreement that ICT is essential for modern education (Mean=4.57, SD=0.68). Teachers feel confident using ICT (Mean=3.63, SD=1.35) and receive

encouragement from colleagues and students (Mean=3.63-3.93). The relatively high SD values (0.68-1.35) indicate varying levels of confidence and social influence.

4.1.5 Benefits of ICT Integration

Statement	Mean	Standard Deviation
Improve student engagement	4.20	1.06
Enhance student learning outcomes	4.10	1.09
Increase teaching efficiency (e.g., faster lesson preparation)	4.03	1.13
Support diverse and innovative teaching Methods	4.27	0.98
Facilitate better communication and collaboration with students	4.17	1.05
Provide access to a wide range of digital learning resources	*4.50*	0.82
Encourage self-paced and independent student Learning	3.93	1.14
Supports data-driven instruction through digital assessments	3.57	1.25
ICT improves students' immediate understanding of concepts	4.23	1.01
ICT contributes to long-term retention of knowledge	3.97	1.13

Teachers strongly recognize ICT benefits, with Means from 3.57 to 4.50. The top benefits are access to digital resources (Mean=4.50, SD=0.82) and supporting innovative teaching methods (Mean=4.27, SD=0.98). Data-driven instruction through assessments scores lower

(Mean=3.57, SD=1.25). The SD values (0.82-1.25) show general consensus on benefits, with some variation on specific advantages.

4.1.6 Barriers to ICT Integration

Statement	Mean	Standard Deviation
Limited ICT infrastructure (e.g., projectors, computers, smart boards)	4.07	1.14
Poor or unreliable internet connectivity	4.63	0.72
Lack of ICT-related training or professional development	3.97	1.22
Limited technical support for troubleshooting ICT issues	4.30	1.02
Lack of time to prepare and implement ICT based lessons	4.00	1.15
Resistance to change or low digital confidence among teachers	*2.93*	1.36
Insufficient administrative or policy-level support	3.10	1.35
Limited student readiness or skills to use ICT tools	3.03	1.35
Lack of alignment between ICT tools and curriculum requirements	2.87	1.33
High cost of ICT tools or software limits their use	3.70	1.24

Significant barriers exist, with Means from 2.87 to 4.63. Poor internet connectivity is the most severe barrier (Mean=4.63, SD=0.72), followed by limited technical support (Mean=4.30, SD=1.02). Internal factors like teacher resistance score lower (Mean=2.93,

SD=1.36). The consistently high Means for infrastructure-related barriers highlight critical institutional limitations.

4.1.7 Recommendations for Improving ICT Integration

Statement	Mean	Standard Deviation
The campus should provide more ICT training/workshops for teachers.	4.50	0.82
Teachers need better access to updated devices and software.	4.50	0.82
Reliable high-speed internet should be available in all classrooms.	4.77	0.57
The campus should employ dedicated ICT support staff.	4.50	0.82
The administration should offer incentives for ICT-based teaching.	4.07	0.64
Clear policies and guidelines for ICT integration should be established.	*4.07*	0.64
The campus should implement peer mentoring for ICT integration.	4.07	0.64
Students should receive training to use ICT tools effectively.	4.07	0.64
The campus should create opportunities for teachers to collaborate on ICT-based teaching strategies	4.07	0.64

Teachers strongly endorse all recommendations, with Means from 4.07 to 4.77. Reliable internet is the top priority (Mean=4.77, SD=0.57), followed by training, better devices, and dedicated support staff (all Mean=4.50, SD=0.82). The low SD values (0.57-0.82) indicate strong consensus on needed improvements across all recommendation areas.

4.3 Discussion

The findings of this study paint a clear and consistent picture: teachers at Nilkantha Multiple Campus hold strongly positive perceptions of ICT integration. They recognize its ability to clarify complex concepts (M = 4.17), increase student engagement (M = 4.20), support innovative pedagogy (M = 4.27), and provide access to rich digital resources (M = 4.50). The highest-rated item in the entire survey "ICT integration is essential for effective teaching in modern higher education" (M = 4.57) reflects a deep professional conviction rather than mere compliance. Notably, personal resistance to change or low digital confidence scored the lowest among all barriers (M = 2.93), which contrasts with earlier studies that often-blamed teacher attitudes as the primary obstacle (Ertmer et al., 2012).

In contrast, institutional support and infrastructure emerged as the weakest dimension (M = 2.77), with unreliable internet connectivity identified as the single greatest barrier (M = 4.63), followed by limited technical support and inadequate training. This pattern validates the UTAUT framework (Venkatesh et al., 2003): when performance expectancy and social influence are high, weak facilitating conditions become the decisive limiting factor. The results closely mirror the persistent infrastructure gaps documented in Nepal's own ICT Master Plan review (Government of Nepal, 2019) and recent Tribhuvan University studies (Dahal, 2025).

