Opportunities, Challenges, and Aspirations of University-Level English Faculties in ICT Integration[1]

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Abstract

Information and Communication Technology (ICT) has become a pivotal aspect of modern education. However, it has offered opportunities and posed challenges in education. This study explores university-level English teachers' (ULETs') experiences, opportunities, challenges, and aspirations in integrating ICT into education. Using an interpretative paradigm, qualitative approach, and phenomenological design, data were collected through semi-structured interviews and reflection notes from ten English teachers across five campuses of Tribhuvan and Mid-West universities. The findings revealed that ICT significantly contributed to student motivation and empowerment, facilitated autonomous exploration of learning materials, fostered peer and mentor support, enabled asynchronous and synchronous collaboration, and enhanced teacher professional development (TPD). The study also identified challenges, including frequent power outages, inadequate resources and skills, and infrastructure maintenance and use issues. The study suggests that stakeholders prioritize enforcing better ICT policies in education, allocate sufficient budgets for infrastructure development, and provide extensive teacher training. Regular monitoring and follow-up are essential to ensure the effective use of ICT in education. Additionally, further research is recommended to explore the experiences of students and other educational stakeholders at various levels.

***Keywords*:** E-Learning, ICT Integration in Education, Pedagogical Innovation, Student Engagement, Teacher Professional Development (TPD), Technological Barriers

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Background of the Study

The rapid development of ICT has helped transform the modalities of education globally. It has fostered innovative ideas and practices to enhance learning strategies and teaching practices through engaged and interactive learning among the stakeholders in education. ICT enables access to a wealth of resources through e-libraries and vast web repositories, transcending the traditional boundaries of time and space in education (Yamat, 2013). The proliferation of e-learning, digital learning, distance learning, and massive open online courses (MOOCs) has been a testament to the critical role of ICT in enhancing educational accessibility and delivery worldwide (Zimmer & Matthews, 2022). Furthermore, academic institutions use ICT for administrative efficiency via education management information systems (EMIS), underscoring its multifaceted benefits. According to the Digital Competence Framework for Citizens by the European Commission (Vuorikari et al., 2016), ICT and digitization are pivotal in achieving sustainable development. It fosters employment, education, social inclusion, and poverty reduction. ICT also supports various models of continuous professional development of teachers (Kennedy, 2005), such as training, award-bearing, coaching/mentoring, and action research models. These frameworks aim to equip teachers with experiential learning and problem-solving skills to enhance their professional capabilities.

ICT's worldwide acceptance and implementation in education have significantly influenced Nepal's educational institutions. The COVID-19 pandemic catalyzed educators' adoption of ICT skills, highlighting its importance in maintaining educational continuity (Paudel, 2021; Thapaliya et al., 2023). Consequently, universities and colleges are motivated to integrate ICT into their curricula and administrative practices (Shakya & Rauniar, 2002), aligning with government policies that advocate ICT use from primary education to tertiary levels. ICT in education is seen as a modernization tool to enhance quality by providing easy access to diverse resources, promoting critical thinking, and encouraging inclusion (Shields, 2011). ICT-integrated education is increasingly favoured over conventional methods in Nepal, advocating for its broader implementation to meet national educational goals (Adhikari & Shrestha, 2024). In English language teaching, ICT use spans from basic education (Kandel, 2023; Rana, 2018) to higher education (Kandel & Kandel, 2023; Paudel, 2021; Rana & Rana, 2020; Regmi, 2021), with the requirement of continuous ICT skills development among English language educators to align with global EFL trends. In this regard, teachers require ICT skills to earn

professional expertise (Neupane, 2024), deal with global academia, and digitally native students.

The integration of ICT in education is perceived as a superior alternative to the conventional education system in Nepal. Adhikari and Shrestha (2024)underscore the significance of the effective utilization of ICT in higher education institutions, including universities, to address the needs for digitization, enhancement, and transformation. Their analysis, derived from open-ended interviews with high-ranking university officials in Nepal, emphasizes the role of ICT in achieving the 17 sustainable development goals outlined in Nepal's 15th plan. The findings reveal that education stakeholders in Nepal have recognized the critical importance of ICT in meeting national educational objectives. It fosters university teachers' professional development and equips them to adapt to the evolving pedagogical landscape and align their teaching practices with the demands of 21st-century education.

Despite the growing integration of ICT in Nepalese education, significant challenges remain, particularly concerning the infrastructure of the educational institutions and skill development among teachers and students. Universities and campuses are inadequately equipped with ICT resources, limiting their potential for effective ICT implementation. University teachers, while engaged in teaching, research, and professional development activities, face constraints due to insufficient ICT infrastructure and technological knowledge (Paudyal & Rana, 2021). Addressing these issues is crucial for using ICT to enhance teaching and learning outcomes and institutional development. University teachers continuously seek to expand their professional knowledge and engage in academic discourses through ICT. The COVID-19 pandemic has further highlighted ICT integration in education.

