

Resource Barriers: The Difficulties of Integrating ICT in Teaching-Learning at Tribhuvan University

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Abstract

Background: Integrating Information and Communication Technology (ICT) in education is inevitable in current time. Though, there is less integration of ICT in teaching -learning at university level in Nepalese context. In this context, this study examined the resource barriers experienced by economics teachers at Tribhuvan University in using ICT for teaching-learning activities.

Methods: The study was conducted based on quantitative research methodology by using cross-sectional study under descriptive research design. 404 economics teachers of Tribhuvan University were respondents of this study; data were collected self-constructed structured research tools. Data were analyzed through descriptive and inferential statistical tools.

Results: The findings, categorized into two theme areas i.e. nature and magnitude of resource barriers and influence of institutional and teachers' characteristics found that teachers experienced moderate but significant resource barriers, mainly time constraint, inadequate ICT infrastructure, limited computer labs, inconsistent internet connectivity and insufficient classroom ICT facilities.

Conclusion: Resource barriers closely mirror to integrate ICT in teaching-learning reported in developing-country contexts. Teachers involved campus type (Constituent and Community)

and their academic qualification significantly predicted resource barriers. Teachers of community campuses and those with higher academic qualification experienced higher barriers.

Novelty: The study shows that Tribhuvan University still has institutional inequities that need to be fixed. It also shows that legislative changes, targeted funding, and better institutional support mechanisms are needed to make sure that ICT is integrated more fairly and effectively across campuses.

Keywords: Cross-sectional study, ICT integration, resource barriers, teaching-learning, Tribhuvan University

Introduction

The 21st century has witnessed an unprecedented surge in the transformative power of information and communication technology (ICT) in education redefining pedagogical practices and learning possibilities worldwide. Digital integration into teaching and learning cannot be seen as just a fad, but as a necessity, particularly when it comes to higher educational institutions trying to produce digital savvy graduates. Tribhuvan University (TU) Nepal's first University and the largest University in the country believes in the power of ICTs in education. But the road leading to successful ICT integration, particularly when teaching economics across different faculties, is not without obstacles based on both the structure of a school, institution, and the teacher.

ICT integration in education has been linked to increased accessibility of information, enhanced student motivation, and the enthusiastic application of learner-centered pedagogy worldwide. The majority of the developed world has succeeded in integrating ICT effectively in their educational systems and inclines learning spaces toward more interactive and flexible forms of learning. In contrast, the less developed countries generally face resource constraints and poorly developed infrastructure, as well as a shortage of teachers that is delaying the effective use of ICT in education.

The education landscape in Nepal is indicative of many of the problems developing countries are experiencing to embed ICT. There are policies in place to support ICT in education, but they are rarely implemented. [Rana and Rana \(2020\)](#) point out that while the government is working toward developing teachers' ICT skills and competencies, there is no clear policy nor funding for ICT infrastructure development and teacher career development of professional educators at higher education institutions across the country. The gap between policy and practice exists across faculties at Tribhuvan University.

In its effort to integrate ICT with its teaching and learning processes, Tribhuvan University is pursuing multiple activities. These included the establishment of ICT labs and capacity-building initiatives through partnerships with various international organizations. Unfortunately, these efforts are often short-sighted and non-sustainable. [Joshi and Khatiwada \(2024\)](#) undertook a systematic review and reported continuing obstacles within the higher education landscape in Nepal relating to ICT, such as limited physical infrastructure,

prohibitive technology costs, lack of digital literacy and digital literacy training for the academic staff and students. Moreover, ICT access and use in Nepal is inequitable, with significant variances among regions, levels of education and between urban and rural populations.

ICT integration is better suited for economics than most disciplines, as it typically uses data analysis, modeling, and or simulations. There are many opportunities for interactive, ICT-enabled learning in economics education to involve real-time data and economic models. Nevertheless, the use of ICT in teaching economics is not uniform across all classes at Tribhuvan University. According to [Joshi \(2023\)](#), economics educators acknowledge the benefits of ICT to enhance the quality of their teaching, but they experience limitations such as reduced access to digitized content, inadequate training, and an institution lacking support to integrate ICT in economics teaching.

