TEACHERS' CONCEPTUALIZATIONS OF USING ICT AFFORDANCES IN ENGLISH LANGUAGE TEACHING: A Q METHODOLOGICAL STUDY

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A Dissertation

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AN ABSTRACT

of the dissertation of *Tirtharaj Dhungana* for the degree of *Master of Philosophy in English Language Education* entitled *Teachers' Conceptualizations of Using ICT Affordances in English Language Teaching: A Q Methodological Study* presented on *10 February 2025*.

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Dissertation Supervisor	Dissertation Supervisor

This study critically examines how secondary-level English language teachers conceptualize and enact Information and Communication Technology (ICT) affordances in rural English Language Teaching (ELT) contexts. It also takes into account factors influencing these teachers' conceptualizations. Examining the manifold self-referential subjective viewpoints of English teachers regarding ICT affordances usage allows the researcher to uncover the ICT integration realities, including the enablers and barriers inherent in rural ELT contexts. This study adopts an interpretive research design within a social constructionist paradigm and also adapts some theoretical concepts of Gibson's Affordance Theory and Davis's Technology Acceptance Model (TAM). It uses Q-sorts and post-sort interviews within Q methodology research to capture a holistic understanding of teachers' conceptualizations of ICT affordances. Factor analysis of Q-sorts reveals three dominant conceptualizations of ICT affordances: Practical and Accessible ICT, Collaborative and Interactive ICT, and Adaptive and Content-Driven ICT. Further analysis of these three conceptualizations (factors) revealed that teachers enacted a total of twelve ICT affordances in rural ELT contexts, which are, in turn, collectively shaped by infrastructural, technological, and pedagogical factors.

The findings of this study inform that English teachers in rural contexts largely recognise the potential of ICT affordance tools that are offline, multimodal, and interactive to facilitate diverse skills and aspects of the English language. However, infrastructural limitations, lack of internet access, and training gaps prevent their full implementation. These aspects demand that the related stakeholders and policymakers target their strategies and actions towards investing in ICT infrastructure, devising context-sensitive policies to mitigate the widened digital divide of rural contexts, and implementing teacher training modules tailored to the needs of rural English teachers.

……. 10 February 2025

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शोध सार

अंग्रेजी भाषा शिक्षामा दर्शनशास्त्रको स्नातकोत्तर डिग्रीको लागि तिर्थराज ढुंगानाको शोध प्रबन्धको शिर्षक "अङ्ग्रेजी भाषा शिक्षणमा सूचना तथा सञ्चार प्रविधि को सामर्थ्यहरुको उपयोगबारे शिक्षकहरूको अवधारणा : एक Q पद्धति अनुसन्धान" २८ माघ २०८१ मा प्रस्तुत गरिएको थियो ।

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उप. प्रा. सिद्धार्थ ढुंगाना, पीएचडी	उप प्रा. बासु प्रसाद सुवेदी, पीएचडी
शोध निर्देशक	शोध निर्देशक

यस अध्ययनले नेपालका ग्रामीण भेगका माध्यमिक तहका अङ्ग्रेजी भाषा शिक्षकहरूले सूचना तथा सञ्चार प्रविधिका सामर्थ्यहरूको अङ्ग्रेजी भाषा शिक्षणमा कसरी अवधारणा बनाउछन् र कार्यान्वयन गर्छन भन्ने विषयलाई आलोचनात्मक रूपमा अन्वेषण गर्दछ। यसका साथै, यसले शिक्षकहरूको यस्तो निर्मित अवधारणाहरूलाई प्रभावित पार्ने कारक तत्वहरुलाई पनि ध्यानमा राख्दछ। सूचना तथा सञ्चार प्रविधिको उपयोगको सम्बन्धमा अङ्ग्रेजी शिक्षकहरूको बहुआयामिक आत्म-सन्दर्भात्मक व्यक्तिपरक दृष्टिकोणको अध्यनले यस अनुसन्धानकर्तालाई ग्रामीण अङ्ग्रेजी शिक्षणको सन्दर्भहरूमा अन्तरनिहित सूचना तथा सञ्चार प्रविधि एकीकरणका सामर्थ्यहरूका अवसर र अवरोधहरूको वास्तविकताहरू उजागर गर्न सघाउँछ। सामाजिक निर्माणवादी दृष्टिकोण अन्तर्गत रहँदै व्याख्यात्मक अनुसन्धान ढाँचा अपनाएको यस अध्ययनले Gibson को अफोर्डेन्स सिद्धान्त र Davis को टेक्नोलोजी एक्सेप्टेन्स मोडेल (TAM) का केही सैद्धान्तिक अवधारणाहरूलाई पनि अनुकूलन गर्दछ। साथै, यसले Q अनुसन्धान पद्धतिको क्यू-सोर्ट्स (Q-Sorts) तथा पोस्ट-सोर्ट अन्तरवार्ताहरूको प्रयोगमार्फत शिक्षकहरूको अवधारणाहरुको समग्र बुझाइ प्रदान गर्दछ। क्यू-सोर्ट्सको (गणितिय) घटक विश्लेषणले सूचना तथा सञ्चार प्रविधि

सामर्थ्यहरुका तीन प्रमुख अवधारणाहरू प्रकट गरेको देखिन्छः व्यावहारिक र पहुँचयोग्य सूचना तथा सञ्चार प्रविधि, सहकार्यात्मक र अन्तरक्रियात्मक सूचना तथा सञ्चार प्रविधि र अनुकुलनशील तथा सामग्री-आधारित सूचना तथा सञ्चार प्रविधि । यी तीन अवधारणा (कारक) हरुको थप विश्लेषणमार्फत शिक्षकहरूले कुल बाह्र प्रकारका सूचना तथा सञ्चार प्रविधिका सामर्थ्यहरू अंग्रेजी शिक्षणको परिप्रेक्ष्यमा कार्यान्वयनमा ल्याएको र यिनीहरुको कार्यान्वयनमा पूर्वाधार, प्राविधिक र शैक्षणिक जस्ता कारकहरूले सामूहिक रूपमा प्रभाव पारेको देखियो।

यस अध्ययनको निष्कर्षहरुले ग्रामीण परिवेशमा कार्यरत अंग्रेजी शिक्षकहरूले अंग्रेजी भाषाका विविध भाषागत सीपहरू र पक्षहरूलाई सहजीकरण गर्न सूचना तथा सञ्चार प्रविधि का संभावित सामर्थ्यहरू जस्तै बहु-आयामिक र अन्तरक्रियात्मक प्रकृतिका बिना इन्टरनेट चल्ने साधनहरुको धेरै हदसम्म पहिचान गर्दछन भन्ने कुरा देखाउँछन। यद्यपि, तिनीहरूको पूर्ण कार्यान्वयन गर्नमा पूर्वाधारहरुको सीमितता, इन्टरनेटको पहुँच नहुनु र तालिमको अभाव जस्ता कारणहरुले अवरोध खडा गरेको देखिन्छ। यी पाटाहरूले सम्बन्धित सरोकारवालाहरू र नीति निर्माताहरूलाई सूचना तथा सञ्चार प्रविधि का पूर्वाधारमा लगानी गर्न, ग्रामीण सन्दर्भहरूको फराकिलो डिजिटल खाडललाई कम गर्न सन्दर्भ-संवेदनशील नीतिहरू बनाउने र ग्रामीण अंग्रेजी शिक्षकहरूको आवश्यकता अनुरूप शिक्षक प्रशिक्षण मोड्युलहरू कार्यान्वयन गर्ने दिशामा आफ्नो रणनीति र कार्यहरू लक्षित गर्न माग गर्दछन्।

..... २८ माघ २०८१

तिर्थराज ढुंगाना

उपाधि उम्मेदवार

This dissertation entitled *Teachers' Conceptualizations of Using ICT Affordances in English Language Teaching: A Q Methodological Study* was presented by Tirtharaj Dhungana on 10 February 2025.

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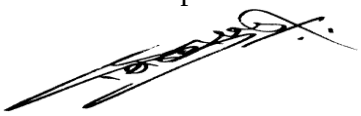

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I understand that my dissertation will become a part of the permanent collection of the library of Kathmandu University, School of Education. My signature below authorizes the release of my dissertation to any reader upon request for scholarly purposes.

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DECLARATION

I hereby declare that this dissertation is my original work, and it has not been submitted for candidature for any other degree at any other university.

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ABBREVIATIONS

AI	Artificial Intelligence
AR	Augmented Reality
A/V	Audio-visual
B. Ed	Bachelor of Education
CALL	Computer-Assisted Language Learning
CBLT	Computer-Based Language Testing
CEHRD	Center for Education and Human Resource Development
CFA	Centroid Factor Analysis
EFL	English as a Foreign Language
ELT	English Language Teaching
FGDs	Focus Group Discussions
HCI	Human-Computer Interaction
ICT	Information and Communication Technologies
I. Ed.	Intermediate of Education
INGO	International Non-Governmental Organization
L2	Second Language
LMS	Learning Management System
MALL	Mobile Assisted Language Learning
M. Ed.	Masters of Education
MoEST	Ministry of Education, Science and Technology
MoF	Ministry of Finance
MOOC	Massive Open Online Courses
PCA	Principal Component Analysis
PEU	Perceived Ease of Use
PU	Perceived Usefulness
SSDP	School Sector Development Plan
SESP	School Education Sector Plan
TAM	Technological Acceptance Model
VR	Virtual Reality

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CHAPTER I
INTRODUCTION

I begin this introductory chapter with a brief introduction of my anecdotes working as a teacher in my early career stage and presently as a teacher educator to acknowledge the underlying motive for carrying out this study to explore the issue of teachers' conceptualizations of using ICT affordances in rural ELT contexts. The consecutive sections highlight further discussions on the rationale of the study, problem statement, purpose of the study, research questions, delimitation of the study, structure of the report, and finally, concluding with the chapter summary.

Relating to My Research Agenda

Immediately after accomplishing my intermediate education in English, I ventured into a teaching career in 2012 AD. Having obtained a diploma in computer operator certification from a government institution, I started teaching English and computer subjects at private schools in the Sunsari district. Meanwhile, I continued my education by taking up a B.Ed. Program at Tribhuvan University at Janta Multiple campus in the same district. In those days, I was keenly interested in learning both English and computers, which enabled me to master intermediate ICT skills and develop a good command of the English language. To develop my skills further, I took online courses and played around with various hardware and software tools of ICT on both laptops and smartphones.

As I continued my professional and academic journey, I switched and shifted various teaching roles and academic courses, sometimes working as an English teacher and academic content writer and other times as a web development instructor at various institutions and organizations. Soon after accomplishing my M.Ed. studies, I started teaching at Kathmandu University's high School and PCL nursing students in Dhulikhel. While teaching there, I extensively used ICT to deliver lectures and assess and grade learners. After a couple of years of teaching there, I decided to switch my career again and join a developmental organisation working in the field of education in a remote Himalayan region of Nepal.

In that organization, I was appointed as an Education Development Officer in Solukhumbu district to train the English language teachers (henceforth, ELTs) of community schools. The reality of teaching in remote areas was quite different from

what I had experienced in teaching and learning in urban areas in the past 5/6 years. While working in those contexts, I encountered teachers with limited digital skills; meanwhile, schools lacked various ICT facilities such as multimedia and audio-visual (A/V) devices or resources, internet connectivity, and even electricity access in some areas. In these schools, there was minimal use of ICT in ELT, and stakeholders were facing a severe digital divide. Later, I resigned from that organization and taught for a few months at constituent and affiliated campuses of TU, with abundant ICT access, in the Sunsari district. Currently, I work in an INGO as an ICT Education Coordinator to integrate ICT in community schools' classrooms via its child empowerment model in the north eastern Hilly and Himalayan regions of Nepal.

With these experiences of integrating my learning styles and patterns of integrating ICT in various stages of my professional journey being shared, I aim to explore the conceptualizations of secondary-level English language teachers towards using ICT affordances in rural ELT contexts through this study. Subsequently, I aim to identify the emerging factors from these teachers' enactment of ICT affordances. The following section discusses the rationale for carrying out this study.

The Rationale of the Study

Studies over the past few years (e.g., Lawrence, 2013; Dewi, 2019; Khaoula, 2020) demonstrated that integrating ICT in ELT classrooms fosters students' learning outcomes. ICT create an interactive and engaging learning environment through a variety of authentic web materials to improve students' reading, writing, and vocabulary knowledge (Wang & Chen, 2019). However, in Nepali ELT classrooms, there is still a practice of sui generis and conventional and outdated methods of instruction (Singh, 2018) due to limitations such as qualified manpower, suitable infrastructure and environment (Ministry of Education, Science & Technology [MoEST], 2019a) for administering the ICT-based instruction. Seventy-five per cent of community schools still do not have ICT labs, and around 65 per cent lack internet connectivity (Ministry of Finance [MoF], 2023).

Policies informing the necessity of integration and mastery of ICT in the educational system for producing scientifically and technically capable research-oriented manpower (MoEST, 2019a, 2019b) have highlighted the need to acquire ICT-related skills for both teachers and students in ELT classroom contexts. Although the policy arrangements have been made to address the globally suited skill-based needs of ICT, the MoEST has been confronting funding and budgeting constraints

(being allocated solely 10.95 per cent of the national budget in FY 2024/25 in education) for materializing the envisioned policies (MoF, 2023b). Despite such barriers, both MoEST and international non-governmental organizations (I/NGOs) have started infrastructural and skill-based ICT initiatives (Thapa & Sein, 2018), coordinating with local and provincial level authorities and its governing bodies (such as CEHRD and provincial training centres) to implement the envisioned ICT related plans and policies in administrative and instructional domains of schools.

Although studies have documented the pedagogical potentials of ICT, they have failed to address the issue of teachers' conceptualizations of ICT affordances in rural ELT contexts and the factors influencing their conceptualizations in ELT classrooms. To date, literature available on Nepali ICT in the education landscape has focused on the pedagogical potential of ICT for teaching various subjects and considered its usage in higher education contexts (e.g., Khanal, 2008; Tamang, 2017). These and other widely available similar studies have solely highlighted the significance of using ICT for learning subject-specific content (of mathematics, population and medical sciences) as a medium of instruction. However, studies addressing specific challenges and issues that persisted in rural educational settings have not been carried out to explore how rural teachers conceptualize and enact ICT affordances in their ELT practices.

Although studies have documented the pedagogical potentials of ICT, they have failed to address the issue of teachers' conceptualizations of ICT affordances in rural ELT contexts and the factors influencing their conceptualizations in ELT classrooms. To date, literature available on Nepali ICT in the education landscape has focused on the pedagogical potential of ICT for teaching various subjects and considered its usage in higher education contexts (e.g., Khanal, 2008; Tamang, 2017). These studies have solely highlighted the significance of using ICT for learning subject-specific content (mathematics and medical sciences) as a medium of instruction. However, studies addressing specific challenges and issues that persisted in rural educational settings have not been carried out to explore how rural teachers conceptualize and enact ICT affordances in their ELT practices.

Through this study, I offer valuable insights for policymakers, educators, and stakeholders aiming to improve English language instruction in resource-constrained contexts. I emphasize the importance of practical tools such as offline resources, collaborative platforms, and content-driven materials in overcoming infrastructural

challenges and enhancing learning experiences as teachers conceptualize and apply ICT affordances in classroom practices. My findings highlight the need for targeted professional development programs to strengthen teachers' digital skills and confidence alongside strategic resource allocation to address systemic barriers. These priorities resonate with recent evidence underscoring English teachers' limited digital literacy and the importance of ICT training (Rimal et al., 2025). Hence, these insights provide a roadmap for bridging the gap between the potential and practical application of ICT, empowering rural English language teachers to improve learning outcomes and foster meaningful educational transformation.

Problem Statement

The adoption of ICT in English language instruction and learning has revolutionized the meaning and scope of ELT and learning. Studies highlight that ICT improves students' learning by increasing motivation and engagement in ELT classrooms (Dewi, 2019; Khaoula, 2020). Synchronous and asynchronous tools, on the other hand, provide learners with opportunities to practice authentic learning through communicating and collaborating with their peers (Lawrence, 2013; Phillips et al., 2022). However, considering the case of Nepali ELT classrooms, the integration of ICT affordances is still in its infancy (Poudel, 2022). Likewise, there is a paucity of research exploring teachers' conceptualizations of using ICT affordances within the Nepali ELT context.

As reflected in my research agenda raised earlier, there is a wide digital divide between rural and urban contexts regarding ICT adoption and integration. Although urban schools are capacitated with stable electricity, reliable internet access, and trained ICT personnel, rural schools confront severe infrastructural limitations, making teachers rely on printed materials and occasional I/NGO support (Thapa & Sein, 2018). Moreover, teachers in these rural areas do not have access to ICT facilities or receive related training on ICT usage.