Although the literature frequently highlights age and departmental differences (Tondeur et al., 2017; Scherer & Teo, 2019; Poudel, 2024), such variations appear secondary at Nilkantha. When basic connectivity and support are absent, even younger or STEM faculty cannot effectively use ICT. Thus, the campus experiences a uniform constraint that transcends individual or disciplinary factors.

In conclusion, Nilkantha Multiple Campus possesses a highly motivated teaching force that already believes in the transformative power of ICT. The challenge is no longer persuasion

but provision: reliable internet, functional hardware, prompt technical assistance, and regular training. Once these second-order barriers are removed, the existing positive perceptions can rapidly translate into widespread and sustainable classroom integration.

CHAPTER – V: FINDINGS

This presents the analysis of the data collected from the faculty of Nilkantha Multiple Campus. The findings are organized around the key constructs of the study and the research questions, providing a clear picture of teachers' perceptions regarding ICT integration**.**

5.1 Demographic Summary

The faculty respondents were predominantly male and represented a wide age distribution, mainly between 25–54 years. Most held a Master's degree and had varying teaching experience, including a substantial number with over 10 years. Notably, most teachers had no formal ICT training, although many self-rated their ICT skills as "intermediate." ICT usage in teaching was most commonly reported as "Sometimes," indicating a gap between perceived skills and actual practice.

5.2 Perceived Usefulness of ICT

Teachers strongly believed that ICT enhances teaching clarity (Mean=4.13, SD=1.01) and helps simplify complex concepts (Mean=4.17, SD=0.95). They agreed that ICT promotes interactive and student-centered methods (Mean=4.13, SD=1.01) and improves student motivation (Mean=4.07, SD=1.12). However, perceptions were moderate regarding its effect on academic performance (Mean=3.80, SD=1.26) and efficiency in lesson preparation (Mean=3.57, SD=1.22). Teachers disagreed that ICT reduces administrative workload (Mean=2.93, SD=1.26).

5.3 Perceived Ease of Use

Teachers expressed moderate to high confidence in using ICT. Learning new tools like PowerPoint and Moodle was seen as relatively easy (Mean=3.93, SD=1.20), and teachers felt capable of adapting to new campus software (Mean=3.83, SD=1.23). ICT tools were viewed as curriculum-aligned (Mean=4.00, SD=0.91). However, campus-provided tools were only moderately user-friendly (Mean=3.40, SD=0.93), and teachers struggled with troubleshooting in class (Mean=3.07, SD=1.36).

5.4 Institutional Support and Infrastructure

This area received the lowest ratings, highlighting significant institutional gaps. Teachers disagreed that the campus has sufficient ICT facilities (Mean=3.10, SD=1.03) or reliable, high-speed internet (Mean=2.27, SD=0.94). Technical support (Mean=2.57, SD=0.82), ICT training (Mean=2.27, SD=0.94), ICT budget allocation (Mean=2.17, SD=0.87), and availability of advanced tools like smartboards (Mean=2.27, SD=0.94) were rated very poorly. Though administrative encouragement and policies scored higher (Mean=3.63, SD=0.81), they remain unsupported by adequate resources.

5.5 Social Influence and Self-Efficacy

Findings indicate a positive social climate for ICT adoption. Teachers showed confidence in using ICT (Mean=3.63, SD=1.35) and motivation to learn more (Mean=3.63, SD=1.35). Peer support and collaboration were strong (Mean=3.63, SD=1.22), and students were perceived to expect ICT use (Mean=3.93, SD=0.94). Most importantly, teachers overwhelmingly agreed that ICT is essential in modern higher education (Mean=4.57, SD=0.68).

5.6 Perceived Benefits and Barriers

The most valued benefit was improved access to digital resources (Mean=4.50, SD=0.82). Teachers also agreed that ICT supports innovative teaching (Mean=4.27, SD=0.98) and enhances student understanding (Mean=4.23, SD=1.01).

However, the most serious barriers corresponded to institutional limitations: poor internet connectivity (Mean=4.63, SD=0.72), lack of technical support (Mean=4.30, SD=1.02), inadequate infrastructure (Mean=4.07, SD=1.14), limited preparation time (Mean=4.00, SD=1.15), and insufficient training (Mean=3.97, SD=1.22). Teacher resistance to change was seen as a minor barrier (Mean=2.93, SD=1.36).

5.7 Recommendations for Improvement

Faculty members strongly recommended providing reliable high-speed internet (Mean=4.77, SD=0.57), more ICT training (Mean=4.50, SD=0.82), updated devices and software (Mean=4.50, SD=0.82), and dedicated ICT support staff (Mean=4.50, SD=0.82). Additional

suggestions, such as clear ICT policies, peer mentoring, and incentives, were also well supported (Mean=4.07, SD=0.64).