Beyond infrastructural and institutional barriers, motivational factors are central to ICT adoption by teachers. [Joshi and Khatiwada \(2025\)](#) emphasize that teachers' motivation to use ICT is influenced by factors such as perceived usefulness, access to facilities, and institutional support. Their findings indicate that while the majority of economics teachers at Tribhuvan University have a wish to integrate ICT in their teaching, they are deterred from doing so by systemic issues that lower their motivation and capacity to do it effectively.

Successful integration of ICT in education requires not only individual initiative but also firm policy frameworks and institutional support. [Laudari and Maher \(2019\)](#) explored that administrative support is central to the sustainability of ICT projects in schools. They note that in Nepal, administrative staff have no vision and commitment to facilitate ICT integration, resulting in maintenance, training, and resource allocation issues. This situation underscores the need for comprehensive solutions that address both the technical and human sides of ICT adoption. In this context, this study aims to examine the resource barriers faced by Economics teachers at Tribhuvan University in integrating ICT into the pedagogical process.

Research Methodology

Research Design

This study employed a cross-sectional survey study under descriptive research design using a quantitative methodology. Descriptive research design focuses on respondents' perceptions, beliefs, and experiences for apparent. In descriptive research design, researcher can use a cross-sectional survey or longitudinal survey design. Using different groups of participants that vary in the characteristics but share other traits, such as experience, qualification and so on, cross-sectional study is appropriate ([Creswell & Creswell, 2017](#); [Setia, 2016](#)). Study was guided by post-positivist philosophical standpoint.

Sample

The data were collected through 404 Economics teachers of Tribhuvan University, Nepal. The population of this study were all economics teachers of constituent and community campuses of Tribhuvan University. This study employed list-based sampling technique for the

sample selection purpose. So, initially economics teachers list was accessed from the constituent and community campuses of Tribhuvan University offered economics subjects. Researchers found 731 economics teachers list at Tribhuvan University and approached them via mail, WhatsApp, messenger and Viber to request for respond the research tools. 404 teachers were filed and returned the research tools by October 2022 and the data were analyzed through them. 404 sample size was sufficient for the 731 population. ([Orban, 2021](#); [Singh & Masuku, 2014](#)).

Research Instrument

The participants' material barriers to using ICT for teaching learning purpose were assessed in this study by employing a research tool self-constructed by researchers. Research tools were constructed based on the resource and appropriation theory and TPACK model. The research tools focused on teacher's perceptions of material challenges to using ICT. Tools were close structured survey questionnaire in the form of 5-point Likert scale, which were useful to collect quantitative data from participants. Initially, tools were constructed by consulting mainly two literatures i.e. [Singhavi and Basargekar \(2019\)](#), [Al Zebidi \(2016\)](#) and [Elshaikhi \(2015\)](#). Later, tools were localized for suitability of study's objectives and expert's suggestions. Nine items were used to collect data regarding teachers' perception on material barriers to use ICT in teaching learning purpose. The items were: 1. Absence of computer lab and multimedia in campus, 2. Absence of internet connection in campus, 3. Weak, unstable and irregular internet connection, 4. Insufficient time due to burden of classes, 5. Absence of smart board and projector in classroom, 6. Absence of financial and technical backing, 7. Absence of technician to assist teachers, 8. Absence of e-library, and 9. Absence of regular and proper electricity.

Reliability and Validity of the Instruments

The overall reliability score of the research tools measured by Cronbach's alpha, which was 0.94, which was outstanding ([De Barros Ahrens et al., 2020](#)). The threshold value of 0.70 showing the tool's reliability ([Smith, 2023](#)). The content validity of the tools was maintained by expert consultation. Different field's experts' suggestions were addressed to finalize the tools such as experts of economics fields, experts of ICT fields, experts of language, data analysis experts, and education (pedagogy) experts. For statistical validation of research tools item total correlation value of tools was calculated and found the value ranged from 0.42-0.90 for each item, which showed the validity conformation of items ([Pinar et al., 2009](#)).