The rural-urban divide is exacerbated primarily due to infrastructure constraints, limited ICT penetration, and linguistic and technical skill barriers, among other aspects. Shrestha (2011) identified that teachers in urban areas have access to interactive tools such as Zoom, Kahoot, and Google Classroom, whereas rural teachers often rely on offline materials and limited digital resources due to infrastructure limitations. Likewise, Rimal et al. (2025) revealed over one-third of teachers in rural areas do not have basic ICT competencies even to create files and use

PowerPoint for teaching. They further identified that while temporary teachers demonstrate higher digital proficiency, their permanent counterparts struggle with foundational digital skills, even to turn the computer/ laptop ‘on or off’ (Rimal et al., 2025, pp. 5-7).

Hence, to fully understand the relevance and integration of ICT in ELT, it is essential to uncover teachers’ conceptualizations and their understanding of ICT affordances. Therefore, an attempt has been made to explore teachers’ beliefs and practices of acting upon ICT potentials in rural ELT and the underlying factors related to their beliefs and actions through this study. For this purpose, this study utilizes combined theoretical referents of Gibson's (1977) Affordances and Davis's (1985) TAM, as well as adopts Q methodology to uncover nuanced insights on rural ICT integration realities and inform stakeholders’ actional strategies based on the findings.

Purpose of the Research

This research investigates the conceptualizations of secondary-level English language teachers regarding the integration of potential ICT affordances enacted in rural ELT contexts. It also attempts to uncover the factors influencing the teachers’ enactment of such ICT affordances using Q methodology as a method of investigation. Through Q methodology, I aim to capture the subjective self-referential viewpoints of English language teachers as they perceive and implement ICT in their diverse rural teaching contexts (a detailed discussion of the Q methodological investigation process is offered in Chapter Three).

Research Questions

The following questions guided the study:

a. How do secondary-level English language teachers conceptualize and enact ICT affordances in the rural ELT contexts?
b. What factors enable or hinder the enactment of these conceptualized ICT affordances in rural ELT contexts?

Positionality

In Q methodology, the researcher holds a crucial role in influencing the interpretation of the data. Just as participants bring their unique perspectives on using ICT affordances in ELT classrooms, I, as the researcher with a background in ICT education, possess a lens that can influence how I analyse the information during factor analysis. Working as an ICT specialist and teacher trainer for a long time, I might consider that teachers in rural areas lack basic technological skills and overlook

their innovative strategies or skills in using existing tools effectively. Likewise, my enthusiasm towards ICT adoption could lead me to devise statements reflecting advanced ICT tools used in ELT. I was also cautious that solely relying on Gibson's (1977) Affordances Theory and Davis's (1985) Technology Acceptance Model could lead to a focus on action potentials of ICT and perceived usefulness and ease of use aspects when designing statements, which could lead to deemphasizing statements of other aspects or theories.

Taking account of these concerns in advance enabled me to follow a balanced approach throughout the research process. As Q methodology commences with conducting focus group discussions (FGDs) (to create a Q set) and procced further by refining Q-sort statements, and so forth, I was cautious of how my prior experiences might influence the interpretation of Q-set design, Q-sorting, conducting a post-sort interview, and reporting and analyzing the results. I was also mindful of giving equal weight to other statements that are linked to rural ICT integration realities (both possibilities and challenges), but I still adhered to the theoretical model that I adopted in this study.

Delimitation of Study

Through this study, I aim to uncover various conceptualizations of secondary-level community school English language teachers towards using ICT affordances in rural ELT contexts. It also explores the factors underlying teachers' pedagogical enactment of ICT affordances while perceiving, adopting, and utilizing diverse arrays of ICT tools and resources in their daily instructional practices. For this purpose, I extensively drew on Gibson's (1977) Theory of Affordances and Davis's (1985) TAM as theoretical referents to examine teachers' conceptualizations and factors in a systemic and authentic manner.

This study was conducted in three rural districts of east Nepal – Taplejung, Dhankuta, and Panchthar and was limited to samples of secondary-level English language teachers in community schools of these districts. The participants were chosen following the theoretical sampling approach of the Q methodology. Data was collected within the timeframe of three months (from July to September 2024) from the English teachers of these three districts' secondary schools.

Structure of the Study

The structure of this dissertation offers a clear picture of how this research is organized and how findings are reported. Chapter I discusses my research agenda, the

rationale for conducting this study, key research questions, and the scope of the study. Chapter II reviews the related literature and introduces the theoretical frameworks adopted in this study alongside the underlying gaps in the existing literature. Chapter III details the research methodology, delineating the structured aspects of the Q methodology. Findings are interpreted between Chapters IV and V. Chapter IV discusses presenting and analyzing the key findings of the post-sort interview questionnaire and Q factor analysis. Chapter V answers the key research questions raised by triangulating the findings presented in Chapter IV. Finally, Chapter VI concludes the dissertation by synthesizing and reiterating the key insights and perspectives, offering theoretical and pedagogical implications, acknowledging study limitations, and providing directions for future research.

Chapter Summary

This introductory chapter conceptualized my research agenda for undertaking this study to explore secondary-level English teachers' conceptualizations' towards using ICT affordances in rural ELT contexts. Then, it introduced the rationale for carrying out this study, highlighting the empirical findings and arrangements advocated in the related studies and key ICT in education policies/ documents. Then, it highlighted the problem statement impacting teachers' conceptualization of ICT affordances considering rural-urban ICT integration realities. Subsequently, the research questions were outlined, followed by my positionality in this study. The chapter concludes with the delimitations of this study and presents its structure. The next chapter reviews the related literature and presents the theoretical and conceptual framework guiding this study.

CHAPTER II
LITERATURE REVIEW

This chapter mainly reviews the literature related to thematic and theoretical domains. Empirical studies and policy-related documents have also been reviewed, considering their relevancy and meaningfulness to some extent in light of this study. First, the chapter offers a thematic overview of ICT in education in a rural ELT context. Then, the chapter proceeds with a review of the use of ICT affordances in the ELT domain, drawing on the relevant theoretical studies and synthesizing the empirical literature. Next, taking account of relevant empirical and policy-related gaps, the research gap of the unchartered territory of ICT affordances in the school-level ELT context is presented. Further, it reviews the theoretical frameworks adapted in this study, outlining and discussing their key ideas and constructs. The concluding segments discuss the theoretical and conceptual framework of this study, adapted from the work of Gibson's (1977) affordances theory and Davis's (1985) TAM. Lastly, the summary of the chapter is reiterated to inform what is being covered in the chapter.

ICT in Education: A Brief Overview for Resource-Constrained ELT

Information and Communication Technologies (henceforth, ICT) are a broader set of constructs encompassing a range of systems, processes, and enterprises that cooperate to facilitate the creation, flow and management of information at diverse levels of complexity. This is because different sources of data or means of information digitised in the form of 0s and 1s through the use of hardware and software infrastructures operating at various technological protocols are regulated within an environment of institutions. Miao et al. (2022) consider ICT as a single term and define it as "any product or service that is designed to store, retrieve, manipulate, transmit, or receive information electronically in a digital form" (p. 12). In the case of this study, ICT is defined as any digital entity existing in either physical or virtual form and operating at various substances, mediums, and surfaces of electronic or binary spaces to facilitate ELT and learning processes.

Although the sporadic usage and availability of conventional ICT tools in rural ELT contexts include radio, television, and mobile technologies, English language

teachers in these contexts face diverse problems and constraints when applying ICT in their classrooms. The major problems relate to unreliable electricity, weak internet connectivity, and limited access to functional devices, as well as limited teacher training and digital literacy.

Despite the sporadic usage and availability of conventional ICT tools in rural Nepal (such as radio, television, and mobile technologies), English language teachers in rural community schools face diverse issues and limitations in integrating ICT in their classrooms. Major barriers include unreliable electricity, weak internet connectivity, and limited access to functional devices, often complemented by a lack of teacher training and digital literacy (Koirala, 2019). Acharya (2014) noted some of the positive uses of ICT/Web tools in ELT. In his study, he found that tools like mobile phones, laptops, multimedia projectors, and web-based applications (e.g., YouTube, Facebook, blogs, & wikis) were instrumental for resource generation and delivered the content effectively among other learner-centred and engagement-related positive affordances (pp. 9-11). Bhattarai (2021) also explored ICT integration in ELT through a phenomenological study and identified that although ICT fosters motivating and engaging ways to develop learner autonomy, barriers like "power cut, unavailability of some tools, large classes, the problem of devices maintenance, and protection of ICT tools" (p. 204) hindered the integration of ICT in ELT.

Although SSDP (2016–2023) and SESP (2022-2032) envision integrating ICT across all community schools of Nepal, these plans' strategies are hindered by constraints such as insufficient funding and unclear strategic guidelines, thereby solely relying on the initiatives of I/NGO in rural schools (Rana et al., 2021; Rana, 2023). Besides, rural English teachers often lack basic ICT skills and have insufficient technological resources to make consistent use of ICT. As noted earlier, even experienced teachers lack the basic operational functionality of computers (Rimal et al., 2025), even invalidating Shrestha's (2011) past findings that government teacher training programs practically rely on basic short-term "On/Off" training sessions (Shrestha, 2011). Additionally, challenges such as students' limited access to devices and lack of parental support (Poudel, 2022) heighten the issue of ICT integration in these rural ELT contexts.

To mitigate these issues, related stakeholders can adopt different strategies and approaches for sustained and consistent integration of ICT in rural contexts. The MoEST (2016) recommends a public-private partnership strategy to foster ICT usage

by establishing ICT infrastructure and devising clear guidelines and policies for long-term ICT integration. Alongside the government approach, the role of I/NGO in training teachers and establishing digital libraries and digital learning platforms (Rana et al., 2021) can also be considered a viable solution in this regard. Against this backdrop, as noted earlier, this study attempts to explore how teachers conceptualize and enact ICT affordances in rural ELT contexts and the influencing factors in their enactment. The following sections explore ICT affordances in ELT through the lens of Gibson's (1977) Affordance Theory.

Affordances of ICT in English Language Teaching

Broadly speaking, ICT affordances in the ELT context entail the pedagogical possibilities of a diverse range of digital technologies interplaying in the realm of ELT and learning. Grounded in Gibson's (1977) ecological psychology, affordances highlight the mutual compatibility of an animal concerning the environment where s/he lives to perform any action or task. In Gibson's (1977) terms, "the affordance of anything is a specific combination of the properties of its substance and its surfaces taken concerning an animal" (p. 67). In the domain of language learning, the concept of affordances was introduced by van Lier (2000, 2004, 2008) as a framework to comprehend how learners interact with the language learning environment for representing "a turn in the way we understand how languages are learned" (as cited in Menezes, 2011, p. 60). In a rural ELT context, teachers might conceptualize and enact the affordances of ICT (as I defined ICT earlier) concerning their knowledge, beliefs and other cognitive and physical capabilities to facilitate language instruction in their teaching environment.

Considering affordances in ICT in the ELT context, teachers operate within a "niche" – a set of affordances (Gibson, 2015, p. 120) where they act upon a diverse range of ICT digital tools to create a wide range of opportunities and to achieve their ELT-related goal. Heras-Escribano (2019) highlights that affordances emerge when the interaction between technological features and the motive of the user mutually matches together. In this study, affordances constitute the possible actions that teachers in a rural context perform in their ELT, deploying the available ICT infrastructure and resources. The following section explores the diverse range of affordances of ICT in the ELT domain, taking account of studies that adhered to the affordance theory.

Use of ICT Affordances in English Language Teaching

Studies highlight a range of possibilities concerning the use of ICT in English language instruction. Brown (2013) reviewed the benefits of Computer-Based Language Testing (CBLT) and Computer-Assisted Language Learning (CALL) for immediate feedback on speech and writing samples and encouraging the integration of authentic tasks in assessments, among others. Over the years, CALL progressed through projects such as PLATO, TUTOR, I-CALL, and E-TUTOR systems for teaching grammar, vocabulary, and other aspects of language from the early nineteenth century to the 1980s (Otto, 2017). Recently, progress has been observed in the use of ICT tools to foster linguistic awareness and L2 identity development through social networking sites (SNS) for profile creation, network cultivation, and engagement in tutorial CALL lessons via synchronous chat and asynchronous discussion boards (Reinhardt, 2018). Likewise, scholars observe the development in the usefulness of the tools (e.g., multimodal web 2.0, online multiplayer gaming environment, YouTube captions) to provide language exposure, vocabulary acquisition and developing students' writing skills meanwhile minimizing learner inhibitions (Sabiri, 2019; Peterson et al., 2020; Alobaid, 2021).

Affordances of ICT in English language education encompass the implied properties and potentialities of digital technologies embraced and acted upon by teachers in their ELT practices. ICT's perceived and actual fundamental properties (Norman, 1988) allow English language teachers to master and practice emerging pedagogical possibilities, drawing on the wide range of ICT to tailor their instructional approaches accordingly (Rana, 2023). Table 1 (on the following page) highlights a list of potential ICT affordances drawn from the literature, with specifics elaborated within three overarching categories of affordance: the device's physical features, the context of use, and the potential pedagogical activities. Further elaboration on the origins of these categories is given below.

Table 1

ICT Affordances, Features, Contexts, and Activities

ICT affordances	Physical features of the device	Contexts of use	Potential language-related activities
Communication (Churchill et al., 2016; Parsons et al., 2016; Tafazoli, 2021; Shrestha, 2023; Reinders & Chong, 2024)	Connected to data networks and IPs	For personalisation and adaptivity	• Enhancing formal instruction with informal language use. • Greater sense of control and autonomy over the environment.
Mobility (Ilic, 2022; Parsons et al., 2016; Reinders & Chong, 2024)	Portable devices with wireless capabilities.	Learning beyond the traditional classroom.	• Gathering and acquiring corpus data and evidence in various digital environments. • Accessing digital language resources ubiquitously through various modes.
Collaboration (Ilic, 2022; Churchill et al., 2016; Xu, 2022; McMinn, 2023)	Collaborative platforms (Applications, AI tools for joint efforts)	Collaborative learning environments.	• Collaborative EFL writing using email, cloud services and mobile tools. • Engaging in problem-solving, L2 interaction, and

			metacognitive learning through collaborative applications.
Authenticity (Xue & Churchill, 2019; Xu, 2022; Reinders & Chong, 2024)	Authentic learning scenarios (Supported by mobile apps and AR)	Real-world application of knowledge.	• Conducting authentic text and voice-based conversations with native speakers via role-play and multimedia resources. • Using AR tours to enhance EFL writing and offer real-time feedback and advice.
Pedagogical Support (Tafazoli, 2021; Shrestha, 2023; Reinders & Chong, 2024)	CALL resources supported by digital technologies	Complementary tool for teaching and learning	• Flipped classroom for covering all four language skills with more excellent teacher agency and learner engagement. • LMS and learning analytics are used to monitor progress and for record-keeping purposes.

Churchill et al. (2016) devised their RASE (Resources, Activity, Support, and Evaluation) learning framework and introduced seven affordances of mobile technology – resources, connectivity, collaboration, capture, analytical, representation, and administration. Their conceptual framework serves as a set of *analytical tools*, with mobile technology resources enabling learning to take on authentic, autonomous, and independent contexts, moving across and beyond the classroom. Parsons et al. (2016) surveyed the affordances of mobile learning, drawing on the affordances explored in earlier studies, such as portability, collecting evidence and data, communication, interface interaction, and outdoor use. Besides the earlier studies' findings, they identified two other affordances of mobility: "multimedia creativity and control of other devices" (Parsons et al., 2016, p. 49) in the digital classroom.

Xue and Churchill (2019), in their mixed-method systematic review study, targeted WeChat affordances in the higher educational Chinese context and identified seven affordances of WeChat, namely, resources sharing, authentic learning, collaboration, community building, creating a motivating environment, evaluation and feedback, and administration for learning. In their subsequent qualitative case study of a high school language teacher, they revealed five practical affordances of WeChat, namely, motivating environment, resources accessing/sharing, evaluation and feedback, administration, and content generation; meanwhile, their study illustrated shifts in teachers' private theories about students, learning, teaching, institutional influences, and educational changes (Xue & Churchill, 2020). Ilic (2022) investigated the impact of mobile technology on collaborative learning affordances on four-year undergraduate EFL university students. For such affordances, he found communicating through email/texting to be the most widespread use of the smartphone, followed by voice communications and internet use. Besides, his study also indicated that the smartphone, with its portability affordances, was regularly utilized by the students as an electronic dictionary.

Similarly, Shrestha (2023) identified the technological and educational affordances of ICT acted upon by Science and ELTs. The major technological affordances upon which teachers acted included guiding learners through figures or texts via screen sharing, using a Mentimeter to gather ideas and opinions, allocating

time, facilitating communication through chat, zooming in on the text, employing notes for a matching task, and altering the background within the virtual conferencing platform. Drawing from the acted technological affordances, he synthesized three educational affordances of ICT, which teachers utilized for a) bringing variety to lesson delivery, b) clarifying terms and concepts, and c) engaging learners in the task (p. 188). Tafazoli (2021) carried out a narrative inquiry to explore the enablers and barriers to the uptake and effective use of CALL in the Iranian higher education context. In his study, he reported that CALL affordances empower EFL teachers by keeping them up-to-date, offering greater control and autonomy, and allowing them to cover all language skills, thereby increasing the quality of teaching.