Teachers recruited in the recent decades in university education in Nepal are digitally more proficient. University teachers appointed during the last 15 years in Nepal are more comfortable with using ICT (Thapaliya et al., 2024). Moreover, research has demonstrated the role of ICT to equip English language educators with the necessary skills to comprehend the mechanics of writing research reports and articles, as well as effectively disseminate their studies at seminars and workshops (Kandel & Kandel, 2023; Phyak et al., 2024). The studies imply that exploring the experiences of university teachers to identify the opportunities and challenges of integrating ICT is imperative. To address this issue, the present study explores opportunities and challenges of integrating

ICT into ULETs' professional practices and their aspirations for better ICT integration into education. This study aims to provide insights into the effective use of ICT for enhanced teaching-learning and TPD. Also, it identifies strategies that the authorities and stakeholders are expected to adopt for the resolution. In the evolving landscape of education, the integration of ICT has become a pivotal factor in enhancing teaching, learning, and TPD. Understanding how ULETs perceive these opportunities is essential for improving educational practices. However, while ICT offers numerous benefits, ULETs from varied geographical and institutional contexts face distinctive challenges in effectively integrating ICT into educational practices. Identifying these obstacles helps to develop strategies for seamless adoption and use of ICT in higher education. Furthermore, ULETs hold aspirations regarding the better use of ICT, aiming for more effective professional growth and enriched educational experiences. Exploring their perspectives, challenges, and aspirations provides valuable insights into optimizing ICT integration in higher education.

Literature Review

Research has consistently demonstrated the pivotal role of ICT in enhancing educational outcomes. Warschauer et al. (1996) assert that computer networks help develop student autonomy, equity, and language learning skills. The appropriate integration of ICT empowers second-language learners through self-initiation, teacher support, peer coaching, and collaborative interactions. Emir and Yangın-Ekşi (2024) conducted a comprehensive review of tele collaboration in English language teacher education from 2013 to 2023 and revealed that virtual spaces and synchronous interaction tools effectively built rapport and enhanced pedagogical skills among teachers. This suggests that ICT facilitates teacher collaboration and enhances content, pedagogical, and technological competencies. Similarly, Sama and Wu (2019) explored that computer-integrated talk-aloud sessions with native speakers significantly improved students' autonomy and linguistic development. It stresses the importance of conversation with native speakers for developing learner autonomy and language skills. A convergent mixed-method study by Thapaliya et al. (2024) involving lecturers from various Nepalese universities found that integrating ICT in education helps build technological, pedagogical, and technological-pedagogical knowledge.

Zimmer and Matthews (2022) revealed that virtual coaching supported TPD by enhancing digital learning and identity. Similarly, Zagouras et al. (2022) concluded that a

blended mode of training, combining face-to-face and technology-incorporated sessions was more effective in producing qualified teachers in Greece. Willet (2023) noted that early career teachers in the US leveraged social media to obtain support, access resources, resolve problems, and create professional learning networks. This indicates the importance of ICT-mediated communication in facilitating collaboration and PD among teachers. Kohnke (2021) explored the preferences of university teachers in Hong Kong and found that informal discussions and sharing among colleagues about ICT use were more valued for professional development than administrative awards. This study highlights the importance of teacher autonomy in choosing how and when to use ICT for their PD.

In Nepal, university teachers are anticipated to attain a certain level of ICT competence to handle ICT-incorporated teaching and learning. Kandel and Kandel (2023) stressed the significant role of ICT in preparing students for report writing and dissemination, supported by model presentations in classrooms. Their study demonstrated that ICT tools enhance teachers' lesson planning, preparation, and class delivery and help students engage in research writing and publication. Tamang et al. (2022) highlighted that academic publication is a criterion for faculty promotion, necessitating basic ICT skills. The Teacher Service Commission of Nepal also mandates basic ICT knowledge as an essential skill for teachers at all levels (TSC, 2078 BS). The literature reviewed above suggests the importance of ICT in education.

Despite significant research on the advantages of ICT in education, a pronounced gap exists in examining the lived experiences of ULETs, particularly concerning the opportunities and challenges of ICT integration in education for their professional career. Prior studies have largely concentrated on the technological, pedagogical, and collaborative benefits of ICT use in language learning and teacher training (Emir & Yangın-Ekşi, 2024; Sama & Wu, 2019; Warschauer et al., 1996; Zagouras et al., 2022; Zimmer & Matthews, 2022)in different contexts. These studies highlight how ICT enhances teacher collaboration, pedagogical skills, and PD. The work of Thapaliya et al. (2024) sheds light on the generational and gender disparities in ICT adoption among Nepali university lecturers, emphasizing the necessity for a deeper understanding of these educators' lived experiences. However, there is a paucity of qualitative investigations into how ULETs find the opportunities and challenges of using ICT in diverse cultural and institutional settings.