Data Collection and Analysis

The data were collected through google form. After finding the teachers name list they were contacted via phone number, messenger, WhatsApp, and Viber, took consent and sent the research tools through Google form. Initially tools were sent through email but when there was less returned and responded by participants in email then tools were sent through messenger, WhatsApp, and Viber as well. When 404 tools were filled by participants data collection process was stopped and start to prepare data for analysis. Data were collected through Likert scale items so all the data were transformed into numerical value for quantitative analysis. To use the parametric test, Kurtosis and Skewness test with histogram and Q-Q plot were

conducted. The values of Kurtosis and Skewness were found in acceptable range i.e. -0.32 to 0.56 and -0.09 to 0.86 (Kim, 2013). Data were analyzed by employing SPSS 26 system.

Ethical Considerations

This study followed to the ethical standards set by the Tribhuvan University, Faculty of Education, Graduate School of Education for the conduction of research. Inform consent was taken before data collection and strictly maintained anonymity and confidentiality. There was right to withdraw permission at any time. Data were used only for research purpose.

Results

This section presents the findings of this study and compare finding into other literatures for discussion. This study examined how economics teachers at Tribhuvan University perceive resource barriers in using ICT for teaching-learning. Findings are draw from the field-base data collected from economics teachers at Tribhuvan University, Nepal. Results are presents by organizing them into two main themes: Nature and magnitude of resource barriers and influence of institutional and teacher's characteristics.

Nature and Magnitude of Resource Barriers

This section presents the findings regarding the ranking of resource barriers with discussion.

Table 1

Ranking of Resource Barriers

S.N.	Statements	Mean	SD
1	Absence of computer lab and multimedia in campus	2.69	1.06
2	Absence of internet connection in campus	2.69	1.03
3	Weak, unstable and irregular internet connection	2.52	0.96
4	Insufficient time due to burden of classes	2.96	0.94
5	Absence of smart board and projector in classroom	2.63	1.04
6	Absence of financial and technical backing	2.07	0.79
7	Absence of technician to assist teachers	2.26	0.84
8	Absence of e-library	2.43	1.01
9	Absence of regular and proper electricity	2.64	0.97

[Table 1](#) presents the resource barriers in using ICT for teaching learning process that perceived by Tribhuvan University's economics teachers. The findings showed that the 'insufficient time due to burden of classes' was perceived as the most swelling barrier (Mean = 2.96, SD = 0.94). Other two barriers i.e. 'absence of computer lab and multimedia in campus' (Mean = 2.69, SD = 1.06) and 'absence of internet connection in campus' (Mean = 2.69, SD = 1.03) also followed to this barrier. Moreover, the barriers i.e. 'absence of regular and proper electricity' (Mean = 2.64, SD = 0.97) and 'absence of smart board and projector in classroom' (Mean = 2.63, SD = 1.04) also reported as substantial barriers by participants. Among the mentioned barriers 'absence of financial and technical backing' was reported as least barriers

(Mean = 2.07, SD = 0.79). Overall, the mean values ranging between 2.07 to 2.96 showed that the economics teachers moderately experienced resource barriers in using ICT for teaching-learning.

Influence of Institutional and Teachers’ Characteristics

This section presents the findings of regression and ANOVA to examine the influence of institutional and teacher’s characteristics on perceived resource barriers in using ICT for teaching-learning. The results clearly show the significant insights into how institutional and personal differences of teachers determine ICT use at Tribhuvan University, Nepal.

Table 2

Model Summary of Regression Analyses Predicting Resource Barriers from each Independent Variable

Independent Variables	R	R ²	Adjusted R ²	Std. Error
Age	0.29	0.00	-0.00	0.60
Campus Type	0.10	0.01	0.01	0.60
Designation	0.01	0.00	-0.00	0.60
Teaching Experience	0.40	0.00	-0.00	0.60
Qualification	0.10	0.01	0.01	0.60
Device	0.03	0.00	-0.00	0.60
ICT Training	0.03	0.00	-0.00	0.60

[Table 2](#) show the findings of regression analysis examining the influence of independent variables on resource barriers in using ICT for teaching-learning. The finding shows that teacher’s involved campus category (R = 0.10, R² = 0.01, Adjusted R² = 0.01) and teacher’s educational qualification (R = 0.10, R² = 0.01, Adjusted R² = 0.01) identified relatively higher coefficients compared to other variables, providing weak but notable perceived resource barriers. Beside teacher’s campus category and their academic qualification, other variables showed no relation with resource barriers. So, these finding indicated that other variables had no predictive power to explain the resource barriers perceived by economics teachers in using ICT for teaching-learning.