Xu (2022) categorized and contrasted the affordances of mobile tools and AR for collaborative EFL academic writing. With explicit affordances of collaboration and connectivity, mobile tools characterized by portability, accessibility, multimodality, connectivity, and availability were recommended as more appropriate for guiding EFL collaborative writing. Likewise, with significant promise and seamless advantages in terms of authenticity, motivation, and multimodal capabilities, AR posits the feasibility of harnessing the traditional writing framework "from singular individuals and VR to more collective learning modes" (Xu, 2022, p. 65).

McMinn (2023) proposed pedagogical affordances of ChatGPT-4V(ision) for and as identifying a given problem, predicting outcomes, providing step-by-step guidance, promoting diverse problem-solving approaches, fostering metacognitive skills through reflection, and integrating AI as a collaborative tool within a structured learning process. Reinders and Chong (2024), proposing their CALL as a pedagogical framework, denote that CALL affordances enhance formal language instruction through mobile devices, innovative digital language learning resources and platforms such as mixed reality (XR), learning analytics, and LMS, thereby enhancing the linguistic and communicative competencies of learners. Their comprehensive list of synthesized affordances includes accessibility, authenticity, personalization and autonomy, situatedness and experiential learning, social learning, and augmentation and virtualization.

Despite the potential benefits of ICT affordances discussed in the above paragraphs, the construct of ICT affordances is perceived to have a significant number of issues and challenges in the context of ELT and learning. English teachers tend to be more sceptic regarding the efficacy of ICT adoption as they are surrounded by

physical constraints such as the unavailability of standardized CALL materials, inadequate or outdated equipment, the high cost of ICT facilities, insufficient infrastructure, power cuts, and connectivity issues (Tafazoli, 2021; Shrestha et al., 2021; Shrestha, 2023). The technical constraints such as the divide in digital skillsets and accessing resources, learners' inability to personalize learning, institutional barriers marked by the rigidity of conventional educational frameworks, and the concerns of privacy and security further contribute to trigger resistance to adopting ICT amongst the ELT practitioners (Saud & Laudari, 2023; Reinders & Chong, 2024). Given these realities, among other factors, rural teachers might conceptualize and enact ICT affordances distinctively and might encounter different issues in their ELT context.

Research Gap in the Domain of ICT Affordances and TAM in Nepali ELT

Upon querying the scientific literature databases (Google Scholar, ProQuest, ERIC, JSTOR, Web of Science, and Scopus), I did not find any studies that specifically explored the nuanced viewpoints of English language teachers towards using ICT affordances in ELT using Q methodology and the combinatorial framework of Gibson's (1977) affordances theory and Davis's (1985) TAM up until September 2024. Yet, I found some studies conducted in the domain of affordances theory and TAM in the field of ELT. Two studies specifically conducted using affordances theory in the Nepali ELT context were Shrestha's (2023) activity-theory study, which explored the practices of Science and English teachers in using ICT affordances in emergency ELT settings and Rana's (2023) case study that explored the perspectives of rural primary English teachers on the affordances of ICT training. Their contribution is discussed under the *Visualizing the Interaction: ICT Affordances Framework* section, under Chapter V later; however, to relate them now, these studies were not conducted deploying the adapted combined theoretical frameworks and Q methodology as adopted in this study. Other studies conducted in foreign ELT contexts that contribute to the domain of affordances theory concerning ELT are outlined in Table 1.

Likewise, I found a plethora of studies carried out adapting TAM in foreign ELT contexts (e.g., Wang et al., 2022; Sulistiyo et al., 2022; Sun & Zou, 2022; Alharbi, 2023; Arif et al., 2024, among others) on use of online tools, e-learning and MALL applications among other areas. However, their focus was on testing hypotheses on ICT adoption building upon existing constructs of TAM or introducing

newer external variables within the framework of original TAM and other extended TAM models on issues and contexts alien to this study. These studies attempted to predict and integrate constructs related to teacher beliefs, institutional norms, student's MALL adoption behaviour, TPACK (Mishra & Koehler, 2006, as cited in Sun & Zou, 2022), employing quantitative techniques such as confirmatory factor analysis (Wang et al., 2022), and structural equation modelling (Sun & Zou, 2022; Alharbi, 2023; Arif et al., 2024). Yet, none of these studies were conducted adopting Q methodology, nor were they integrated theoretical referents of Gibson's (1977) affordances theory and Davis's (1985) TAM in their study design.

In the Nepali context, a single study by Parajuli (2024) was found that applied a qualitative case study as his method to explore secondary teachers' (the majority were English, 60 % out of a total of 12 cases) smartphone use behaviour for professional development in semi-urban areas. His study found that PU and PEU of TAM motivated teachers towards smartphone use and assisted them in monitoring their learning and collaborating with others for their professional growth, but smartphone use did not transform their pedagogy (Parajuli, 2024, pp. 2021). While this study was conducted adapting Davis's (1985) TAM concepts, the study did not explore how rural secondary English teachers conceptualized and enacted ICT affordances in ELT classrooms, using Q methodology or Gibson's (1977) affordances theory in its design.

Considering policy level gaps, the discrepancy between policy aspirations and ground-level implementation challenges remains a persistent issue (see Chapter 1, Rationale of the Study, para 2–3). While the MoEST and I/NGOs have exerted their efforts towards ICT-based instruction via training and infrastructural projects (Thapa & Sein, 2018), these efforts are hindered by funding issues and the limited availability of digital resources. Studies conducted by the Government and other related agencies evaluations (e.g.,MoEST, 2016, 2022; Center for Alternative Development Studies, 2019) offer insights into ICT access, sustainability, and teacher competencies, yet they have ignored the issue of how rural English teachers' conceptualize and enact the ICT affordances prevalent in rural community-schools.

Theoretical Framework

The dynamics of using ICT affordances in the domain of ELT may not be justified by deploying one single theory to uncover the manifold dimensions of teacher conceptualizations towards using ICT affordances in the ELT context. In this

regard, I integrated Gibson's (1977) affordance theory and Davis's (1985) Technology Acceptance Model (TAM) to examine my research issue systematically. In the following sections, each of these theories' basic tenets is discussed, and a combined theoretical model is proposed, adapting the ideas of these theories collectively.

Gibson's (1977) Affordances Theory in ELT

Gibson's (1977) theory of affordances offers a comprehensive framework to examine the invariant nature of ICT affordances as conceptualized and enacted by teachers in their rural ELT environment. Gibson (1977) drew on ecological psychology to offer multiple interpretations of the affordances, such as niche, invariant properties of an object, facts of the environment, facts of the behaviour, and so on (Wells, 2002). To realize his concept, Gibson (2015) suggests considering it (ICT affordances, here) with various mediums, substances, surfaces, objects, places, and interactions with other entities relative to the environment (rural ELT context, here) (Gibson, 2015; Heras-Escribano, 2019).

As ICT operates in various mediums with its intricate set of tools and implied interfaces through digital and electronic platforms, the way teachers conceptualize and act upon the affordances could vary to a greater or lesser extent. Accordingly, the actions that teachers perform on the invariant properties of ICT tools might also be influenced by factors such as their instructional goal, digital literacy stages, and the infrastructural environment where ICT affordances exist to be actualized. Moreover, the role of objects and spaces within his theory helps us contextualize how objects, whether physical or digital, influence the conceptualizations of English teachers and rethink their implications in instructional design, delivery, and assessment processes. The spatial dimension, whether within a physical or virtual learning context, adds another layer to comprehending the way teachers act upon and perceive ICT affordances by interacting with other entities or related stakeholders within the ELT ecosystem.

These mutual and compatible aspects of English teachers regarding rural ELT environments offer significant insights into understanding the nature of ICT affordances as conceptualized by English language teachers. Besides, these aspects also assist in taking into account factors influencing the enactment of ICT tools and resources in the rural ELT contexts. The following section deals with another complementary framework that has been adapted for this study.

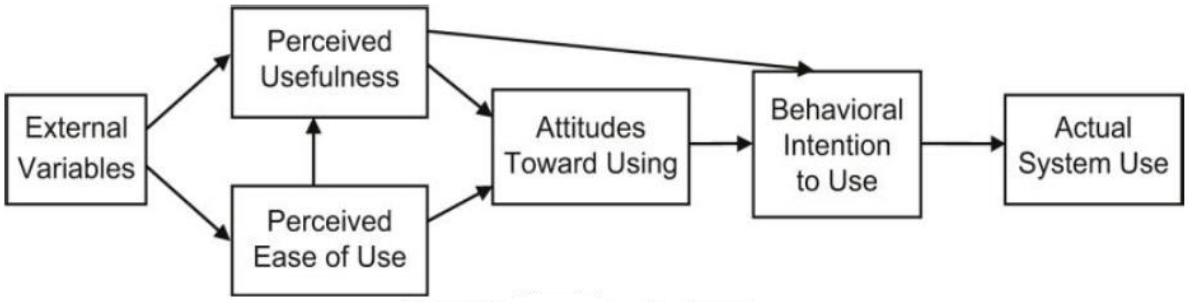
Davis's (1985) Technological Acceptance Model (TAM)

Another significant model I referred to in this study was the technological acceptance model (TAM), invented by Davis in 1985. Derived from the *Theory of Reasoned Actions*, *Planned Behavior*, and *Self-efficacy Theory* (Ajzen, 1975, 1985; Bandura, 1977, as cited in Davis, 1985), TAM posits that technology adoption is shaped by Perceived Usefulness (PU) – the extent to which a system enhances job performance – and Perceived Ease of Use (PEU)—the extent to which a system is effortless to use.

TAM was used to predict user acceptance of emerging information systems before implementing such systems. According to TAM, the impact of external factors (viz., system design features) on the intention to use is mediated by perceived usefulness (PU, henceforth) and perceived ease of use (PEU, henceforth). Davis (1985) regards PU as "the degree to which an individual believes that using a particular system would enhance his or her job performance" (p. 10) and PEU as "the degree to which an individual believes that using a particular system would be free of physical and mental effort" (p. 12).

Figure 1

Technology Acceptance Model (TAM)



(Davis, 1985)

Within TAM, user behaviour is predictable based on behavioural intentions, which act as the direct precursor to actual use and reflect “the strength of one’s intention to perform a specified behaviour” (Davis et al., 1989, p. 985). In this study, PU pertains to how educators believe incorporating the identified ICT affordances (see Figure 16) would enhance their instructional performance. On the contrary, PEU relates to the perceived ease with which teachers believe they can utilize these ICT affordances seamlessly.

TAM has undergone subsequent revisions, and scholars have extended this model with different versions and names (e.g., TAM1, TAM2, TAM3) by adding

various mediating constructs and influencing processes in the model (for detail see, Venkatesh & Davis, 1996; Venkatesh & Davis, 2000; Venkatesh & Bala, 2008; among others). In all these and other subsequently revised versions, the constructs of PU and PEU have remained the same despite the addition of validating anchors and processes in the extended models, carrying out research in the IT and business domains to mitigate the emerging criticisms of the original TAM. However, in ELT, more research must be carried out using TAM and its subsequent models (Putra, 2018) in the school-level educational context. In this study, TAM served as a framework to examine how external variables, specifically ICT affordances and perceived attributes, impact English language teachers' conceptualizations towards using them in the ELT context.

Integrating Affordances Theory and TAM: Proposed Theoretical and Conceptual Framework

The theoretical base adapted in this study, as discussed in the earlier sections, is rooted in the combined frameworks of Gibson's (1977, 2015) Affordances Theory and Davis's (1985, 1989) TAM. Integrating the theoretical ideas of these two frameworks allowed for the development of a comprehensive framework and paved the way to uncover the issues raised in this study. Although these two frameworks have different disciplinary origins, the theoretical perspectives that they offer posit practical insights to deconstruct the nature of affordances inherent in rural ELT contexts as well as the factors involved in teachers' enactment of such affordances.

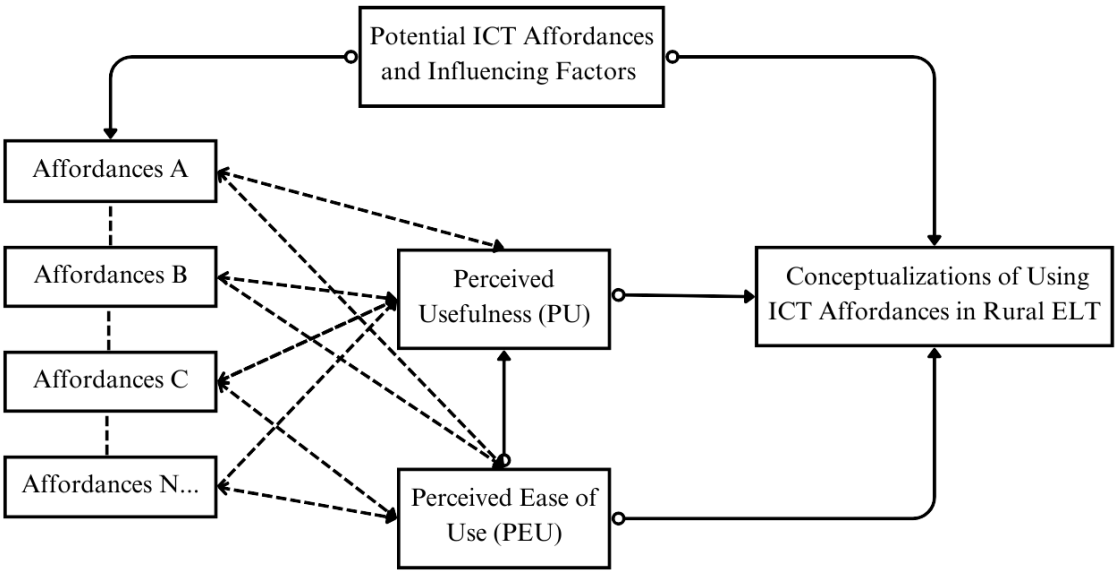
As noted earlier, Gibson's (1977) Affordance Theory offers a flexible approach to internalising both theoretical and practical properties of ICT tools and resources when relating them with affordances theory. The relational nature of mutual compatibility of ICT tools with its end-users can be further complemented by Davis's (1985) TAM and its PU and PEU constructs, where affordances can more deeply be embraced or taken up by teachers when they consider the ICT affordances with their perceived potential of being useful and easy to use when integrating in ELT classrooms. This interactive and dynamic interplay of affordances theory and TAM offers a comprehensive lens to identify both possibilities and challenges of ICT integration realities in rural ELT contexts.

In Figure 2 below, this relationship is manifested in a more vivid form. The figure envisions an approach through which the uncharted territory of teachers' conceptualizations of using potential ICT affordances (alongside the implied potential

factors influencing them) is explored profoundly. The figure highlights that the potential ICT affordances and influencing factors (emerging from extracted factor raw data) are mapped out with their suitable names after triangulating Q-sort rankings and post-sort interview data, considering how teachers conceptualized the perceived benefits of ICT affordances statements as useful and easy to use in their rural ELT context. These, in turn, provide a holistic conceptualization of the rural ICT affordances framework, thereby answering the first research question. And, although explicitly not outlined in the figure, later on, based on the nature of mapped out affordances' data and post-sort interview responses' emerging themes, relevant factors influencing the conceptualized ICT affordances are reported to complement the result of the overall study or answer the second research question.