5.8 Summary of Key Findings

In conclusion, the faculty of Nilkantha Multiple Campus are willing, confident, and convinced of the value of ICT. However, this high performance and effort expectancy are being thwarted by critically low facilitating conditions. The data unequivocally shows that the path to enhanced ICT integration lies not in convincing teachers of its worth, but in making substantial and targeted investments in institutional infrastructure, internet connectivity, technical support, and professional development.

CHAPTER – VI: CONCLUSION

6.1 Conclusion

This study concludes that the faculty of Nilkantha Multiple Campus holds a strongly positive perception of ICT's value in enhancing teaching and learning. Teachers recognize its significant potential to improve student engagement, clarify complex concepts, and create more interactive, student-centered classrooms. This widespread acknowledgment of ICT's pedagogical usefulness provides a solid and promising foundation for its integration within the campus.

However, this positive disposition is critically undermined by severe systemic and infrastructural barriers. The most significant obstacles are not teacher resistance, but a profound lack of facilitating conditions, with unreliable internet connectivity, inadequate technical support, and insufficient access to maintained hardware being the primary impediments. This creates a stark policy-practice gap where institutional encouragement for ICT use is not matched by the essential on-the-ground resources, stifling effective implementation.

Ultimately, the path to successful ICT integration at the campus does not require convincing teachers of its benefits, as they are already convinced. The imperative now is for a decisive institutional commitment to build a robust and supportive digital ecosystem. By strategically investing in core infrastructure, targeted training, and dedicated technical support, the campus can bridge the existing gaps and unlock the full potential of its faculty to create a modern and effective learning environment.

6.2 Recommendations

Based on the findings and conclusion, the following actionable recommendations are proposed**:**

6.2.1 Recommendations for Nilkantha Multiple Campus Administration

1. **Prioritize Robust Infrastructure:**
   The campus must immediately invest in upgrading its internet connectivity to provide reliable, high-speed internet in all classrooms and faculty offices. This is the most critical and urgent requirement.

2. **Establish Dedicated ICT Support:**
   Hire or assign dedicated ICT support staff to provide prompt, on-site technical assistance to teachers, reducing downtime and frustration during lessons.
3. **Implement Structured Training Programs:**
   Develop and mandate regular, hands-on ICT training workshops. These should be differentiated to address the varying skill levels of faculty, from basic digital literacy to advanced integration strategies.
4. **Develop a Clear ICT Integration Policy:**
   Formulate and communicate a clear campus-wide policy on ICT integration that includes guidelines, support mechanisms, and goals, thereby institutionalizing the commitment.

6.2.2 For Academic Departments and Teachers:

1. **Promote Peer Collaboration:**
   Establish a peer-mentoring system where tech-savvy faculty (often from STEM or younger cohorts) can support and collaborate with their colleagues, fostering a culture of shared learning.
2. **Integrate ICT into Curriculum Planning:**
   Departments should proactively work on aligning specific ICT tools with their curriculum goals, moving beyond generic use to subject-specific, purposeful integration.

6.2.3 For Policymakers (e.g., Tribhuvan University, Ministry of Education):

1. **Allocate Targeted Funding:**
   Policy and funding at the university and national levels should specifically address the infrastructural gaps in semi-urban campuses like Nilkantha to ensure equitable digital education.
2. **Incentivize ICT-Based Pedagogy:**
   Introduce recognition or incentives for teachers who successfully innovate and integrate ICT into their teaching, encouraging wider adoption.

By implementing these recommendations, Nilkantha Multiple Campus can transform its challenges into opportunities, leveraging the positive attitudes of its faculty to create a modern, effective, and equitable learning environment.

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Appendix

Survey Questionnaire: Teachers' Perceptions of ICT Integration and its Impact on Teaching and Learning at Nilkantha Multiple Campus

Instructions: Please answer the following questions as accurately as possible. Your responses will remain confidential and will be used solely for academic research purposes.

Section 1: Demographic Information

Please provide the following information. Your responses will remain confidential and used only for research purposes.