Table 3

ANOVA summary of Regression Models Showing Significance of Predictors for Resource Barriers

Independent Variables	Sum of Square (Regression)	df	Mean Square	F	Sig.
Age	0.121	1	0.121	0.336	0.56
Campus Type	1.47	1	1.47	4.113	0.04*
Designation	0.011	1	0.011	0.031	0.86
Teaching Experience	0.238	1	0.238	0.659	0.42
Qualification	1.358	1	1.358	3.794	0.05*
Device	0.104	1	0.104	0.289	0.59
ICT Training	0.218	1	0.218	0.605	0.43

*P< 0.05(i.e. Significant).

[Table 3](#) shows the finding of ANOVA of regression analysis, that test the significance of each independent variables in predicting resource barriers in using ICT for teaching-learning. The finding shows that the type of campus where the teachers were involved (F = 4.11, p = 0.04) and the academic qualification of teachers (F = 3.79, p = 0.05) were statistically significant influencing variables of perceived resource barriers. Findings indicate the type of campus i.e. constituent or community and the teacher’s academic qualification i.e. masters, MPhil, or PhD/Post Doc were associated with differences in perceived resource barriers. In contrast, other variables i.e. age, designation, teaching experience, having or not devices, and having or not ICT training were not significant predictors.

Table 4

Regression Coefficients of Independent Variables Predicting Resource Barriers

Independent Variables	B	Std. Error	β	t	p-value
Age	-0.035	0.061	-0.29	-0.58	0.562
Campus Type	0.121	0.060	0.01	2.028	0.04*
Designation	-0.004	0.025	-0.009	-0.177	0.86
Teaching Experience	0.031	0.038	0.040	0.812	0.42
Qualification	0.093	0.048	0.097	1.948	0.05*
Device	0.072	0.135	0.027	0.538	0.59
ICT Training	0.50	0.065	0.039	0.778	0.44

*P< 0.05(i.e., Significant).

[Table 4](#) shows the regression coefficient of independent variables predicting resource barrier in using ICT for teaching-learning by economics teachers. Findings shows that the type of campus that teachers involved and their academic qualifications were significant predictors of resource barriers in using ICT for teaching-learning. Findings indicates that teacher with different campuses i.e. constituent and community and those with having varying academic

qualifications i.e. Masters, MPhil, and PhD/Post Doc experienced differences in perceived resource barriers. In contrast, other variables i.e. age, designation, teaching experiences, having or not devices, and having or not ICT training were not found significant.

Table 5

Group Comparison

Independent Variables	Types	Mean	SD	p-value
Types of Campuses	Constituent	2.48	0.52	0.04*
	Community	2.60	0.66	
Qualification	Masters	2.52	0.57	0.13
	MPhil	2.65	0.73	
	PhD and Post Doc	2.68	0.72	

*P< 0.05(i.e., Significant).

[Table 5](#) shows the findings of group comparison analysis of resource barriers by teachers involved campus category and their academic qualification. The results showed a statistically significant difference between constituent and community campuses. Teachers of community campus (Mean = 2.60, SD = 0.66) reported experiencing higher resource barriers than those from constituent campuses (Mean = 2.48, SD = 0.52). In contrast, so significant difference was found in teacher's academic qualification. Although men scores were slightly higher among teachers having MPhil and PhD/Pot Doc compare to those with mater's qualification. This implies that teachers having higher academic qualification expect higher resources to use ICT in teaching-learning so, they experienced higher resource barriers.