Figure 2

Theoretical Framework

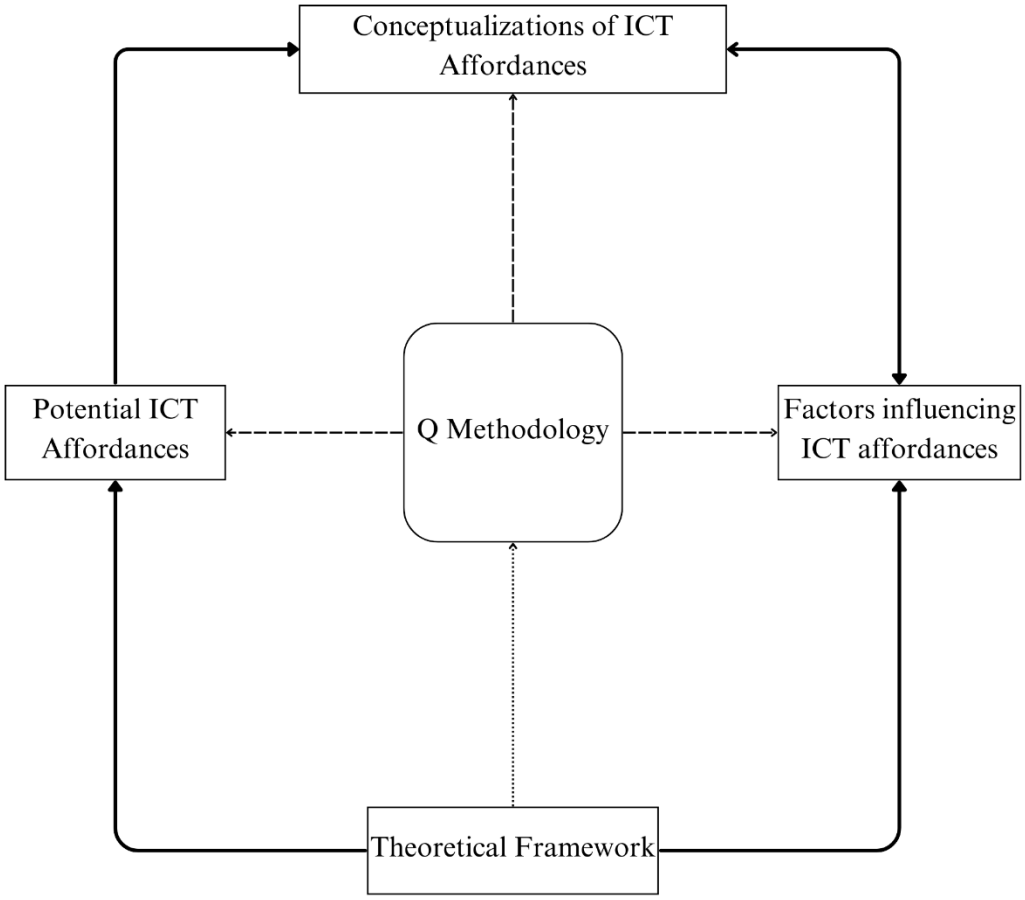


While the conceptual framework illustrated in Figure 3 delineates the key components and their interconnections in exploring the conceptualizations of teachers when enacting ICT affordances in their rural ELT contexts. Guided by the proposed theoretical framework (see figure 2) in combination with the Q methodological framework, it first uncovers the potential ICT affordances (using Q methodology as discussed in the previous paragraph above). After identifying the affordances, it maps them out and theorizes them into a holistic framework, highlighting how such affordances are conceptualized by English language teachers in rural contexts (also taking into account the factors influencing them as per adapted theories' constructs). Eventually, to contextualize the conceptualized affordances and provide further

information to the readers, the study delineates the factors that played a significant role in the conceptualization and enactment of ICT affordances, drawing on relevant qualitative and quantitative insights.

Figure 3

Conceptual Framework



The two frameworks discussed above collectively guide the methodological and analytical part of this study. Moreover, they assist the researcher in proceeding through the study stages systematically, being mindful of theoretical alignment and methodological considerations, and adhering to the overall goal of this study.

Chapter Summary

In this chapter, I reviewed both thematic and theoretical literature related to the domain of Gibson's (1977) affordances theory and Davis's (1985) TAM. I began this chapter by offering an overview of ICT integration in rural ELT contexts. Then, I delved into reviewing related thematic and theoretical studies conducted in the domain of ICT affordances in diverse ELT and learning contexts. Next, I highlighted the gap present in this study, reviewing both policy-related and empirical literature in the rural ELT domain concerning teachers' conceptualizations and enactment of ICT

affordances and factors influencing such enactment. I also delineated the theoretical ideas and constructs of Gibson's (1977) affordances theory and Davis's (1985) TAM in greater depth. Finally, I illuminated the theoretical and conceptual guiding this entire study.

CHAPTER III
RESEARCH METHODOLOGY

This chapter mainly illuminates the methodological procedures adopted to carry out this study. It delves into the philosophical and methodological orientations that underpin this research. Specifically, I justify the selection of the social constructionist research paradigm and its alignment with Q methodology. I then detail the steps involved in deploying Q methodology, from concourse generation, Q-set development, and P-set selection to deploying the Q-set through Q sorting and post-sorting interviews in detail. Furthermore, the statistical analytical procedure involved in Q methodology and the data triangulation approach used in this study are also discussed thoroughly. The chapter concludes with steps and factors taken into account for maintaining quality standards and ethical considerations in this study.

Philosophical Considerations of Social Constructionism

This section discusses the ontological, epistemological, and axiological assumptions that inform this research through the lens of social constructionism.

Ontological Assumptions

Ontology deals with the fundamental nature of existence and reality. It tries to seek the answers to questions such as what exists? What is real? What is the nature of being? It concerns the "assumptions we make to believe something makes sense or is real or the nature or essence of the social phenomenon we are investigating" (Kivunja & Kuyini, 2017, p. 27). As a social constructionist researcher, I see reality as a socially, historically and culturally constructed phenomenon shaped through an ongoing process of human interactions and socially shared meanings. The ontology of social constructionism is realist (Watts, 2008), where humans construct realities through ongoing habitualization and institutionalized processes (Berger & Luckmann, 2023).

In this study, I deconstruct reality through Q methodological factor analysis, whose ontological basis is rooted in the concourse theory of communicability, abductive reasoning, and non-dualistic way of thinking (Watts, 2008; Watts & Stenner, 2012). Concourse theory, as introduced by Stephenson (1986), encourages to see reality as shared knowledge or one's "cultural heritage born of history…out of which new subjectivity grows" (Watts and Stenner, 2012, p. 33), and the

complementarity of subjective (participants' self-referential viewpoints of Q-sorts) and objective (completed Q-sorts; ready for analysis) aspects of Q methodology ensure the "observation of most surprising fact" (Watts, 2008, p. 31) allowing to manifest the realities adhering to Gibson's (1977) affordances theory and Davis's (1985) TAM abductively. Acknowledging the complementarity of subjective-objective dichotomy and relating Q methodology under "realist ontology", Watts (2008) stresses that "the world we inhabit is constituted not just by physical bodies but also by semantic bodies or *bodies-of-knowledge"* (p. 32).

Grounding upon these ontological aspects of social constructionism, I interpret the nature of truth regarding English teachers' conceptualizations of using ICT affordances and the factors influencing such affordances in rural ELT contexts. In this study, while I see the nature of ICT affordances as (invariant properties of ICT) and real phenomena, I believe that teachers' conceptualizations of these affordances are influenced by social, institutional, and contextual factors.

Epistemological Assumptions

Epistemology deals with the nature of knowledge and assists in examining the processes through which "we know what we know" (Lincoln et al., 2011, p. 1028). Watts (2008) highlights that knowledge or bodies-of-knowledge emerge through constructivist processes, which are cumulative and available to the public (p. 36). As realities are embedded in human interactions, social constructionism believes that knowledge emerges and is sustained through social processes, language, and power relations. Berger and Luckmann (1966) highlight that knowledge is created and sustained through the three gradual social processes: externalization (the result of human efforts/ actions), objectivation (societal recognition of efforts/ actions as factual perceptions), and internalization (transfer of objectified/ factual perceptions to future generations), whereby all social phenomena exist and perceived collectively in society.

This study takes account of the above-mentioned theoretical ideas for understanding and creating knowledge and unfolds the socially, historically, and culturally situated self-referential conceptualizations of English language teachers as they proceed to enact the ICT affordances inherent in rural contexts. While doing so, rather than acknowledging teachers' conceptualizations of ICT affordances as they are, I question their enactment practices of conceptualized ICT affordances taking account of factors by adopting a critical stance (Burr, 1995). Hence, I aim to construct

the latent and natural ICT affordances enactment practices and influencing factors' knowledge or socially shared practices inherent in rural ELT context using a social constructionist approach.

Axiological Assumptions

Axiology is concerned with values and ethics; the axiological assumptions guiding this study are tied to the principles of the social constructionist paradigm. In this study's context, the values and beliefs that influence the production and dissemination of knowledge are socially constructed through relational interactionist practices. In this study, while following the realist-interpretive approach of social constructionist ontology using Q methodology, I proceed with the study with abductive reasoning and value-laden approach in the co-construction of knowledge. Despite discarding the rigid standpoint for right or wrong, I adhered to Gergen's (2023) principles of relational ethics, which believe in the co-construction ethics itself and meaning through a coordinated set of actions and mutual understanding (Haslebo, 2020) with participants without disappointing them.

In this regard, I aimed to conduct this study using a collaborative and reflexive approach, taking into account the multiple socially constructed viewpoints of my participants regarding their conceptualizations of ICT affordances and their enactment in rural ELT contexts. I ensure reflexivity by explicitly mentioning my positionality (in Chapter I) while devising a Q-set and analyzing teachers' viewpoints, taking account of their background information and other related information using post-sort questionnaires. Meanwhile, through post-sort interviews, I maintain collaborative and ethical practices to authentically represent their voices concerning the issue raised in this study.

Q Methodology as a Research Method

As discussed in the above sections, Q methodology alignment with the social constructionist paradigm allowed me to systematically investigate English teachers' conceptualizations of ICT affordances and the related influencing factors. Among other methods, I opted for the Q methodology due to its holistic and interpretive design and as it aligned closely with the social constructionist approach to investigating reality. While conventional methods with different designs offer the potential to answer the research questions through data collection strategies like surveys, observation, and interviews in a structured manner to identify common trends and capture narrative data, they struggle to uncover the underlying holistic

patterns using robust statistical procedure and qualitative data as Q methodology captures.

To address this issue, Wiliam Stephenson invented Q methodology in 1935, initially through a letter to nature (Stephenson, 1935) with a brief overview of Q, and then through his seminal work on *The Study of Behavior: Q-Technique and its Methodology* in 1953. Q methodology's strength lies in its ability to capture subjective and self-referential viewpoints. Central to this approach is concourse theory, introduced by Stephenson (1986), which describes the flow of discourse surrounding a topic. In the context of this study, the concourse represents the varied ways teachers articulate their understanding of ICT affordances usage in ELT. Defining concourse, Watts and Stenner (2012) state, "concourse is to Q set what population is to person sample (or P set)" (p. 34); hence, the self-referential statements related to the ICT affordances usage and included in the Q-set (through hybrid sampling approach) are concourse in this study.

Another critical aspect of Q-methodology is the use of abductive reasoning, particularly in rotating the factors and reporting the results after factor analysis in nonconfirmatory studies (Watts & Stenner, 2012). Doing this allowed me to categorize the factor estimates data organically while adapting to the theoretical ideas of the theoretical framework devised beforehand when mapping out and extracting the enacted ICT affordances alongside the factors influencing them. Lastly, Q methodology acknowledges the notion of self-reference as 'projected feelings' while ranking the verbal statements or any other forms of concourses (Watts & Stenner, 2012), as this allows participants to actively engage in a self-referential meaning-making process. In this study, participants reflected their self-referential subjective opinions through the Q-sorting process to share their experiences and practices about ICT integration in a rural ELT context.

Considering the above interests, I opted for the Q methodology to fill the methodological gap in the Nepalese ELT landscape and address the constraints of conventional research approaches. Furthermore, despite being in the shadow in the past, Q methodology has been widely used in applied linguistics and second language research until recently. Scholars have attempted to uncover ELE-related issues such as student support needs (Stollery, 2013) and teacher views on metacognition (Galanis, 2023); Lundberg et al. (2020) and Morea and Ghanbar (2024) have further taken

account of a comprehensive list of studies conducted in the wide range of ELT-related topics.

As Q methodology assists in "discerning people's conceptualizations of their world from the vantage point of self-reference" (McKeown & Thomas, 2013, p. 1), the procedure for conducting Q is notably distinct from other existing methods. In the subsequent sections, I delve into the major procedures of using Q methodology in the ELT domain (or concerning my study); however, a brief overview of core Q methodological steps is offered here:

a) Participants (p-set): This includes either a theoretically or strategically chosen set of individuals who can offer their viewpoints on the explored issue.
b) Statements (Q-set): These comprise a refined and piloted set of statements drawn from the initial concourse of relevant data sources on the given topic.
c) Sorting (Q-sort): It is the process of arranging or sorting the statements based on participants' beliefs or viewpoints, often followed by a post-sort interview.
d) Analysis (Q analysis): The process of analyzing participants' Q-sorts through Q-specific software (like KADE) to uncover the shared patterns.
e) Viewpoints (f-set): These are the clusters of viewpoints emerging from the Q analysis reflecting shared perspectives of the explored issue.

This study was conducted in several stages, with the timeline outlined in Table 2 below.

Table 2

Timeline of the Study

Planned Stages	Date
An initial literature review and consultation with related ICT experts and participants in ELE will be needed to consider the viability of the study.	September 2023
FGD with a group of participants to produce items for the Q set.	Nov. - Dec. 2023
Additional literature review to generate items for the Q set.	Jan. - Mar. 2024
Consulting ICT in ELE experts to integrate missing items (if any) and balance the items in the Q set.	Apr. - May. 2024
Piloting the Q set.	June 2024
Collecting data through participants' Q sorts.	July. - Sep. 2024

Q Set Creation: Sampling Methods in the Present Study

In this study, I employed a hybrid sampling method, drawing on elements of both naturalistic and ready-made samples (McKeown & Thomas, 2013). This approach was employed to create the Q set and capture the diverse viewpoints of English language teachers regarding the utilization of potential ICT affordances in ELT. This strategy ensures that the Q set captures a broad spectrum of viewpoints within the "concourse" of relevant literature and English language teachers' ICT use experiences. Concourse, in Brown's (1993) words, is "the flow of communicability surrounding any topic" (p. 94). In the current study, the concourse was directed towards examining the pedagogical possibilities of ICT, conceptualizations of their usefulness and ease of use in ELT, and English language teachers' decision-making processes regarding their integration into English classes. I did this to align with my theoretical framework (see Figure 2) and answer my research questions. The concourse emerging from conducting FGDs with English language teachers and examining academic literature guided the creation of the Q set in this study.

Initially, I conducted focus group discussions (FGDs) with English language teachers to identify Q-set items, aiming to gather a naturalistic sample. These discussions focused on their perceptions of ICT affordances for enhancing ELT and ease of use, aiming to align their insights with the constructs of the TAM. As my study aimed to offer English language teachers a platform to share their perspectives on the subject, I considered this sampling method crucial for identifying elements to include in the Q set. Three FGDs with a group of three to five community school English language teachers teaching at the secondary level were conducted. The FGDs included English language teachers from different schools within the study area to ensure a broader range of teacher experiences. Each FGD was conducted in the teacher training halls of local government education units of the rural municipalities of the Taplejung, Dhankuta, and Panchthar distrICT. The sessions were audio-recorded to capture non-verbal cues and assess potential researcher influence.

Drawing from my literature review, I devised a series of FGD prompts (refer to Annex Two) to ensure comprehensive coverage of essential thematic areas related to using potential ICT affordances in ELT classrooms in an unstructured manner based on my theoretical framework. To initiate the FGDs, I presented participants

with a stimulus question, prompting them to share their perspectives on the generic usage of ICT affordances in their ELT practices. Likewise, a concluding stem addressed whether the participants missed out on any of their viewpoints during the FGDs. During the FGDs, I maintained clear communication with appropriate clarification requests prompted by participant ideas or the complexity of the topic and ensured collaborative understanding.

According to Stenner et al. (2017), a practical Q set is 'broadly representative' of the issue under investigation (p. 216). In this study, participants were given statements that resonated with their conceptualizations and experience on using potential ICT affordances in ELT classrooms. For this purpose, the FGD's ideas were compared with a literature review, forming the *ready-made* element of the hybrid sample (McKeown & Thomas, 2013). Given the vast body of research on ICT in ELE, an exhaustive search was not feasible. Therefore, I focused on studies that highlighted the possibilities of ICT in ELT and appeared in academic journals, books, and articles mainly related to the domain of Gibson's (1977) affordances theory. The texts in Figure 4 on the following page are reviewed profoundly. Likewise, other additional resources were consulted to ensure a well-rounded perspective on the topic. The literature review reached a 'saturation point' (Bowen, 2008) as new relevant items became scarce, indicating a comprehensive exploration of potential Q set statements.

I consulted with relevant ELT professionals in the field to further refine the Q set and ensure it captured a well-rounded perspective. I engaged with a team within the local education authority that specializes in supporting schools with ICT integration in ELT classrooms. I also consulted an assistant professor in the ICT field of ELE who works in a government university to receive some academic input. Their insights provided valuable practical considerations for the Q set statements.

Lastly, while Brown (1980) advocates minimal alteration of source material, I thought using direct quotes from the concourse proved impractical to incorporate in Q set statements. Many ideas of literature and FGDs are highly specific or technical, requiring adaptation for broader coverage within the Q set while adhering to the principles of Watts and Stenner (2012) for generating practical Q set items (single idea, no negatives/qualifications, similar length, consistent prefix). Therefore, the concourse informs the Q set statements but is adapted to meet these criteria.