Moreover, existing literature suggests that basic ICT competencies are mandatory for academic progression and professional recognition within Nepali schools and universities (Tamang et al., 2022; TSC, 2078 BS). Kohnke (2021) also identifies a discrepancy between institutional benchmarks and teachers' perceptions of effective ICT use for PD. The review depicts those previous studies that focused on the technological and pedagogical benefits of using ICT in education. However, limited studies explore how ULETs perceive these opportunities in their specific institutional and cultural contexts and how their perceptions influence their daily professional routines, aspirations, and perceptions of the use of ICT in education. This underscores the need for a nuanced examination of teachers' personal experiences and preferences in ICT integration. To address this gap, this study delves into the lived experiences of ULETs in Nepal, focusing on their aspirations, challenges, and strategies for integrating ICT into their professional routines, thereby contributing to a richer and more holistic comprehension of ICT integration in higher education. It examines ULETs' perceptions of the opportunities of ICT integration in education for enhancing teaching, learning, and PD. It also aims to identify the challenges they encounter while incorporating ICT into their educational practices, including technical constraints, inadequate training, resistance to change, and limited institutional support. Furthermore, the study seeks to understand ULETs' aspirations for better ICT use in education and TPD. Building upon the identified gaps in the literature and addressing these dimensions inherent in the research questions, this study contributes to a more nuanced understanding of how ULETs engage with ICT, ultimately informing future strategies to facilitate its meaningful integration into higher education.

Methodology

I employed an interpretative research paradigm to investigate the lived experiences of ULETs regarding the opportunities and challenges they faced, including their understandings following Wilson (2015), Smith et al. (2009), and Creswell and Poth (2018). I assumed they held diverse opportunities and challenges with ICT use in their practices (ontology). I immersed myself in their environment to establish rapport to comprehend their context (epistemology). I used semi-structured interview protocols and a template in Google Forms to collect their experiences through open interviews and reflective notes on the opportunities and challenges of ICT usage for their PD (methodology). In the meantime, I acknowledged the value-laden nature of the study,

influenced by my personal experiences with ICT, and my integral role in the research (axiology). I employed a subjective personal voice using active sentences to disseminate the study through publication (rhetoric).

I purposively selected five colleges from the Surkhet Valley of the Karnali Province, including ten ULETs who used ICT in education (two from each), representing two universities in Nepal. They represented both male and females from the 36 to 43 age, different ethnic groups, and job status (permanent, full-time contract and part-time teachers). The study employed semi-structured interview guidelines, a widely recognized instrument in educational research (Winwood, 2019), for the in-depth investigation of participants' experiences (Wilson, 2014). Additionally, it utilized the reflective accounts of ULETs' comprehensive experiences concerning the opportunities, problems, and expectations of using ICT in their profession through Google Forms. The Google Forms included the issues for them to reflect on (write) with some prompt statements for probing and independently reflecting on the opportunities and challenges of using ICT in their contexts, their aspirations for its better use, and means of resolving the challenges concerning their institutions and employers. I visited the campuses in person, informed the heads with an information sheet, and obtained their informed consent in writing. With their consent, I met the participating teachers, handed them information sheets, and acquired their written informed consent, which stated their voluntary participation in the study. After establishing rapport, I interviewed them and sent them the Google Forms to reflect on their ICT use. To enhance the trustworthiness, I meticulously reviewed the research tools and followed the recommendations of Van Teijlingen and Hundley (2002).

The collected data were analyzed based on the six phases of thematic analysis suggested by Braun and Clarke (2006). I immersed myself in the data for a thorough and systematic analysis, which involved listening to the interviews, transcription, and engaging in meticulous reading and rereading of the transcripts and reflection notes. Then, I generated initial codes and constructed the coding framework using ATLAS.ti7. Next, I coded each document (initial codes) and validated the coded data segments by renaming, merging some codes, and grouping related codes into families. This resulted in the development of the first-order code structure and the definition of the codes. Fourthly, I sought to identify themes from the coding table by clustering the codes into meaningful patterns that addressed the research questions. The fifth phase included meticulously reviewing the themes and examining the relationships between codes and themes. The

sixth phase included finalizing the themes and delineating their scope to facilitate meaning-making and interpretation during the thematic analysis. Each theme's core message was identified, ensuring a coherent narrative of the quotes and thematic network. Finally, I discussed the findings with previous research and literature. In the meantime, I protected the privacy (Kumar, 2018) and anonymity of participants by using pseudonyms. I also shared the interview transcript and the draft of the findings with them for member checking. To maintain the uniformity and integrity of the study, I followed the publication manual of the American Psychological Association (2020).

Results

The thematic illustration of results examines how ICT facilitated student engagement, strengthened collaboration, and supported TPD for ULETs. It also identifies key infrastructural, technical, and resource-related barriers that hinder ULETs' effective ICT integration. Moreover, it outlines their expectations for policy reinforcement, resource allocation, and sustained TPD. This thematic analysis of results provides a structured and methodologically rigorous examination of insights drawn from the data.