Discussion

The findings align with the worldwide and Nepalese context studies found that the resources, internet connectivity and institutional support are the overwhelming barriers to use ICT in education. Findings interestingly reveal that economics teachers at Tribhuvan University experienced time limitation, infrastructure deficits and basic utility challenges as prominent challenges in using ICT for teaching-learning. Findings resonate deeply with literatures from developing country and Nepalese contexts as well. For example, [Joshi and Khatiwada \(2024\)](#) revealed in their study concluded that insufficient resources including electricity, internet, and device are significant hurdles in Nepal's higher education sector. Academic institutions with lacking resources, time for lesson planning, searching and managing digital resources, and preparing power-point slides often must come from teachers' own non-working hours, which adds to workload and may lead to exhaustion ([Khan et al., 2012](#); [Laudari & Maher, 2019](#)). This suggest that though, physical infrastructures were sufficient, lack of time due to overload of teacher work remain significant barrier unless University policy addressing teaching styles, class load or teaching support ([Ngao et al., 2022](#)). Time deficiency functions as a structural barrier to meaningful ICT use for teaching-learning. [Rana and Rana \(2020\)](#) reported that

without clear implementation strategy and funding, ICT infrastructure and professional development remain weak, thus challenging meaningful ICT use.

Finding also show that the substantial barriers in terms of computer lab/multimedia facility, absence of consistent internet access, and lack of projector or smartboard in classroom in using ICT. Such type of resources barriers is frequently found in other developing countries as well. For instance, [Ntorukiri et al. \(2022\)](#) conducted policy and infrastructure reviews focus that even though ICT policy exists, less availability of resources is a tenacious barrier in higher education institutions in developing countries. In Nepalese context, many campuses lack modern labs, have irregular and weak internet, and deficiency of technical support ([Joshi et al., 2024](#); [Joshi & Khatiwada, 2024](#); [Shahi et al., 2025](#); [Thapaliya et al., 2024](#)).

Surprisingly, absence of financial and technical backing was reported as the least barrier. Tribhuvan University's teachers may expect limited support from university or campus in current context, so they may more silent such barrier than immediate operational other resource barriers. Even while funding and technical support are scarce, they might not have as much of an impact on daily class operations as excessive teaching loads or missed labs. In other words, teachers may be more bound by how that manifests locally even in the case of low budget.

In overall, teachers reported moderate barriers to use ICT in teaching-learning. This suggest that there is no condition of overwhelming barriers, but rather of partial, uneven capacity. It revealed that systemic gaps remain but some campuses have made progress to resolve resource barriers in using ICT. From a theoretical perspective material access is essential for appropriation of ICT, if there is obstacle in material access it create hurdle in appropriation process ([Van Deursen & van Dijk, 2019](#); [van Dijk, 2017](#)).

Regression and ANOVA results consistently found that the type of campus where participants involved i.e. constituent or community significantly predicted the resource barriers perceived by teachers. This difference presents the broader structural inequality between Tribhuvan University's constituent and community campuses. Study finds the teachers of constituent campuses have better access of resources than community campuses. Findings of this study supported by global literatures. Narrow view of investment can hinder the ICT access in community campuses due to less investment in ICT resources ([Gkrimpizi et al., 2023](#)). Thus, the digital divide between constituent and community campuses suggests that the need for suitable policy and targeted funding models to minimize it across Tribhuvan University's campuses.

Economics teachers' academic qualification also found as a significant predictor, while the mean difference across qualification levels were not statistically significant in group comparison. Teachers having MPhil and PhD/Post-Doc qualification expressed slightly higher perceived barriers than those with master degree. Teachers with higher qualification may expect better resources and advance ICT pedagogical demands to use ICT for teaching-learning, so they may experience higher barriers than those with less qualification ([Haider et al., 2025](#)). Teachers' perceived barriers thus show a gap between their professional necessities and the available ICT resources.

In Alignment with previous studies, this study also found that teachers' age, their designation, teaching experience, device ownership and ICT related training were not significant predictors of resource barriers. This finding suggests that the resource barriers in using ICT for teaching-learning largely influence by institution-driven than teachers' personal characters ([Budiyanto et al., 2024](#); [Chaturvedi & Bisaria, 2024](#); [Othman et al., 2024](#)). Studies in Nepalese context also emphasize that teacher training alone does not significantly predict ICT use in the absence of institutional support.