Figure 4

Primary Sources of Academic Texts for the Q set

Book Chapters

Churchill, D., Fox, B., & King, M. (2016). Framework for designing mobile learning environments. In *Lecture notes in educational technology* (pp. 3–25).

Reinders, H., & Chong, S. W. (2024). Computer-assisted language learning as a pedagogical framework. In *C. A. Chapelle & M. Sato (Eds.), The Encyclopedia of applied linguistics, second edition: Instructed second language acquisition*. Wiley-Blackwell.

Scientific Articles

Tafazoli, D. (2021). Affordances of computer-assisted language learning in higher education: A qualitative inquiry. *Lenguas Modernas*, (58).

Xue, S., & Churchill, D. (2019). A review of empirical studies of affordances and development of a framework for educational adoption of mobile social media. *Educational Technology Research and Development*, 67(5), 1231–1257.

Xue, S., & Churchill, D. (2020). Educational affordances of mobile social media for language teaching and learning: a Chinese teacher's perspective. *Computer Assisted Language Learning*, 35(4), 918–947.

McMinn, S. (2023). *Pedagogical affordances of ChatGPT-4v(isio*n). LinkedIn.

Conference Papers

Ilic, P. (2022). Leveraging smartphone affordances for EFL Emergency Remote teaching. In *International conferences e-society 2022 and mobile learning 2022.*

Parsons, D., Thomas, H. R., & Wishart, J. (2016). *Exploring mobile affordances in the digital classroom*. (pp. 43–50).

Xu, T. (2022). A Comparative study of mobile Tools and AR Affordances on Collaborative Learning: From the perspective of Enhancing College EFL Academic Writing Skills [Paper presentation]. In *Proceedings of the 7th international conference on modern management and education technology* (MMET 2022) (pp. 57–67).

Dissertation

Shrestha, S. (2023). *ICT in education in crisis contexts: An activity theoretical study of teaching and learning in Nepal during the COVID-19 Pandemic* [Unpublished PhD dissertation]. Dublin City University.

Q Set Creation: Refining the Q Set as Per P Sample

After finalizing a set of 52 Q items, a pilot study was conducted with three secondary English language teachers (two males and one female) from the Taplejung, Dhankuta, and Panchthar districts. The pilot was done to assess the feasibility and viability of the study before deploying it with the actual population, as well as to explore whether participants understood the task instructions and provided Q set statements. Hertzog (2008) recommends a sample size of approximately 10 % or fewer of the actual population if the purpose is to evaluate the clarity of instructions, formatting of items, or ease of administration; if the goal is not to measure internal consistency, test-retest reliability, or assess item performance for revising the instrument. Accordingly, given the interpretive nature of this subjective Q study, I decided to pilot the Q set with three ELTs (representing 10% of the P set of 30) for the Q-sorting activity.

Participants sorted all 52 statements into a quasi-normal distribution Q-sort grid of 52 boxes (similar to Figure 5), requiring 45 to 60 minutes per participant. Participants' Q sorts were analyzed to extract the factors using KADE software with its Horst 5.5 Centroid Factors option and Varimax rotation, resulting in three factors (Dhungana, 2024). The pilot explained 99 % total variance with Participant 'Three' loading onto Factor 1, Participant 'One' onto Factor 2, and Participant 'Two' onto Factor 3. Overall, the correlations of factor scores ranging from 0.254 to 0.4048 suggested a low to moderate consensus across the factors. Factor 1 preferred multimodal aids such as PowerPoint, authentic online resources, and offline apps, with Q-sort values from +3 to +5 ($p < 0.0001$). While Factor 2's participants emphasized the use of mobile dictionary apps and collaborative activities, they also reported the challenges of unequal internet access, with Q-sort values at +5 and -5 ($p < 0.05$). While Factor 2's participants emphasized the use of mobile dictionary apps and collaborative activities, they also reported the challenges of unequal internet access, with Q-sort values at +5 and -5 ($p < 0.05$). Factor 3's participant reported the occasional use of YouTube for professional growth (+2) and devalued email and internet tools for communication (-4), significant at $p < 0.05$.

Piloting the initial 52 statements reduced the Q set to 45 statements, eliminating the items that overlapped with one another and those items that participants and refining other items as per the revised theoretical and conceptual framework (i.e., removing statements related to Rogers' (2003) innovation-diffusion

model). Participants' post-sort interview feedback required the statements to be translated into Nepali to ensure clarity and speedy completion of the Q-sort grid. The revised Q set was evaluated using Curt's (1994) framework for distinct categories: "representations of a subject matter" (ICT affordances in ELT classrooms), "understandings" (teachers' subjective viewpoints), and "conduct" (preferred ICT usage approaches) in consultation with researchers with expertise in affordances theory within rural ELE settings. Besides these suggestions, participants did not provide any further comments during the post-sort interviews, which ensured that the Q set was ready to deploy and effectively captured the concourse available in the domain of ICT affordances in rural ELT contexts (Wolf, 2009).

Participant Selection (the P Set)

In reviewing the Q methodology literature, I recognized that participant selection is typically purposeful, aiming to secure a broad range of perspectives relevant to the study, and is guided by theoretical sampling (McKeown & Thomas, 2013) and strategic sampling (Watts & Stenner, 2012). The former entails selecting participants based on emerging constructs or conceptual frameworks. This led me to target teachers who had already integrated ICT into their ELT practices, anticipating that these individuals would offer nuanced insights into relevant affordances and challenges. In contrast, strategic sampling mandates deliberately maximizing participant diversity – encompassing varied teaching experiences, institutional contexts, and frequencies of ICT usage to ensure a rich array of viewpoints concerning ICT affordances usage.

The target population comprised secondary-level English language teachers from community schools in rural Nepal. I initiated the selection process by consulting unpublished Teacher Personnel Records from the Education Development and Coordination Units (EDCUs) of Taplejung, Dhankuta, and Panchthar districts, identifying 258 secondary-level English language teachers. Recognizing that these records did not include details on ICT training, I cross-referenced an INGO database maintained by the Human Practice Foundation (2024), documenting ICT training among teachers. This cross-referencing revealed that 112 of the 258 teachers (43.51%) had completed basic ICT preparation.

From the pool of 112 ICT-trained teachers, I aimed to purposefully select approximately 30 participants who had actively integrated ICT into their classrooms. This selection followed a snowball sampling approach, drawing on recommendations

from pilot study participants and education officers across various INGO clusters. Their insights helped identify information-rich cases that aligned with the principles of theoretical sampling. The sample included ten teachers from each of the three potential school settings—rural, semi-rural, and semi-urban—while also considering variations in teaching experience, which helped to ensure strategic diversity.

While Q methodology usually employs relatively small P sets (Brouwer, 1999, cited in van Exel & de Graaf, 2005), and Morea and Ghanbar (2024) reported an average of 29.38 participants across 55 Q studies in applied linguistics, I did not impose a strict ceiling on the number of participants. Instead, I paid attention to saturation: when I analyzed the factor structure for an initial group of 25 teachers, expanding the sample to around 30 generated no new factors with three or more sort loadings, thereby suggesting the stabilization of data. Participants' detailed demographics are outlined in Table 3, while the following sections elaborate on the Q-sort deployment, post-sort interview, and data analysis process in detail.

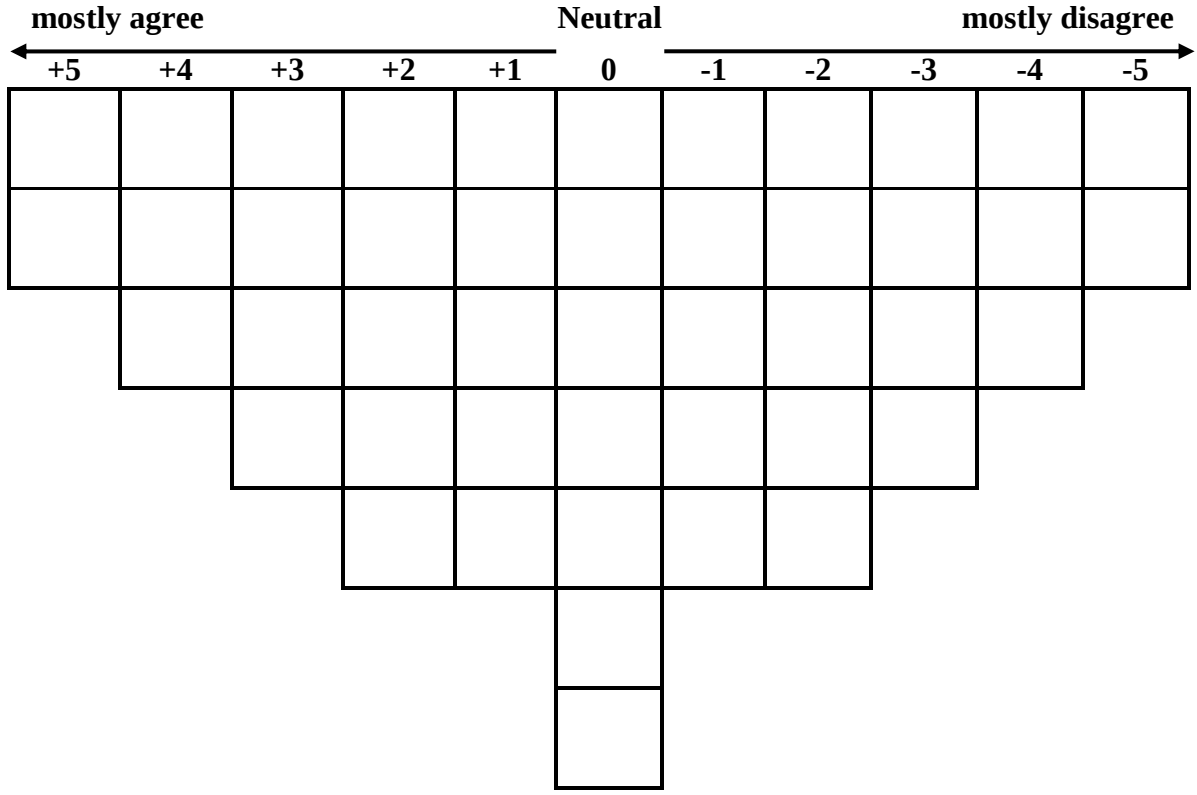
Q-Sort Data Collection and Post-Sorting Interviews

During the data collection process via Q-sorts, participants were requested to arrange the items (written on 2/2 " cards) from the Q-set onto a predetermined grid, usually structured akin to a quasi-normal distribution (see Figure 5), to reflect their self-referents of statements. For this, I followed a Q-sort researcher protocol (see Annex Four) devised beforehand, which guided the entire Q-sort conducting procedure, from informing participants of the objectives of the study, the Q-sort procedure, and seeking informed consent, and responding to informed consent clauses (see Annex One) voluntarily, if applicable.

During the Q-sorting process, participants were asked to sort the statements, randomly arranged cards, into a quasi-normal forced-choice distribution Q-sort (see Figure 5), requiring them to place most of the statements in the neutral middle columns and only a few at the corners of the grid (with +5 or -5 scales). Before this main procedure, participants were asked to read the statements on cards and then categorize them into a mini-table with five piles under the bottom of the Q-sort grid (see the samples in Annex Six), considering their level of agreement by comparing and prioritizing the statements with one another before organizing the statements within the boxes of Q-sort grid.

Figure 5

An Empty Q-Sort Grid with Space for 45 Q Statements



After that, participants were asked to place the statement cards into the Q-sort grid, proceeding one column at a time, beginning with filling the boxes from the furthest extremes and gradually filling the boxes in the centre. I facilitated them throughout this process by reading the statements for some participants (with eye issues) and also addressed their questions concerning the task or the meaning of specific statements. Participants were also allowed to revisit their sorting locations of cards and adjust the placement of statements if they found more significant cards or changed their minds throughout the process. All materials used in the Q-sort, although not of high quality due to logistics issues, including the statements, grid, and instructions, were easy to understand and doable. Soon after they accomplished the Q-sorting process, I took their interview to discover the underlying reasoning behind the most agreed and disagreed statements (placed on the furthest extremes of the grid) alongside their overall experience of the Q-sorting process using the questionnaire of Annex Seven. Then, I captured the photos of participants' completed Q sorts to enter their rankings into the KADE's Excel template for later analysis.

Data Analysis

After accomplishing the data collection phase, I analyzed the quantitative and qualitative data one after another, first by analyzing quantitative Q-sort, followed by selective analysis of qualitative post-sort interviews collected from related questionnaires. Although their detailed procedural discussion is offered in the next chapter, I have attempted to offer a brief background (or a preliminary overview) on how these data were analyzed. For the quantitative part, I used Banasick's (2019) KADE software to explore the shared viewpoints of participants through factor analysis. At the same time, I analyzed the qualitative data by adopting a generic approach, first by organizing participants' personal, emotional, and explanatory responses into their relevant categories (as detailed in Chapter IV), and then selectively reporting the response that specifically aligns with the themes emerging from quantitative data of extracted factors' ICT affordances patterns. After presenting the results of both quantitatively and qualitatively analyzed data, I triangulated them to answer the research questions holistically.

Triangulation of Findings

As noted in the above section, to enhance the credibility and validity of the study, the Q-sort analysis findings were triangulated with qualitative post-sort interview data, and a sequential explanatory design approach was used. Before the triangulation, the perspectives identified through factor analysis were presented for each factor in a holistic first-person perspective, as per Q methodology tradition. Thereafter, the data were triangulated using the sequential explanatory design approach to derive the key affordances implied in each factor. This approach contextualized statistical insights with qualitative post-sort interview responses to complement participants' Q-sorts and validate their self-referential ranking process. The data were triangulated by adopting the following key stages:

Quantitative Q-Sort Data:

The extracted factors from KADE software revealed three distinct conceptualizations of ICT affordances from English teachers in a rural ELT context: practical and accessible ICT, collaborative and interactive ICT, and adaptive and content-driven ICT. Considering the core insights of each factor's estimates and a holistic inspection of other contextual information, suitable names were assigned to

each factor before interpreting the factors from a holistic, first-person viewpoint. To answer the research questions as per the theoretical framework more robustly, relevant affordances as enacted by English teachers were mapped out from the same factor estimates data and Q-sort values (i.e., Z-scores and Q-sort rankings). For this mapping, I adopted a selective and analytical approach by including the majority of most agreed and least agreed statements, as well as a few neutral statements to characterize if they adhered to the themes of mapped-out affordances. These findings were later integrated with post-sort interview qualitative data to validate the extracted ICT affordances. A similar approach was used when mapping out the factors underlying the enactment of identified ICT affordances in rural ELT contexts.

Qualitative Post-Sort Interview Data:

While the quantitative Q-sorts played a major role in identifying the affordances as enacted by English teachers, the post-sort interview responses complemented and contextualized the somatic truths with semantic insights, giving meaning to the results and overall quality of the study. Participants reflected upon their choices, reasoning, emotional responses, and critical evaluations of ICT affordances during the post-sort interviews. I thoughtfully categorized and incorporated the responses that aligned most with Q-sort rankings and Z-scores throughout the study under relevant headings and sections to proceed with the interpretation and discussion of findings. These responses were used to identify the enacted affordances and explore the underlying factors of the enacted affordances alongside the Q-sort rankings data. In doing so, I selectively identified the relevant participants' responses that adhered to the emerging patterns or themes of relevant affordances or factors when preparing their relevant write-ups.

Triangulation and Complementarity:

The post-sort interviews validated the Q-sort factor groupings and confirmed that the identified factors accurately reflected teachers' practical realities through contextual information. The integration of Z-scores in reporting the statements allowed for precise statistical comparisons through rigorous quantitative analysis. Together, they played a complementary role and assisted me in answering the research questions in a more holistic and meaningful manner. The framework developed in Chapter V, Figure 16, is the result of the integration of these two types of data during the exploration of teachers' conceptualizations of ICT affordances drawing on the interpretation and discussion sections' data. Hence, this approach was

crucial when preparing the write-up for various sections in Chapters V and VI, except for the holistic-first-person viewpoint under factor interpretation in Chapter IV.

Quality Standards

In this study, I dealt with the socially negotiated nature of constructing knowledge and aimed at understanding participants' socially and institutionally shared conceptualizations of using ICT affordances in their ELT contexts. For this purpose, I adhered to quantitative and qualitative research criteria. Due to the realist ontological foundation of social constructionism in this study, the findings of my study yielded either positive or opposing viewpoints of ICT affordances, resulting in further interpretations of such findings adhering to both qualitative and quantitative quality criteria. In the following sections, I discuss these criteria, drawing on the works of Elliott et al. (1999) and Creswell and Creswell (2018), among other scholars, to maintain the quality standards of this study.