ICT-induced opportunities for ULETs

The data showed that ULETs understood the transformative potential of ICT in fostering the holistic development of teachers and students within the educational landscape. In this context, a ULET, Dwarika clarified that ICT facilitates access to prosperity of global resources, thereby enhancing pedagogical practices and fostering PD. He further articulated:

> We can get many ideas from other worlds; other worlds mean outside our classroom. So, from other universities, from other countries, from other people also, not only by our routine teachers, subject teachers, we can get lots of things by using this in teaching and learning and professional practices also. Not only do our guide, and our mentor, give us ideas, but we can get ideas from other people, and other resources too.

Dwarika intended that ICT afford extensive access to global resources, significantly contributing to knowledge expansion and PD. It creates opportunities for skill development and supports flexible work arrangements. Moreover, ICT facilitates efficient content search, virtual collaboration, and continuous professional development. Highlighting this point further, Gahan remarked:

> We can search content materials through ICT, we can present content visually with the help of a projector, we can collaborate …, we can collaborate with the teachers, we can collaborate with the students virtually and share our best practices too. We can also prepare academic papers; … take different training and other courses using ICT tools and devices. We also share what we do every day through ICT. We solve our problems related to the content, materials, and methods.

Gahan's reflections illustrate that ICT offers various practical applications, such as content search, virtual collaboration, and PD opportunities. The versatility of ICT is pivotal in enhancing teaching practices and fostering continuous improvement. Additionally, ICT plays a significant role in promoting critical thinking and problem-solving skills. Concerning this issue, Kristina observed:

> Additional or sometimes contradictory information also has come there. And sometimes we need to sit together and …. find out which one is wrong. Sometimes there is a lot of information on the website. If I read from one book, students bring different information from another book. So, they come with …. information …. helpful to develop their critical mindset…. Why this? Why not this? That also helps them to develop problem-solving skills as well.

Kristina acknowledged the potential challenges posed by information overload in the digital age. Concurrently, she identified ICT's pivotal role in fostering critical thinking and problem-solving skills among students. She emphasized the importance of discernment in navigating conflicting sources. Additionally, ICT provides multifaceted advantages, including enriching learning experiences, supporting administrative functions, and fostering collaboration. In this context, Rohit shared his experiences regarding the opportunities presented by ICT:

> Using ICT in teaching and professional practice has many advantages. It enhances the learning experience through interactive tools. It provides global access to information. It fosters flexible and personalized learning. Similarly, ICT also supports administrative tasks, for example, students' records, assignment records, and other classroom activities. It also promotes real-time assessment. It facilitates collaboration among students and teachers.

Akin to the ideas of Rohit, Timothy illustrated the numerous opportunities obtained by ICT integration in education:

> I often perceive several opportunities of using ICT in my teaching and professional practice such as learning engagement. It means it helps to engage the students through the ICT tools and ICT in the real classroom. The next one is personalized learning. It means it helps from person to person. It means every student can engage in an ICT-incorporated classroom.

As Timothy stated ICT has a transformative impact on teaching and professional development. It enhances engagement and personalized learning experiences through collaborative practices of students and teachers. ICT influences instructional methods and assessment practices, underscoring its significance in shaping modern paradigms in education.

Collectively, these responses underscore the transformative potential of ICT in education. Their responses acknowledge the crucial role of critical engagement and skill development in fully leveraging its benefits. Furthermore, the thematic network of ICT-induced opportunities for ULETs (Appendix, Figure 1) demonstrates how ICT enhances pedagogical and content knowledge, empowers students, and addresses challenges associated with its use. The network implies that ICT offers practical solutions to problems by fostering skill development, critical thinking, problem-solving, virtual collaboration, and professional development opportunities. Moreover, ICT's multifaceted benefits include enriching learning experiences, supporting administrative functions, and collectively contributing to learning enhancement and teacher development.

Challenges of ULETs in using ICT

The data reveal that ULETs face significant challenges in leveraging ICT effectively in education. Key issues include infrastructural management problems, lack of resources and ICT devices, digital divides among students, and insufficient skills in utilizing ICT. Infrastructural deficiencies hinder widespread ICT integration, while budget constraints limit the acquisition of necessary technology. The digital divide exacerbates educational experiences and outcomes disparities, particularly between urban and rural students and those from varying socioeconomic backgrounds. Furthermore, teachers and students often lack the necessary skills to integrate and use ICT effectively, impeding the full potential of these technologies in education. These challenges are vividly illustrated through quotes extracted from the coded ATLAS.ti project under the theme 'Challenges of ULETs in using ICT' as shown in Figure 1.