Conclusion

This study examined the resource barriers perceived by economics teachers at Tribhuvan University in using ICT for teaching-learning. Findings shows that teachers experienced moderate resource barriers. Teachers reported limited time due to class overload is most notable barrier among the barriers, they also expressed i.e. inconsistent internet access, insufficient computer lab and multimedia requisites as resource barriers significantly. This study found unequal availability of ICT resources among Tribhuvan University's campuses. Community campus teachers reported higher resource barriers than constituent campus teachers. It reflects the structural and investment driven divide within university. Teachers with higher academic qualification reported higher barriers, likely due to higher pedagogical expectations and advance ICT infrastructures for teaching-learning. So, this study shows that to enhance the use of ICT in pedagogy, there is need to build up the capacity of institutions, make sure that resources are distributed fairly, and create policies that make it easier for teachers to use ICT by reducing their workload and making sure that functional ICT infrastructure is available.

Authors' Contribution

Bishnu Maya Joshi: Overall responsibility for research design, manuscript drafting, data analysis, interpretation of findings, and major contributions to writing.

Durga Devi Ghimire: Literatures collection, review and language editing of the manuscript.

Conflict of Interest Statement: We, the authors, declare that there is no conflict of interests.

References

- Al Zebidi, A. A. (2016). *Predictive factors to adopt integrating technology into the teaching process by faculty at Al-Qunfudah University college* (Publication No. UMI No. 13834483) [Doctoral Dissertation. ProQuest Dissertations and Theses Global. <https://ln.run/Ra-ad>
- Budiyanto, C. W., Latifah, R., Saputro, H., & Prananto, A. (2024). The barriers and readiness to deal with digital transformation in higher education. *TEM Journal*, 13(1). <https://ln.run/0Wxp2>
- Chaturvedi, K. K., & Bisaria, C. (2024). Challenges and barriers in integrating ICT and AI technology in higher education: A critical exploration. *International Journal of Innovations in Science, Engineering and Management*, 3(2), 382-389. <https://shorturl.at/IEK8U>
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publication.
- De Barros Ahrens, R., Da Silva Lirani, L., & De Francisco, A. C. (2020). Construct validity and reliability of the work environment assessment instrument WE-10. *International journal of environmental research and public health*, 17(20), 7364. <https://doi.org/10.3390/ijerph17207364>
- Elshaikhi, F. S. (2015). *Barriers to integrating information technology in Libyan higher education* (Publication No. UMI No. 10008804) [Ph. D. Dissertation. ProQues ProQuest Dissertations and Theses Global.
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. *Education Sciences*, 13(7), 746. <https://doi.org/10.3390/educsci13070746>
- Haider, M. M., Atta, M. A., Gul, A., Shah, S. S. A., & Shah, S. W. A. (2025). Teacher qualifications and proficiency in the use of information and communication technology: A performance comparison. *The Knowledge*, 4(1), 1-14. <https://doi.org/10.63062/tk/2k25a.41029>
- Joshi, B. M. (2023). Teacher's Perception Regarding the Use and Challenges of ICT in Teaching-learning. *Ganeshman Darpan*, 8(1), 44-56. <https://doi.org/10.3126/gd.v8i1.57331>
- Joshi, B. M., Acharya, U., & Khatiwada, S. P. (2024). Policy versus reality: Challenges of implementing ICT in higher education in Nepal. *Pragya ratna प्रज्ञारत्न*, 6(2), 226-234. <https://doi.org/10.3126/pragya ratna.v6i2.71003>
- Joshi, B. M., & Khatiwada, S. P. (2024). Analyzing barriers to ICT integration in education: A systematic review. *The Third Pole: Journal of Geography Education*, 24, 25-45. <https://doi.org/10.3126/tp.v24i1.73325>
- Joshi, B. M., & Khatiwada, S. P. (2025). Motivational Access to the Use of Information and Communication Technology (ICT) in Teaching Economics. *Molung Educational Frontier* 15, 33-53. <https://doi.org/10.3126/mef.v15i01.73934>
- Khan, M. S. H., Hasan, M., & Clement, C. K. (2012). Barriers to the introduction of ICT into education in developing countries: The example of Bangladesh. *International Journal of instruction*, 5(2). <https://dergipark.org.tr/en/download/article-file/59739>
- Kim, H.-Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52-54. <https://doi.org/10.5395/rde.2013.38.1.52>