Quantitative Research Criteria

As noted earlier, I acknowledged the realist ontological stance of knowledge construction and focused on exploring the subjective conceptualisations of secondary-level English teachers regarding the enactment of ICT affordances in a rural ELT context and the embedded factors in the enactment of such ICT affordances using Q methodology. For this reason, established conventional quantitative criteria such as generalizability and objectivity held less value in Q methodology (Brown, 1980; Stenner et al., 2017). Instead, I established trustworthiness and transferability, aligning with Creswell and Creswell's (2018) emphasis on social constructionist evaluations through careful piloting Q statements and adopting rigorous data analysis procedures with thick descriptions.

Piloting the Q-set allowed me to ensure brevity and clarity of statements as well as to fine-tune my instructions for the main study. Participants felt no difficulty while sorting as the statements were refined, addressing the feedback of pilot participants; meanwhile, students' Nepali equivalent translation was also maintained to ensure comprehensiveness for some participants. After the completion of the main data collection phase, I analyzed participants' Q-sorts using KADE software to identify the emerging patterns for answering the research questions. Although the findings of the Q methodology are not universally generalizable, I offered the detailed contextual background of factor structures, which may serve as a guide for the transferability of findings to similar contexts.

Although concepts such as reliability, validity, and objectivity are strongly associated with quantitative techniques, the goal of this study was to explore the subjectivities of participants through interpretive design (despite relying on the Q-factor analysis technique and realist ontology). Rather than establishing test-retest reliability and generalizability measures, I exerted the focus on valuing participants' conceptualizations of self-referential statements through holistic interpretation of their first-person viewpoints and triangulation of results to further answer the problematized issue in using an analytical approach. In this way, I addressed the issue of trustworthiness and maintained the study's rigour throughout this study.

Qualitative Research Criteria

Since Q methodology incorporated the interpretation of data collected qualitatively, I adapted the following criteria from Elliott et al. (1999) to ensure trustworthiness and other quality criteria in the qualitative aspect of my study (pp. 228-229).

Owning My Perspective: In the "Positionality" section under Chapter I, I acknowledged my prior beliefs and personal anticipations on the issues raised by this study, informing the readers how these beliefs might influence my interpretation throughout this study.

Situating the Sample: I presented each participant's overall experience of Q-sorting under relevant headings (in the form of word clouds, charts, and tables) in Chapter IV.

Grounding in Examples: I offered a holistic interpretation of each participant's Q-sorts under the "Factor Interpretation" of Chapter IV, which broadly captures the participants' conceptualizations of ICT affordances through the emerging factors.

Member (and other Credibility) Checks: Although Elliott et al. (1999) suggested member checks for credibility in interpretive work, this was not feasible in the case of my study's context with the same sample. As Q methodologists agree that "people's viewpoints change over time" (Stollery, 2013, p. 41), I believed that as post-sort interview responses already validated their Q-sorting decisions, returning to each participant with the emerging factors might influence their initial responses. Besides, factors characterized by high similarity among participant viewpoints suggested that the Q-sorting procedure successfully captured essential perspectives. This internal consistency within factors aligned with Elliott et al.'s (1999) idea of

comparing multiple perspectives for credibility (p. 222). Likewise, to enhance transparency, I made full Q-sort results available to the readers, allowing them to follow the interpretation stages.

Coherence Through Factor Analysis: Q methodology inherently provided coherence to the data through factor analysis. The emerging factors explained a significant portion of the variance within the data by highlighting distinct clusters of related viewpoints. The by-subject factor analysis procedure further strengthened credibility by encouraging the interpretation of factors about each other, ultimately aiming for a comprehensive account of the data's variability.

Transferability Rather Than Generalizability: As previously discussed, generalizability was not a primary concern of Q methodology studies. Instead, the method identified the existence of specific internal and subjective self-referential viewpoints within the participant group without claiming prevalence across all ELT contexts. The focus was on transferability, allowing readers to evaluate the relevance of the findings to their settings based on the rich descriptions provided.

Resonating with Readers: While ultimately a subjective experience for each reader, refining the Q-set with experienced ICT experts and ELT professionals increased the potential for the research to resonate with English language teachers in the field. Clear and thorough communication further enhanced the relevance of the research process and its outcomes.

Ethical Considerations

In this research, I prioritized ethical considerations throughout all stages, from formulating the research question to analyzing the data and sharing the findings to conducting my study professionally and soundly. Unlike traditional surveys or other methodologies, the Q methodology presented some unique considerations that must be addressed. Since Q methodology involved participants ranking statements that reflected their viewpoints, I gave precedence to ethical considerations throughout the research process to guarantee informed consent, confidentiality, and transparency, amongst other ethical values drawing on the ethics-related literature of the educational domain. To be specific, the following ethical aspects were considered to complete the study without harming or disappointing the participants.

Informed Consent and Respect for Participants

Before undertaking the study, I informed my participants about the study's objectives and their rights as participants. They were provided with Annex One and

read it carefully before they proceeded with the study procedure voluntarily. The clauses in the Annex ensured the ethical conduction of the study without coercing the participants (Cohen et al., 2018) and understanding the ICT affordances context for betterment in the future (Creswell & Creswell, 2018). Participants' autonomy and right to self-determination were also maintained throughout the study, from gaining entry to the research site to sharing findings (Mills & Gay, 2022).

Confidentiality and Anonymity

I ensured that participants' information remained confidential and hidden by using pseudonyms to represent them and eliminated any explicit contextual information that revealed their identity. All the data used in the study were anonymized, and their privacy was respected and adhered to the ethical standards of Cohen et al. (2018) and Creswell and Creswell (2018). I also reviewed any potentially identifying information in the Q-sort statements as well as other post-sort questionnaires and eliminated them to ensure the privacy of the participants.

Transparency and Open Communication

As noted earlier, the specific study goal and study procedure and their role as participants were explicitly informed and provided to the participants before they took part in the study. These steps assisted in maintaining transparency and open communication in this study through mutual understanding with participants. Besides, I used unbiased and scientific discourse throughout to communicate the results when writing this dissertation (Creswell & Creswell, 2018). These aspects of transparency and communication confirmed that participants and related stakeholders were aware of my overall study process.

Data Analysis and Integrity

I handled English language teachers' responses with sensitivity and confidentiality while analyzing the data (here, Q sort and follow-up interviews). I sought appropriate strategies for anonymizing the data to protect participants' identities. Besides, to avoid misrepresenting my findings, I strictly adhered to the guidelines set forth by Cohen et al. (2018) to analyze the collected data as objectively and authentically as possible.

Sharing Findings

While sharing the results, I took account of specific statistical and contextual details and reverified them through reading and rereading and ensured that they were reported accurately and fairly to the audience. Participants' conceptualizations of ICT

affordances were reported respectfully, and the contributions of the study to the related stakeholders were also reported carefully alongside its limitations (Cohen et al., 2018). As discussed earlier, the results were disseminated while respecting the privacy and autonomy of those who were involved in the study (Creswell & Creswell, 2018).

Besides these considerations, I ensured that my study benefits all who were involved and potentially involved in its discourse. For my participants, I attempted to make the Q-sort activity engaging and less time-consuming, requiring them to exert minimal effort in its completion. Similarly, I included a representative sample without considering participants' ethnic and cultural backgrounds in the main study (Cohen et al., 2018). Likewise, I avoided the usage of any cultural statements that could make the participant feel disappointed through the piloting process. I declare that there was no conflict of interests involved in its design, administration, and interpretation or analysis of the results of this study from any parties with vested interests.

Chapter Summary

This chapter detailed the methodological components of this study, ranging from delineating the philosophical considerations to methodological steps involved within the social constructionist paradigm. Commencing with the discussion of philosophical assumptions related to ontology, epistemology, and axiology of the social constructionist paradigm, it highlighted the methodological procedures ranging from Q-set creation, P-set selection, and piloting the Q-set to finalizing the Q-set in detail. The data collection process through Q-sorting complemented by post-sorting interviews was also discussed in detail. Then, it highlighted the data analysis and triangulation process, elucidating how quantitative and qualitative post-sort interview responses assisted each other in answering the research questions. Next, the chapter elucidated the quality standards of both quantitative and qualitative research, drawing on the established quality standards for each approach. Finally, the chapter discussed in detail the strategies for ensuring ethical considerations throughout the research process.

CHAPTER IV
Finding Patterns from Q-SORTS AND POST-SORT INTERVIEW DATA

This chapter outlines the key findings that are derived from the participants' raw Q-sort data and post-sort interviews to uncover the issue of how secondary-level rural ELT teachers conceptualize and enact ICT affordances. Utilizing Centroid Factor Analysis (CFA) with Varimax rotation using KADE software, this chapter highlights the key factors that shaped the diverse conceptualizations of using ICT affordances, delineating the underlying statistical procedure involved in this process. While this chapter does not fully conceptualize ICT affordances, it thoroughly highlights the key patterns and tendencies drawing on Q-sort data and post-sort interview responses and interprets the factors accordingly. A detailed description of cross-factor comparison is also offered at the end of this chapter, synthesizing the findings that emerged from factor analysis. This chapter serves as a bridge to address the study's research questions, which are answered systematically in the subsequent chapter. The following section offers an overview of the study participants' personal and professional characteristics.

Composition and Characteristics of P Set

In this study, a total of 33 English teachers completed the Q-sort procedure in the research sites of Taplejung, Dhankuta, and Panchthar districts. The selection criteria demanded that participants hold a secondary-level teaching license, have at least three years of teaching experience, and be familiar with the study's Q-set themes (usage of diverse ICT affordances for ELT purposes). The majority of participants understood the Q-set items without any difficulty, while only a few had occasional misunderstandings during the sorting process.

Although participant inclusion was also guided by the factor saturation point, administering Q sorts to 33 participants assisted me in gathering detailed contextual information and excluding the irrelevant Q sorts if required. Adopting this strategy, I excluded three participants' Q-sorts from the final analysis. Of these, one participant had limited exposure to ICT and its pedagogical affordances, while two participants misunderstood the Q-set and misinterpreted it despite my efforts to clarify it. Their Q sorts could not accurately represent their conceptualizations of ICT due to a lack of

engagement with the items in the Q-set; hence, I included only 30 participants' Q sorts in the final analysis. Table 3 presents the composition of the P set drawn from the data gathered using Annex Five. The table details participants' academic qualifications, teaching experience, gender, frequency of ICT usage in their classes, and experience with ICT integration.

Table 3

Composition and Characteristics of the P Set

Q Sorts	Gender	Qualification	Teaching Experience	Brief Summary of ICT Integration Experience
P1	Male	M.Ed. in English	22 Years	Designed grammar slides with PowerPoint and used MS Office for test preparation and grading in semi-urban schools.
P2	Male	M.Ed. in English	5 Years	Utilized projectors and online platforms to promote communication and self-directed learning in ELT.
P3	Male	M.A. & M.Phil. in English	4 Years	Conducted online writing activities using video tools and mobile apps; promoted collaborative projects with interactive features.
P4	Female	M.Ed. in English	10 Years	I used Google Classroom to assign and grade tasks; I relied on audio-visual aids for listening and speaking instruction.
P5	Male	B.Ed. & M.A. in English	5 Years	Downloaded videos to enhance listening lessons; used mobile dictionaries to build vocabulary during grammar instruction.
P6	Male	M.Ed. in English	20 Years	Conducted Zoom/Meet classes during the pandemic; tested speaking and listening comprehension using mobile apps.
P7	Female	M.Ed. in	9 Years	Developed interactive PowerPoint

		English		slides and vocabulary games for extended grammar and reading activities beyond the classroom.
P8	Male	M.Ed. in English	11 Years	Utilized Word for summarizing texts and mobile apps for listening comprehension and speaking practice.
P9	Male	M.A. & M.Ed. in English	27 Years	Used tape recorders for listening activities and accessed authentic content via YouTube for classroom use.
P10	Male	M.Ed. in English	15 Years	Supported vocabulary teaching with mobile apps and conducted reading lessons with PowerPoint presentations.
P11	Male	M.Ed. in English	5 Years	Downloaded videos for listening lessons via projectors and occasionally created grammar slides.
P12	Male	M.Ed. in English	20 Years	Tested listening comprehension and speaking fluency through recitations, dialogues, and dictations using ICT-based resources.
P13	Male	M.Ed. in English	9 Years	Accessed online resources for creative teaching ideas and occasionally used slides for reading instruction.
P14	Male	M.Ed. in English	10 Years	Employed projectors and mobile phones to deliver vocabulary, pronunciation, and listening lessons.
P15	Male	M.Ed. in English	10 Years	Used mobile apps for speaking and listening tests; designed test papers and updated scores using offline tools.

P16	Male	M.Ed. in English	21 Years	Used PowerPoint slides to teach speaking and listening skills and presented multimedia grammar content.
P17	Female	M.A. in English	4 Years	Enhanced pronunciation and listening comprehension using mobile apps; supported vocabulary development in low-resource settings.
P18	Male	B.Ed. in English	6 Years	Conducted grammar lessons using smartboards for interactive learning experiences.
P19	Male	M.A. in English	20 Years	Limited ICT experience; previously used tape recorders for listening comprehension activities in classrooms.
P20	Male	M.A. in English	14 Years	Designed language activities using Word, Excel, and PowerPoint; tested listening with mobile tools.
P21	Male	M.Ed. & M.A. in English	10 Years	Delivered grammar lessons and dialogue practice using smartboards and projectors; incorporated authentic video-based resources.
P22	Male	B.Ed. & M.A. in English	21 Years	Shared resources online, used audio clips for dialect exposure and accessed YouTube for teaching materials.
P23	Male	M.Ed. in English	13 Years	Explored pronunciation tutorials and writing exercises via Google and YouTube; occasionally used PowerPoint for teaching ideas.
P24	Male	M.A. in English	7 Years	Found resources for poetry teaching on YouTube and used mobile tools

				for summarizing and listening comprehension.
P25	Male	M.Ed. in English	19 Years	Used mobile devices for listening skill assessments and laptops for authentic video exposure.
P26	Male	M.Ed. in English	15 Years	Projected grammar texts and teaching films using smartboards and apps for English language learning.
P27	Male	M.Ed. in English	20 Years	Conducted virtual classes via Zoom/Meet and tested speaking and listening with mobile apps.
P28	Male	M.Ed. in English	5 Years	Employed projectors to show language practice videos and guided students in drilling and mimicking exercises.
P29	Male	M.Ed. in English	11 Years	Downloaded and projected videos for listening lessons; relied on mobile tools for accessing real-world English.
P30	Male	M.Ed. in English	5 Years	Used mobile and offline apps for reading and listening activities in low-resource classrooms.

Initial Results

The process of data analysis in Q methodology follows three main statistical steps: (1) calculating correlations, (2) conducting factor analysis, and (3) computing factor scores (McKeown & Thomas, 2012, p. 47), followed by the creation of factor arrays. In this study, I represented the initial outcomes of the Q-sorting process in a tabular format, where each cell reflects the rankings of participants relative to the outlined sorts in columns and statement numbers in rows (see Annex Eight). The ranked values of participants within the cells range from -5 to 5, reflecting both negative (ranging from -1 to -5) and positive (1 to 5, which was in the actual sorting grid: +1 to +5) rankings for each item.

To conduct factor analysis, these values ranked by participants were thoroughly entered into the KADE software (Ken-Q Analysis Desktop Edition version 1.3.1) using its XLSX Type 1 file template (Banasick, 2019). Although there were other Q-factor analysis software out there on the web, I selected KADE for its distinctive features, such as its interactive graphical user interface and its detailed output file, which other software did not offer freely.

Since each Q-sort utilized the same scale in my forced-choice distribution study, it was easy to compute correlations between them using KADE. The resulting correlation matrix, derived from the intercorrelations of each Q sort with every other Q sort, is presented in Annex Nine, which was extracted from the KADE software output file.

Factor Extraction

After calculating the correlation matrix, I began the factor analysis by examining the correlation matrix of all Q-sorts (Annex Nine) to identify "patterns of similarity" (Watts & Stenner, 2012, p. 98) using KADE. The factor accounting for the highest variance is extracted first and labelled as Factor 1. KADE extracted subsequent factors by removing the variance explained by the preceding factors and recalculating the correlations of the resultant residual correlation matrix.

KADE software provides two options for factor extraction: Centroid Factor Analysis (CFA) and Principal Components Analysis (PCA). Although the choice between PCA, CFA, or other factoring routines makes little difference to the outcome (McKeown & Thomas, 2012), I used CFA in this study because it offers greater interpretative flexibility for Q methodologists (Watts & Stenner, 2012) while maintaining the objectivity and reliability of the results.

I extracted factors using CFA and selected the Horst 5.5 option in KADE. To arrive at the meaningful factor solution, I ran the analysis multiple times, sometimes testing with four-factor and sometimes with two-factor solutions using both PCA and CFA techniques in KADE. Ultimately, extracting factors with CFA was most suitable based on my predetermined criteria (outlined below) and my empirical experience in the field.

Table 4 shows the correlations between each Q-sort and the extracted factors using CFA. Each factor represents a portion of the shared variance among the sorts, with earlier-extracted factors accounting for a larger share of variance. As the

common variance is explained, the remaining variance among the sorts diminishes, reflected in the later-extracted factors.