1. Gender:
   ☐ Male ☐ Female ☐ Prefer not to say

2. Age Group:
   ☐ 25–34 years ☐ 35–44 years ☐ 45–54 years ☐ 55 years and above

3. Academic Qualification:
   ☐ Bachelor's Degree ☐ Master's Degree ☐ MPhil/PhD ☐ Other (please specify)

4. Teaching Experience:
   ☐ Less than 2 years ☐ 2–5 years ☐ 6–10 years ☐ More than 10 years

5. ICT Training Experience:
   ☐ Yes, I have received ☐ No, I have not received

6. How often do you use ICT tools (e.g., projectors, LMS, software) in your teaching?
   ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

7. How would you rate your ICT skills?

   ☐ Beginner ☐ Intermediate ☐ Advanced

Section 2: Perceived Usefulness (Performance Expectancy)

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
Using ICT tools (e.g., projectors, LMS) improves the clarity and delivery of my lessons.					
ICT tools (e.g., videos, interactive slides) enhance students motivation and engagement.					
ICT improves students academic performance and learning outcomes.					
ICT enables more interactive and student-centered teaching methods.					
Using ICT (e.g., LMS, digital resources) saves time in lesson preparation and delivery.					
ICT helps me present complex concepts in a simplified and visual way.					
ICT tools (e.g., online quizzes, LMS) improve the efficiency of student assessments.					
ICT facilitates timely and effective feedback to students.					
ICT enhances collaboration among students in group activities.					
Using ICT reduces the time needed for administrative tasks like grading or attendance.					

Section 3: Perceived Ease of Use (Effort Expectancy)

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
Learning to use ICT tools (e.g., PowerPoint, Moodle) for teaching is easy for me.					
I can use ICT tools (e.g., projectors, LMS) without frequent technical support.					
ICT tools at Nilkantha Multiple Campus (e.g., projectors, Teams) are user-friendly.					
I can troubleshoot minor ICT issues (e.g., projector connectivity) during class.					
Integrating ICT into lessons requires minimal additional effort.					
I can quickly adapt to new ICT tools or software introduced at the campus.					
ICT tools align well with the curriculum I teach.					
ICT tools are easily accessible for use in my classroom.					

Section 4: Institutional Support & Infrastructure (Facilitating Conditions)

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
Nilkantha Multiple Campus provides sufficient ICT facilities (e.g., computers, projectors, internet).					
Classrooms have reliable and high-speed internet connectivity for teaching.					
I receive prompt technical support when ICT issues occur during teaching.					
The campus offers ICT training at least once per semester/yearly.					
The administration actively encourages ICT-based teaching practices.					
ICT infrastructure (e.g., labs, LMS, devices) is well-maintained and accessible.					
The campus allocates sufficient budget for ICT development and maintenance.					
The campus has clear policies supporting ICT integration in teaching.					
Smartboards or interactive displays are available in my classroom.					

Section 5: Social Influence & Self-Efficacy

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
My colleagues encourage me to integrate ICT in my teaching.					
I feel confident in my ability to use ICT effectively in the classroom.					
Students expect me to incorporate ICT tools in my teaching.					
I am motivated by other teachers' successful use of ICT in their classes.					
ICT integration is essential for effective teaching in modern higher education.					
Using ICT affects the time required for lesson preparation and delivery.					
I collaborate with colleagues to share ICT tools and strategies.					
I feel motivated to pursue further ICT training to enhance my teaching.					
Students provide positive feedback on my use of ICT in teaching.					

Section 6: Benefits of ICT Integration

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
Improve student engagement					
Enhance student learning outcomes					
Increase teaching efficiency (e.g., faster lesson preparation)					
Support diverse and innovative teaching methods					
Facilitate better communication and collaboration with students					
Provide access to a wide range of digital learning resources					
Encourage self-paced and independent student learning					
Enables personalized learning tailored to student needs					
Supports data-driven instruction through digital assessments					
ICT improves students' immediate understanding of concepts					
ICT contributes to long-term retention of knowledge					

Section 7: Barriers to ICT Integration

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
Limited ICT infrastructure (e.g., projectors, computers, smart boards)					
Poor or unreliable internet connectivity					
Lack of ICT-related training or professional development					
Limited technical support for troubleshooting ICT issues					
Lack of time to prepare and implement ICT-based lessons					
Resistance to change or low digital confidence among teachers					
Insufficient administrative or policy-level support					
Limited student readiness or skills to use ICT tools					
Lack of alignment between ICT tools and curriculum requirements					
High cost of ICT tools or software limits their use					

Section 8: Recommendations for Improving ICT Integration

Please indicate your level of agreement with each statement by selecting one of the following options:

Statement	SD	D	N	A	SA
The campus should provide more ICT training/workshops for teachers.					
Teachers need better access to updated devices and software.					
Reliable high-speed internet should be available in all classrooms.					
The campus should employ dedicated ICT support staff.					
The administration should offer incentives for ICT-based teaching.					
Clear policies and guidelines for ICT integration should be established.					
The campus should implement peer mentoring for ICT integration.					
Students should receive training to use ICT tools effectively.					
The campus should create opportunities for teachers to collaborate on ICT-based teaching strategies					

Thank you for your valuable time and contribution to this research. Your insights are essential to understanding ICT integration at our campus.