- Laudari, S., & Maher, D. (2019). Barriers to ICT use in EFL teacher education courses in Nepal: An activity theory perspective. *Journal of NELTA*, 24(1-2), 77-94. <https://doi.org/10.3126/nelta.v24i1-2.27681>
- Ngao, A. I., Sang, G., & Kihwele, J. E. (2022). Understanding teacher educators' perceptions and practices about ICT integration in teacher education program. *Education Sciences*, 12(8), 549. <https://doi.org/10.3390/educsci12080549>
- Ntorukiri, T. B., Kirugua, J. M., & Kirimi, F. (2022). Policy and infrastructure challenges influencing ICT implementation in universities: a literature review. *Discover Education*, 1(1), 19. <https://link.springer.com/article/10.1007/s44217-022-00019-6>
- Orban, H. R. (2021). A novel risk-based sampling calculator. *International Journal of Agricultural Extension and Rural Development Studies*, 8(2), 1-11. <https://dx.doi.org/10.2139/ssrn.3829029>
- Othman, W., Makrakis, V., Kostoulas-Makrakis, N., Hamidon, Z., Keat, O. C., Abdullah, M. L., & Mat, H. (2024). Predictors of motivation and barriers to ICT-enabling education for sustainability. *Sustainability*, 16(2), 749. <https://doi.org/10.3390/su16020749>
- Pinar, R., Celik, R., & Bahcecik, N. (2009). Reliability and construct validity of the health-promoting lifestyle profile II in an adult Turkish population. *Nursing Research*, 58(3), 184-193. <https://doi.org/10.1097/NNR.0b013e31819a8248>
- Rana, K., & Rana, K. (2020). ICT integration in teaching and learning activities in higher education: A case study of Nepal's teacher education. *Malaysian Online Journal of Educational Technology*, 8(1), 36-47. <https://files.eric.ed.gov/fulltext/EJ1239982.pdf>
- Setia, M. S. (2016, May-Jun). Methodology series module 3: Cross-sectional studies. *Indian J Dermatol*, 61(3), 261-264. <https://doi.org/10.4103/0019-5154.182410>
- Shahi, R., Chaudhary, B. P., & Management. (2025). Digital transformation: Adoption of information technology systems in higher education institutions of Nepal. *Cogent Business and Management* 12(1), 2524601. <https://doi.org/10.1080/23311975.2025.2524601>
- Singh, A. S., & Masuku, M. B. (2014). Sampling techniques & determination of sample size in applied statistics research: An overview. *International Journal of economics, commerce and management*, 2(11), 1-22. <https://ijecm.co.uk/wp-content/uploads/2014/11/21131.pdf>
- Singhavi, C., & Basargekar, P. (2019). Barriers perceived by teachers for use of information and communication technology (ict) in the classroom in maharashtra, India. *International Journal of Education and Development using Information and Communication Technology*, 15(2), 62-78. <https://files.eric.ed.gov/fulltext/EJ1220774.pdf>
- Smith, J. K. (2023). The development and validation of a new scale to measure anxiety in children. *Journal of Child Psychology and Psychiatry*, 64(1), 101-110. <https://doi.org/10.1177/0734282912470131>
- Thapaliya, M., Adhikari, S., & Rana, L. (2024). Opportunity in COVID-19 crisis: Moving away from chalk and talk to technology-integrated teaching in Nepalese higher education institutions. *E-Learning and Digital Media* 21(1), 87-105. <https://doi.org/10.1177/20427530231153944>

van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New media society*, 21(2), 354-375. <https://doi.org/10.1177/1461444818797082>

van Dijk, J. A. G. M. (2017). Digital divide: Impact of access. *The international encyclopedia of media effects*, 1-11. <https://url-shortener.me/DBOW>

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