Figure 1: Quotes of ULETs on Challenges in Using ICT

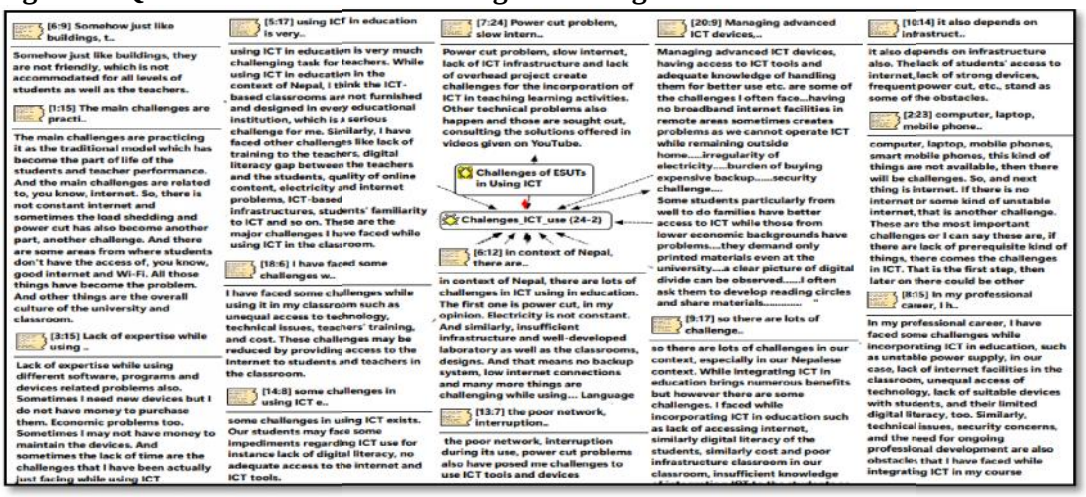

Figure 1 poignantly illustrates the multifaceted challenges faced by ULETs in integrating ICT into the classroom environment in Nepal. These challenges significantly impede the effective utilization of technology in educational settings, with far-reaching implications for teaching and learning outcomes. A critical issue highlighted by Niranjan [7:24] and Trilochan [10:14] is the infrastructural inadequacy, exemplified by frequent power cuts and slow internet speeds. These infrastructural deficits lead to persistent disruptions in ICT usage, undermining the continuity and reliability essential for effective technology integration. Trilochan [20:9] further elucidates the problem by pointing out the absence of broadband internet in remote areas, which starkly hinders the efficient operation of ICT.

The scarcity of equipment and devices presents another substantial barrier. Rohit [18:6] encounters significant difficulties due to limited access to ICT devices and the high costs associated with their procurement and maintenance. This scarcity not only limits students' and teachers' ability to engage with technology but also places a financial strain on educational institutions striving to upgrade with technological advancements. Moreover, the issue of digital literacy emerges as a critical concern. Rohit [8:15] asserts that the inadequate training provided to both teachers and students creates a substantial digital literacy gap. Socio-economic disparities further compound these challenges. Timothy [9:17] discusses how economic inequalities result in unequal access to ICT, particularly for students from low-income families. This unequal access contributes to a

digital divide within classrooms, adversely affecting the overall quality of education. Lalit [5:17] emphasizes the struggle with inadequate training and resources, which hampers the integration of ICT into pedagogical practices, while Gahan [13:7] highlights how limited internet access and devices hinder students' learning, negatively impacting content delivery, engagement, and the quality of educational materials. Niranjan [14:8] addresses practical challenges such as the maintenance of devices and software, which lead to an unequal distribution of resources and access among students. The data vividly portrays a complex web of challenges ranging from infrastructural deficits to socio-economic disparities and digital literacy gaps. Addressing these issues is necessary to enhance education quality and bridge the digital divide in Nepal.

The network of challenges to ICT integration in education (Appendix, Figure 2) highlights various interconnected issues such as infrastructural deficiencies, limited resources, digital divides, lack of digital literacy, and socio-economic factors. The network represents the barriers that teachers and students face in the effective ICT integration into the educational process. The central theme, 'Challenges of ICT Use', encapsulates various difficulties teachers encounter, such as infrastructural issues, limited resources, digital literacy gaps, and socio-economic disparities. These challenges often contradict teachers' aspirations for integrating technology in their classrooms, leading to frustration and impeding the effective use of ICT.

ULET's aspirations concerning ICT in education

Teachers also articulated their expectations and aspirations for ICT integration in education. The thematic network (Appendix, Figure 3) indicates that these expectations are shaped by several critical factors, including the utilization of ICT in teaching and learning English, teachers' proficiency in employing ICT, and their collaboration with colleagues. These elements collectively influence their vision for the effective integration of ICT in educational practices. It highlightsthe interconnectedness of ULETs' goals and the necessary conditions for realizing an ideal ICT-enhanced educational environment, specifically focusing on their aspirations and experiences. Proficiency in ICT emerges as a crucial factor for its effective application in educational settings, which in turn impacts the broader aspirations of teachers regarding ICT integration. Additionally, the network suggests that enhancing teachers' ICT skills and effectively applying these skills can contribute to achieving broader educational goals and fulfilling teachers' aspirations.