In theory, extracting as many factors as there are Q-sorts is possible. As discussed in Watts and Stenner (2012), common criteria for determining factors in Q methodology include the Kaiser-Guttman criterion (Guttman, 1954; Kaiser, 1960), the scree plot (with PCA), Humphrey's rule, and parallel analysis (pp. 105–110), among others. In this study, I followed the Kaiser-Guttman criterion, which recommends retaining factors with eigenvalues greater than 1, and Humphrey's rule, which argues that a factor is significant if the cross-product of its two highest loadings exceeds twice the standard error (Brown, 1980, p. 223). Besides, I excluded Q-sorts with correlated loadings across multiple factors and only retained the sorts that meaningfully contributed to a single factor.

Beyond these established criteria, I applied the following specific criteria for retaining factors in this study:

- Does the factor represent a meaningful and distinct perspective compared to other factors?
- Does retaining the factor enhance understanding of the range of perspectives within the P set and, by extension, the population of teachers regarding the use of ICT affordances in rural ELT contexts?
- Does the factor include enough participants to be considered a shared viewpoint? While Brown (1980) suggests retaining factors with at least two significant loadings, I followed Watts and Stenner's (2012) stricter recommendation that "three or more is probably safer" (p. 131), discarding factors with fewer than three significant loading sorts.

Table 4

Unrotated Factor Matrix

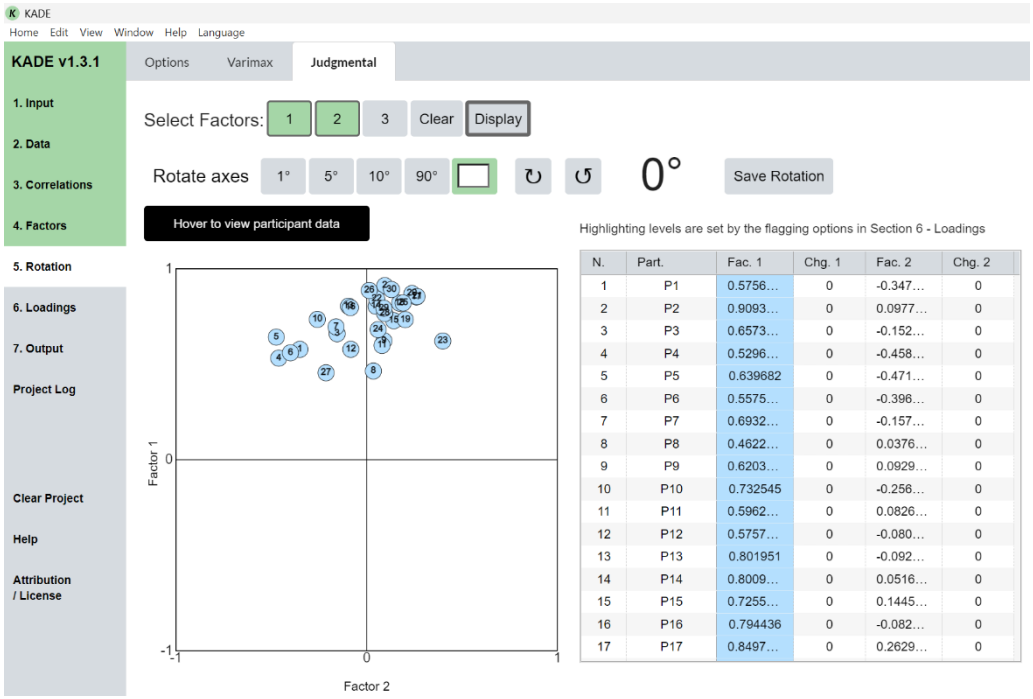
Participant	Factor 1	Factor 2	Factor 3
P1	0.5756	-0.3474	0.2997
P2	0.9093	0.0977	0.1826
P3	0.6573	-0.1525	-0.2499
P4	0.5296	-0.4585	0.2126
P5	0.6397	-0.4714	0.0816
P6	0.5575	-0.3968	0.1207
P7	0.6932	-0.158	-0.2489
P8	0.4622	0.0376	-0.0438
P9	0.6204	0.0929	-0.3345
P10	0.7325	-0.2561	-0.2449
P11	0.5962	0.0826	-0.0196
P12	0.5757	-0.0807	-0.4807
P13	0.802	-0.0928	0.0673
P14	0.8009	0.0517	0.0735
P15	0.7255	0.1446	0.1909
P16	0.7944	-0.0827	0.2988
P17	0.8497	0.2629	0.1285
P18	0.8175	0.1749	0.022
P19	0.7313	0.2048	0.0913
P20	0.8678	0.2399	-0.2343
P21	0.8525	0.2666	0.1777
P22	0.8391	0.0553	0.0817
P23	0.6193	0.4015	-0.1151
P24	0.679	0.0625	-0.1808
P25	0.8183	0.1932	-0.019
P26	0.8841	0.0163	0.1546
P27	0.4528	-0.2106	0.1436
P28	0.7633	0.0973	0.0192
P29	0.7907	0.0926	-0.0013
P30	0.8887	0.1326	-0.1736
Eigenvalues	15.9432	1.4522	1.0947
% Explained Variance	53	5	4

Factor Rotation

Following the factor extraction process, I adjusted the loadings of the unrotated factors to better represent the shared viewpoints of the P set by virtually rotating pairs of factor axes in KADE to identify patterns within the data. In this process, the factor axes serve as conceptual "coordinates," representing distinct factors within a conceptual space. At the same time, the spatial locations of the Q-sorts remain constant but are interpreted through different perspectives (Watts & Stenner, 2012). To illustrate, I envisioned the initial unrotated loadings in a two-dimensional coordinate system defined by Factor 1 and Factor 2, where each loading provides a baseline view of alignment before adjustments. Imagining a third axis – perpendicular to the X and Y axes – extends this conceptual space into three dimensions, allowing me to account for a third factor and reveal a more comprehensive structure. Figure 6 demonstrates this initial stage of factor rotation using KADE software, specifically showing unrotated loadings in the two-dimensional space for Factor 1 and Factor 2.

Figure 6

Two-Dimensional Conceptual Space of Unrotated Factors 1 and 2



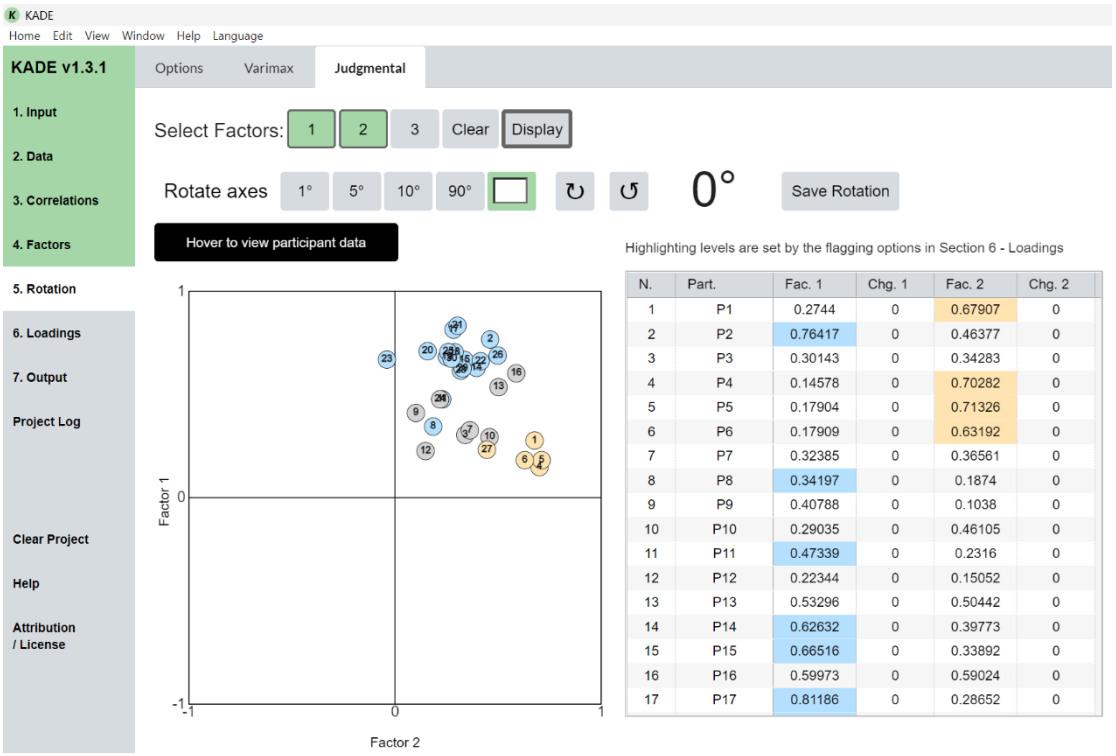
N.	Part.	Fac. 1	Chg. 1	Fac. 2	Chg. 2
1	P1	0.5756…	0	-0.347…	0
2	P2	0.9093…	0	0.0977…	0
3	P3	0.6573…	0	-0.152…	0
4	P4	0.5296…	0	-0.458…	0
5	P5	0.639682	0	-0.471…	0
6	P6	0.5575…	0	-0.396…	0
7	P7	0.6932…	0	-0.157…	0
8	P8	0.4622…	0	0.0376…	0
9	P9	0.6203…	0	0.0929…	0
10	P10	0.732545	0	-0.256…	0
11	P11	0.5962…	0	0.0826…	0
12	P12	0.5757…	0	-0.080…	0
13	P13	0.801951	0	-0.092…	0
14	P14	0.8009…	0	0.0516…	0
15	P15	0.7255…	0	0.1445…	0
16	P16	0.794436	0	-0.082…	0
17	P17	0.8497…	0	0.2629…	0

After establishing the baseline view with the unrotated factor loadings, I applied Varimax rotation to the data. Varimax is an orthogonal rotation method that maximizes the variance explained by each factor, offering a mathematically objective and clearer representation of the factor structure (Brown, 1980). Figure 7 presents the

factor loadings after Varimax rotation, displaying an orthogonal arrangement of the factors that simplify interpretation by ensuring the factors remain uncorrelated. Since displaying the rotation results in the Varimax tab of KADE was not applicable, I utilized the judgmental rotation tab to present the default view of the Varimax rotation without any manual adjustments in Figure 7 below.

Figure 7

Factors 1 and 2 Rotated with Varimax Rotation

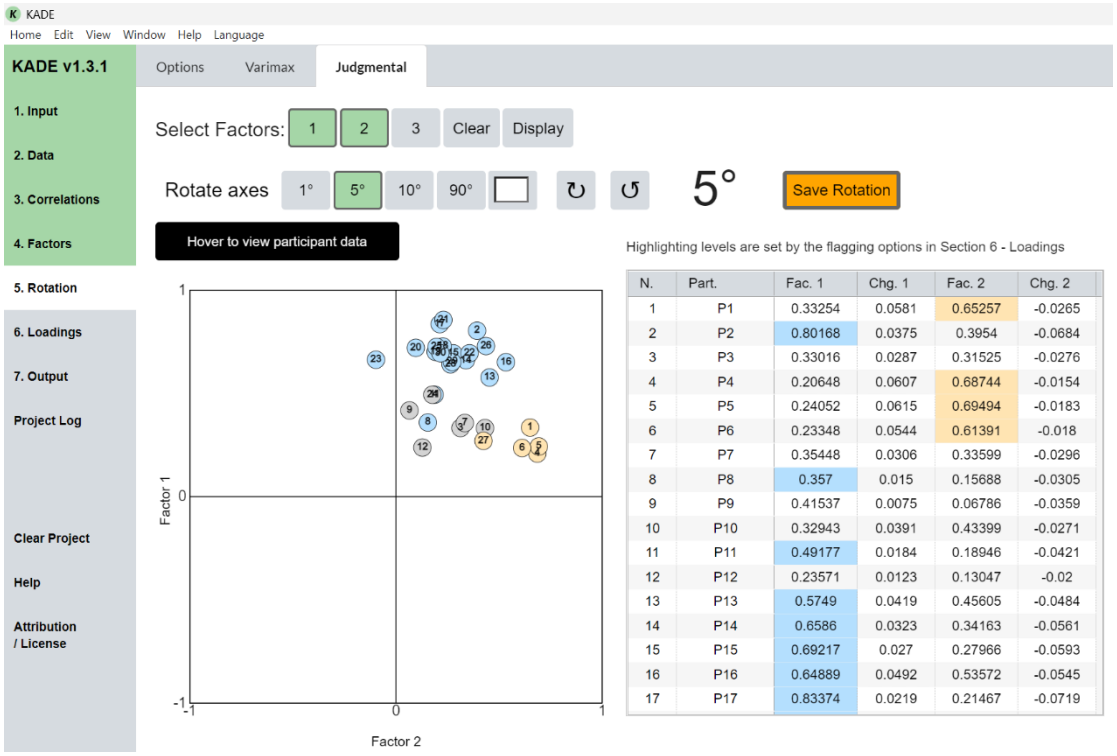


N.	Part.	Fac. 1	Chg. 1	Fac. 2	Chg. 2
1	P1	0.2744	0	0.67907	0
2	P2	0.76417	0	0.46377	0
3	P3	0.30143	0	0.34283	0
4	P4	0.14578	0	0.70282	0
5	P5	0.17904	0	0.71326	0
6	P6	0.17909	0	0.63192	0
7	P7	0.32385	0	0.36561	0
8	P8	0.34197	0	0.1874	0
9	P9	0.40788	0	0.1038	0
10	P10	0.29035	0	0.46105	0
11	P11	0.47339	0	0.2316	0
12	P12	0.22344	0	0.15052	0
13	P13	0.53296	0	0.50442	0
14	P14	0.62632	0	0.39773	0
15	P15	0.66516	0	0.33892	0
16	P16	0.59973	0	0.59024	0
17	P17	0.81186	0	0.28652	0

Although Varimax offers a standardized approach to factor rotation, I followed this with a manual (judgmental) rotation to refine the loadings further because Varimax rotation does not consider which combinations of sorts make the most interpretative sense when averaged to represent a factor. Therefore, I carefully adjusted the factor axes to ensure that the shared viewpoints represented by each factor were statistically valid and meaningful within the context of this study. Figure 8 presents the data after this adjustment, displaying sorts positioned closer to both the y-axis (Factor 1) and the x-axis (Factor 2), with noticeable changes in their loadings compared to their initial positions. The same technique was used while rotating the pairs of other factors (See Annex Ten's Project Log section for details) before flagging them.

Figure 8

Factors 1 and 2 Further Rotated with Judgmental Rotation



N.	Part.	Fac. 1	Chg. 1	Fac. 2	Chg. 2
1	P1	0.33254	0.0581	0.65257	-0.0265
2	P2	0.80168	0.0375	0.3954	-0.0684
3	P3	0.33016	0.0287	0.31525	-0.0276
4	P4	0.20648	0.0607	0.68744	-0.0154
5	P5	0.24052	0.0615	0.69494	-0.0183
6	P6	0.23348	0.0544	0.61391	-0.018
7	P7	0.35448	0.0306	0.33599	-0.0296
8	P8	0.357	0.015	0.15688	-0.0305
9	P9	0.41537	0.0075	0.06786	-0.0359
10	P10	0.32943	0.0391	0.43399	-0.0271
11	P11	0.49177	0.0184	0.18946	-0.0421
12	P12	0.23571	0.0123	0.13047	-0.02
13	P13	0.5749	0.0419	0.45605	-0.0484
14	P14	0.6586	0.0323	0.34163	-0.0561
15	P15	0.69217	0.027	0.27966	-0.0593
16	P16	0.64889	0.0492	0.53572	-0.0545
17	P17	0.83374	0.0219	0.21467	-0.0719

After rotating the factors judgmentally, I flagged the factors that met the significance threshold. Initially, I used KADE's in-built auto-flagging feature, which was set at a 95% confidence level. Then, I manually reviewed and flagged the sorts that displayed significant loadings (see the criteria in the *Creation of Factor Estimates and Factor Arrays*, in the upcoming section) on each factor to create factor estimates by discarding the confounded or non-significant Q-sorts. The rotation process redistributed the explained variance and their respective eigenvalues across the factors more evenly due to the use of the Horst 5.5 approach within CFA. Although eigenvalues and total variance are not particularly meaningful in Q methodology (Brown, 1990) when applied CFA, the final rotated eigenvalues, calculated by summing the squared loadings, were 8.65 for Factor 1, 4.17 for Factor 2, and 5.67 for Factor 3. These factors explained 29%, 14%, and 19% of the variance, respectively, consistent with the total explained variance of 62%, as shown in Table 4. The rotated factors with their defining sorts (Q-sorts that load significantly and exclusively on a single factor) and their corresponding loadings are presented in Table 5 below.