The quotations (extracted from the ATLAS.ti project) in Figure 2 illustrate the teachers' expectations for better ICT integration in education vividly.

Figure 2: ULETs' Quotes on Ideal ICT Use in Education

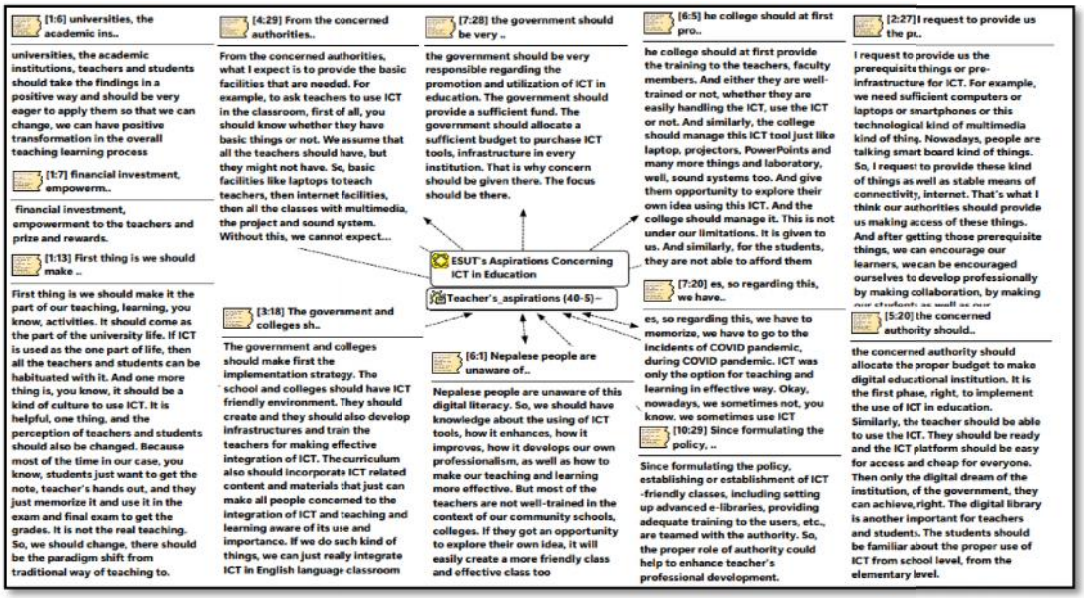

Figure 2 provides a detailed account of university teachers' aspirations regarding the use of ICT in education. Chiran [1:6] emphasizes the collective desire of university teachers and students to leverage ICT to transform the teaching-learning process. He suggests that financial investment and incentives, such as rewards and prizes for teachers, can encourage the effective use of ICT. Additionally, he advocates for integrating ICT into teaching, learning, and activities as a cultural norm within university life, necessitating a shift in perception among teachers and students. This shift includes encouraging students to engage actively with teachers rather than merely aiming to pass exams, thereby urging a transformation in the traditional teaching paradigm to incorporate ICT in education.

Kristana [4:29] highlights the need for authorities to provide essential facilities, such as laptops, internet access, multimedia, projectors, and sound systems, to enable effective ICT integration in classrooms. Once these prerequisites are met, teachers can collaborate and innovate in their teaching methods. Gahan [3:18] and Ranjit [7:28] recommend that government and college administrations focus on creating an ICT-

friendly environment and infrastructure in colleges. Niranjan [6:1/6:5] stresses the importance of training teachers in ICT integration within the curriculum. Lalit [5:20] advocates for including digital content in the curriculum to enhance ICT effectiveness in learning. Dwarika [2:27] advises colleges to provide training and resources, such as laptops and projectors, to both teachers and students, offering students opportunities to explore content and technological knowledge. Ranjit [7:20] underscores the need for digital learning tools, especially in the context of COVID-19. Trilochan [10:29] recommends formulating policies to establish ICT laboratories and user-friendly digital platforms. Finally, Lalit [5:20] emphasizes the need for adequate budgeting and resources for ICT in education.

These aspirations of ULETs reflect a collective need for digital literacy among teachers and students at all education levels. It encapsulates their collective aspirations and recommendations, highlighting the critical importance of integrating digital skills into education. The teachers' insights reveal that without substantial investment in digital literacy, the potential of ICT to enhance teaching and learning remains significantly underutilized, thereby reinforcing the urgency for systemic changes to foster a more technologically adept educational environment in their contexts.

Discussion and Findings

The study highlights that teachers see potential in ICT to transform the teaching-learning process, enhance engagement, and foster teacher-student interaction, advocating for its integration as a cultural norm within educational institutions. However, they face significant barriers, including infrastructural inadequacies, limited access to resources, socio-economic disparities, and a lack of digital literacy and training. Consequently, they expect substantial financial investment, policy reforms, and targeted PD to overcome them. Also, they aspire to create an ICT-friendly environment through comprehensive digital literacy education for teachers and students, ensuring equitable access and effective use of ICT across all educational levels.

Opportunities and challenges of ICT integration in education

The integration of ICT in education has provided numerous opportunities and challenges, which the teachers have observed. Akin to this study, Alenezi et al. (2023) identified the benefits of digital education, including enhancing teaching and learning, improved returns on higher education, increased parental and school engagement, reduced inequalities and diversities, and the ability to access education anytime and anywhere.

These opportunities necessitate digital literacy among students and teachers. However, challenges such as the lack of direct teacher-student interactions, the need for self-discipline, technological obstacles, meeting deadlines, and the unsuitability of digital education for practical subjects were also noted. In this study, teachers acknowledged these opportunities and incorporated many of them into their practices. They reported that ICT facilitated digital learning and promoted heutagogy, leading to autonomous and self-directed lifelong learning (Vurayai, 2023) for both themselves and their students. However, the teachers also faced significant challenges, including inefficient ICT infrastructure, unreliable electricity, unstable internet connections, insufficient and low-quality devices, and a lack of proficient ICT skills in ICT integration in education.

Zarei and Mohammadi (2022) conducted an extensive literature review on the impact of the COVID-19 pandemic on developing countries and found that educational institutions in these regions struggled with "improper and deficient technological and practical fundamentals" (p. 85562). These issues posed challenges for all stakeholders, including students, teachers, parents, and others. They found universities in developing countries faced insufficient technological and financial resources, although some improvements were made in the short term. These findings align with the present study, as teachers shared similar experiences regarding infrastructure and resource challenges in their context. The findings of this study also highlighted the need for careful monitoring of the use of social media, online teaching and learning, and internet browsing for educational purposes to maximize their effectiveness. Awoke and Zikargae (2023) reported similar findings in Ethiopian universities, noting that while social "platforms offer benefits such as communication, collaboration, flexibility, and cost savings, they also present potential drawbacks, including confusion, dependency, health impacts, delayed feedback, lack of responsibility, boundary-breaking, infrastructural issues, and academic dishonesty" (p. 18). As the literature suggests that ICT holds intrinsic advantages and drawbacks (Ibrahim, 2010), the present study underscores the importance of well-monitored, selective, and efficient use of digital tools to drive transformation in teaching and learning.

Teacher dream of ICT integration in education

The findings of this study indicate that the participating ULETs have a strong aspiration to work in well-equipped educational institutions with sufficient ICT resources and infrastructure. They expressed a need for adequate ICT tools for teaching-learning

and their professional development. Additionally, they emphasized the necessity of comprehensive ICT training for teachers. They also expected the provision of ICT resources to students to enhance their learning and overcome the digital divide. The teachers in this study highlighted the importance of integrating ICT into university education. They opined that it helps them maintain competitiveness and deliver quality education to digitally adept students. Alenezi et al. (2023) support this view, arguing that universities must develop ICT-friendly physical infrastructure, administrative systems, and curricular management to harness the full potential of digital teaching and learning. Moreover, both students and teachers should possess proficient ICT skills for effective learning, teaching, and continuous professional development.

The teachers demonstrated a proactive attitude towards ICT integration in higher education. They also identified its relevance in elementary, basic, and secondary education. They underscored the necessity of online and blended modes of education delivery in higher education, facilitated by systematic technological setups in universities and campuses. To realize the ideal use of ICT in education, Ọsẹmwegie-Ẹro and Osa-Omoregie (2024) advocate for the quality preparation of teachers in ICT usage, the formulation and implementation of effective ICT policies in education, general awareness and professional insight among teachers, substantial funding for developing technological skills, and the use of ICT to address diversity, exclusion, and ensure integrity and equity. These recommendations align closely with the aspirations of the ULETs and the implications of this study.

Furthermore, the study identified various factors influencing teachers' use of ICT in educational settings and for their professional development. Ferede et al. (2022) found that the determinants of ICT use in education in Ethiopia are similar to those in Nepal and other developing countries, as reported by the ULETs in this study. The conceptual framework proposed by Kandel (2023) outlines ICT infrastructure-related, institutional, course-related, and individual factors that affect teachers' ICT usage, mirroring the thematic framework suggested by Ferede et al. (2022, p. 924).This study reveals that while there are significant opportunities for ICT integration in education, substantial challenges remain on the other side. Addressing these challenges requires a concerted effort from the concerned authorities and stakeholders to improve ICT infrastructure, provide comprehensive training, implement effective policies, and secure necessary funding. By doing so, educational institutions can create an environment conducive to the

effective use of ICT, ultimately enhancing the quality of education and fostering lifelong learning among teachers and students. Ultimately, it also meets the teachers' expectations and the urge to earn expertise in teaching and enhance their professional development.

Conclusions and Implications

The findings of this study underscore the transformative potential of ICT in enhancing the educational experience for teachers and students. ICT facilitates access to a wealth of global resources, fostering digital learning that promotes autonomous and self-directed learning. Teachers and students use ICT to engage in more effective and innovative teaching and learning practices, expanding their knowledge base beyond traditional classroom boundaries and educational settings. However, despite these substantial opportunities, several challenges impede the seamless integration of ICT in education. These challenges include infrastructural deficiencies such as unreliable electricity and unstable internet connections, a significant gap in digital literacy among teachers and learners, and socioeconomic disparities that limit access to necessary technological resources. Addressing these issues is crucial for maximizing the benefits of ICT and ensuring that all students can participate fully in a digitally-driven educational landscape.

The study implies the necessity for strategic interventions to overcome the identified challenges to ensure better ICT integration in education. Educational institutions must prioritize the development of robust ICT infrastructure, including reliable power and internet connectivity, to support the effective use of technology in teaching and learning. Comprehensive training programs are essential to enhance digital literacy among both teachers and students, empowering them to utilize ICT tools confidently and competently. Additionally, policymakers must allocate sufficient funding to support the acquisition and maintenance of ICT devices, addressing economic disparities and ensuring equitable access for all learners. Furthermore, the study suggests that the successful integration of ICT requires a collaborative effort involving various stakeholders, including government bodies, educational institutions, and the private sector. By addressing the challenges and leveraging the opportunities identified in this study, educational institutions can enhance the overall quality of education and prepare students to thrive in a digitally transformed world. The collective efforts of all stakeholders are essential in building an educational ecosystem that harnesses the full

potential of ICT, enabling students and teachers to achieve their educational aspirations and meet the demands of the modern, technology-driven world.

However, the findings are largely based on qualitative data from a specific group of teachers and may not be generalizable to all educational settings. Additionally, the study's reliance on self-reported data could introduce bias, as participants may have overstated or understated their experiences. The infrastructural and socio-economic challenges identified are context-specific to rural areas of Nepal. Consequently, the findings may not fully apply to other regions with different educational environments. Finally, the rapidly evolving nature of ICT means that the challenges and opportunities identified in this study may change over time, requiring ongoing research to stay current with technological advancements. Through strategic interventions and collaborative efforts, educational institutions can create an environment that fosters innovation and continuous improvement, ultimately enhancing the quality of education and preparing students for success in a digitally driven world.

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Appendix: Thematic Networks of the Study

Figure 1: Thematic Network of ICT-Induced Opportunities

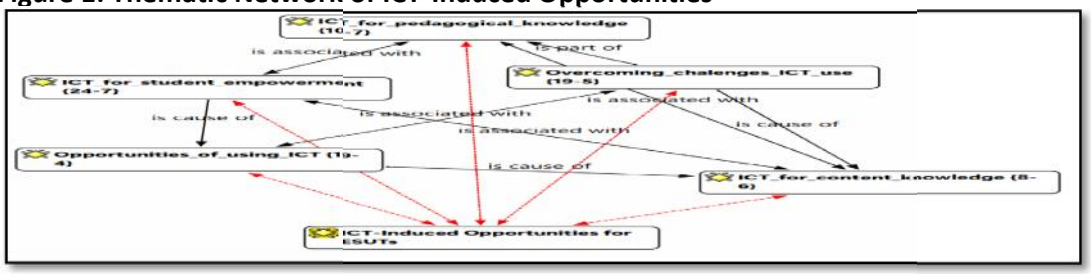

Figure 2: Thematic Network of Challenges of Using ICT

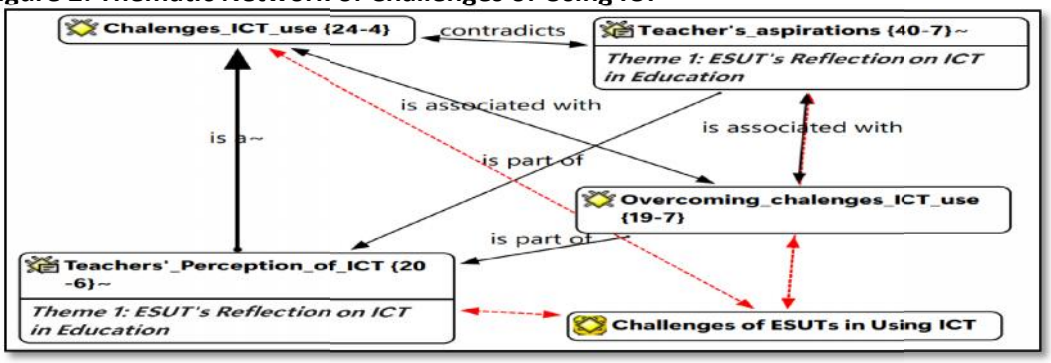

Figure 3: Thematic Networks for ULETs' Aspirations on ICT in Education