Table 5

Rotated Factor Matrix with an "X" Indicating a Defining Sort

Q-sort	Factor 1	Factor 2	Factor 3
P1	0.2715	0.6657 X	0.158
P2	0.7528	0.4284	0.3456
P3	0.2784	0.279	0.602 X
P4	0.1401	0.6824 X	0.2251
P5	0.1664	0.6744	0.3944
P6	0.1699	0.6027 X	0.3012
P7	0.3001	0.2997	0.6226 X
P8	0.3313	0.157	0.2874
P9	0.384	0.0391	0.597
P10	0.2654	0.3914	0.6623
P11	0.4611	0.1963	0.334
P12	0.1943	0.0722	0.7253 X
P13	0.5186	0.4616	0.4174
P14	0.613	0.3582	0.3814
P15	0.6581 X	0.316	0.2256
P16	0.5938	0.5688	0.2261
P17	0.8007 X	0.2528	0.3204
P18	0.6876	0.2488	0.4059
P19	0.6691 X	0.2236	0.2957
P20	0.6825	0.093	0.6252
P21	0.8207 X	0.2765	0.2819
P22	0.6445	0.3768	0.3956
P23	0.6522 X	-0.0763	0.356
P24	0.4541	0.166	0.5137
P25	0.6869	0.2148	0.4353
P26	0.6739	0.4627	0.371
P27	0.2245	0.4307	0.1847
P28	0.599	0.2802	0.394
P29	0.6084	0.2854	0.4268
P30	0.6472	0.2121	0.6112
Eigenvalues	8.65	4.17	5.67
% Explained Variance	29	14	19

Creation of Factor Estimates and Factor Arrays

After identifying the defining sorts, KADE calculated the estimates of each factor based on the weighted average scores of the factors representing their viewpoints on the Q-set items. The software assigned weights to each defining sort. Sorts with higher factor loading held a greater influence on the final factor score (See Annex Ten for details on factor weights and defining sorts).

Factor Score Calculation

Next, KADE calculated factor scores (Z-scores) via a weighted averaging method to assess the strength of the connection between a Q-set item and a factor. The formula used was:

$$Z_i = \frac{\sum (S_{ij} \times W_j)}{\sum W_j}$$

Where:

- Z_i = Factor score (Z-score) for statement *i*
- S_{ij} = Score assigned to statement *i* by participant *j*
- W_j = Factor weight of participant *j* (determined by factor loading)
- $\sum W_j$ = Sum of all defining sorts' factor weights

The resulting factor scores (Z-scores) from this calculation are presented in Annex Ten, along with factor arrays outlining the relative positioning of each Q-set item within the final distribution.

Standardizing Factor Scores for Cross-Factor Comparisons

After computing the factor scores, KADE proceeded with standardization to enable comparisons across factors. This process of standardization sets differences in raw scores so that the interpretation of each item's relative position across factors can be made more consistently. The formula applied is as follows:

$$Z_i = \frac{\mathrm{X}_i - \bar{X})}{\sigma}$$

Where:

- X_i = Total weighted score of an item
- $\overline{\mathrm{X}}$ = Mean score of all items in that factor

- σ = Standard deviation of all item scores

In this manner, the Q-set statements were systematically ranked into a comparable format (see Table 6) such that highly endorsed statements received the most positive values and least favoured statements were assigned the most negative values. This structured ranking was maintained in the final forced distribution, where statements with the highest Z-scores, indicating the strongest agreement, were assigned +5, while those with the lowest Z-scores, reflecting the strongest disagreement, were positioned at -5. Statements with moderate or neutral Z-scores were placed near the middle of the scale, ensuring that the final factor array provided a clear and representative depiction of each factor's perspective.

Criteria for Factor Inclusion

To ensure both validity and reliability, I set rather strict criteria for the inclusion of Q-sorts in factor arrays. There is no rule that sorts must be included in factor arrays; however, Watts and Stenner (2012) suggest a significance level below 0.01, which is calculated as follows:

$$\text{Significant Threshold} = 2.58 \times \frac{1}{\sqrt{N}}$$

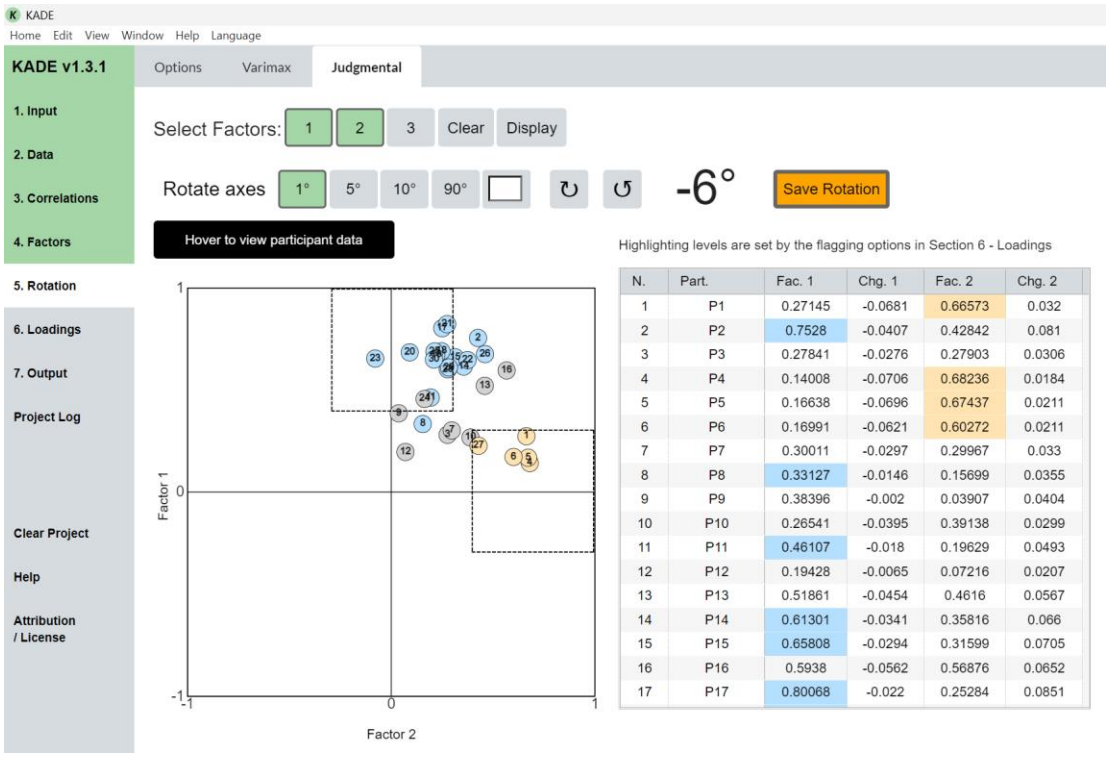
Where N is the number of items in the Q-set, with 45 items in this study, this threshold is equivalent to a correlation of 0.3846.

For my study, sorts needed to load at 0.60 or higher on one factor and below 0.36 on any other factor (see Table 5 for factor loadings and defining sorts). This ensured that cross-loadings were minimized and that each factor remained theoretically distinct. Annex Nine holds the correlation matrix for all Q sorts.

A visual representation of these inclusion criteria is provided in Figure 9, mapping how Q-sorts were categorized for Factors 1, 2, and 3. The dotted boxes shown along the x and y axis encompass 60% of the area and demonstrate heavily populated Q-sorts. Most defining sorts fall within these boxes, but some had correlations with multiple factors, which necessitated careful selection for the final factor.

Figure 9

Visual Representation of Sort Inclusion Criteria



N.	Part.	Fac. 1	Chg. 1	Fac. 2	Chg. 2
1	P1	0.27145	-0.0681	0.66573	0.032
2	P2	0.7528	-0.0407	0.42842	0.081
3	P3	0.27841	-0.0276	0.27903	0.0306
4	P4	0.14008	-0.0706	0.68236	0.0184
5	P5	0.16638	-0.0696	0.67437	0.0211
6	P6	0.16991	-0.0621	0.60272	0.0211
7	P7	0.30011	-0.0297	0.29967	0.033
8	P8	0.33127	-0.0146	0.15699	0.0355
9	P9	0.38396	-0.002	0.03907	0.0404
10	P10	0.26541	-0.0395	0.39138	0.0299
11	P11	0.46107	-0.018	0.19629	0.0493
12	P12	0.19428	-0.0065	0.07216	0.0207
13	P13	0.51861	-0.0454	0.4616	0.0567
14	P14	0.61301	-0.0341	0.35816	0.066
15	P15	0.65808	-0.0294	0.31599	0.0705
16	P16	0.5938	-0.0562	0.56876	0.0652
17	P17	0.80068	-0.022	0.25284	0.0851

Assessing Reliability Through Standard Error

Next, to assess the reliability of factor scores, KADE calculated the standard error (SE) for each factor, which confirmed the variability of factor scores across participants. The formula used was:

$$SE = \frac{1}{\sqrt{N}}$$

Where N is the number of defining sorts (participants) contributing to the factor. A lower SE value signifies higher reliability, while a higher value indicates lower reliability. The standard error for each factor derived from this calculation is provided in Annex Ten.

Statistical Significance Testing (T-Test)

To determine which statements were distinctive for a factor, KADE performed a t-test to check whether a statement's ranking in one factor differed significantly from its ranking in other factors. The formula used was:

$$t = \frac{Z_i - Z_{global})}{SE}$$

Where:

- Z_i is the factor score of a statement,
- Z_{global} is the mean score of that statement across all factors,
- SE is the standard error.

Then, this t-score was compared to a critical value to determine if it was statistically significant. Results with $p < 0.05$ indicated that the statement was statistically significant at the 95% confidence level; those with $p < 0.01$ were considered highly significant, suggesting that there is a 99% chance of saying that this difference is not due to random chance. Although KADE included statements with $p > 0.05$ in creating composite Q-sort pictures, these non-significant results indicate that such statements' rankings did not vary meaningfully across factors. The composite Q-sort pictures created by KADE after the statistical tests highlighted the major statements visually (Figures 13, 14, and 15). The shaded cells in these figures represent statements that are statistically significant in terms of distinguishing factors.

Finalizing Factor Estimates and Arrays

Finally, I compiled each item's Z-scores and Q-sort values into the factor arrays drawing on KADE's output file (see Annex Ten). These arrays provided a vivid summary of the ranking of each statement into the three different factors. The rankings further offered significant clues about the common viewpoints of the participants and reflected the main ideas that formed the holistic results (setting a foundation for holistic-first-person viewpoint interpretation). The factor arrays are displayed in Table 6 below.

Table 6

Position of Each Item for Each Factor Estimate with Respective Factor Array

S.N.	Statements	Factor 1		Factor 2		Factor 3	
		Z-score	Q Sort Value	Z-score	Q Sort Value	Z-score	Q Sort Value
1	I am confident in handling technical difficulties during online collaborative activities.	-0.797	-2	-1.023	-2	-1.482	-4
2	Mobile apps offer students a high degree of autonomy and control over their English language learning.	0.486	1	-0.224	-1	-1.436	-3
3	Mobile apps with audio recording and playback features might be useful tools for assessing student listening and speaking skills.	1.678	5	0.476	1	1.115	3
4	It is better to use other means of communication tools in rural ELT contexts instead of modern ICT and internet connectivity.	-0.207	0	-1.565	-3	-1.869	-5
5	Evaluating online resources for accuracy and appropriateness poses minimal barriers to integrating ICT into teaching.	-0.762	-2	-1.396	-3	-0.841	-3
6	Authentic materials (e.g., native speakers' speech, text, video, etc.) might be useful for creating contextualized grammar lessons.	1.03	3	0.443	1	0.719	2
7	Students can improve their English vocabulary repertoire by watching and listening to English movies, rhymes, chants, etc., in the classroom.	0.994	2	0.668	2	0.897	2
8	Online discussions and presentations could stimulate critical thinking by encouraging students to analyze and respond to ideas.	-0.704	-2	0.635	2	0.273	1

9	The variety of features on mobile devices distracts and hinders focus during class activities.	0.928	2	0.164	0	1.341	4
10	Chat platforms like Meta's WhatsApp and Messenger provide opportunities to improve students' speaking skills.	0.571	2	-0.476	-2	-0.331	-1
11	Students with limited access to ICT can still apply and enhance the digital skills they acquire in school.	-1.599	-4	-1.975	-5	-0.925	-3
12	Integrating ICT into existing teaching methods may impact instructional delivery, assessment, and learning outcomes.	1.208	3	-0.159	-1	0.123	0
13	Self-paced online courses and blogs might be an effective way to improve technology skills for teaching English.	1.015	2	-0.295	-1	0.652	1
14	Government support for ICT resources and authentic materials has minimal influence on my decision to use them.	-0.945	-3	-1.658	-4	-0.7	-2
15	Online teacher support groups may provide resources for designing rubrics and assessing individual/group performance.	0.382	1	0.728	2	-0.793	-2
16	Sharing and working on documents through collaborative ICT tools may promote summarization and information synthesis skills during project work.	0.239	0	-0.361	-2	-0.208	0
17	The initial set-up of online communication platforms for teaching may require some investment of time and technical skills.	1.213	4	0.809	3	1.172	3
18	Software like EPaath and Google Classroom might be useful for assessing multiple aspects of students' English language skills.	-0.423	-1	0.35	0	1.304	4
19	Collaborative online forums and chat functions offer a platform for peer-to-	-0.368	-1	0.908	3	0	0

	peer practice and the development of English language skills.						
20	School administrations and parents should start restricting mobile apps for language learning purposes.	-1.843	-5	-1.794	-5	-0.556	-2
21	Integrating synchronous and asynchronous instruction via web and LMS platforms can accommodate diverse learning needs and interests.	-0.427	-1	0.783	2	-0.52	-2
22	The effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments.	-0.985	-3	0.318	0	0.207	0
23	Online collaborative tools support students in developing project-based skills and interpersonal skills as envisioned in the curriculum.	-0.44	-1	1.182	4	-0.331	-1
24	Accessibility of captioned writing tutorials (e.g., online/offline video) on laptops could enhance students' writing skills.	-0.017	0	0.848	3	0.376	1
25	Collaborative writing activities can improve editing and revision skills through peer feedback.	-0.247	0	1.248	4	0.566	1
26	Collaborating and exchanging ideas with peers on online platforms can decrease students' dedication and engagement towards their learning.	-1.343	-3	-1.045	-3	-0.632	-2
27	Unequal access to e-devices and the Internet poses minimal challenges for mobile learning.	-1.89	-5	-1.603	-4	-1.18	-3
28	Integrating email and internet tools is a great way for introverted students to develop digital literacy and interpersonal skills.	0.123	0	0.033	0	-1.757	-4
29	Collaborative online activities can enhance students' English-speaking skills when discussing with peers across the globe.	-0.68	-2	2.145	5	-0.18	0

30	Online communication tools may vary in suitability depending on students' language proficiency levels.	1.111	3	-1.319	-3	1.217	4
31	Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills.	1.546	5	1.511	5	1.142	3
32	Exposing students to authentic texts like news articles, blog posts, or online articles may be beneficial for developing reading comprehension skills.	0.251	1	0.514	1	1.748	5
33	Participating in authentic social media discussions could be a valuable way for students to learn English in a more contextual and engaging way.	-0.74	-2	-0.049	-1	1.031	2
34	Limited access to technology and the internet presents only minor issues to incorporating authentic materials creatively in the classroom.	-1.108	-3	-1.702	-4	-0.376	-1
35	Online communication tools are complex and unsuitable for my English language teaching.	-1.458	-4	-0.75	-2	-1.87	-5
36	Authentic materials (e.g., interviews, podcasts, and documentaries) can offer diverse listening experiences featuring various accents and speech patterns.	0.966	2	1.056	3	-0.399	-1
37	Engaging students with offline versions of news articles and educational videos may expose them to authentic English used in the real world.	0.54	1	0.383	1	-0.123	0
38	I am comfortable with assessing students' online collaborative works despite the issues of ICT access and technical skills.	-1.668	-4	-0.399	-2	-1.813	-4
39	A mobile dictionary with offline pronunciation is a useful resource for students to practice pronunciation and develop vocabulary.	1.431	4	0.772	2	1.624	5
40	Educational games can make grammar practice more engaging, potentially	1.052	3	1.406	4	0.66	2

	increasing motivation.						
41	Real-time feedback features in online collaborative tools may enable students to potentially receive immediate support and clarification.	-0.313	-1	0.459	1	0.557	1
42	Offline functionality in mobile apps can be beneficial in areas with poor or no internet access for learning the English language.	1.529	4	0.088	0	0.89	2
43	Online communication tools like email and chat platforms are helpful for sharing resources and solving English language problems.	0.182	0	-0.317	-1	-0.311	-1
44	Adjustable audio/video playback features on YouTube and other apps may be a tool for improving listening and speaking skills.	0.374	1	0.038	0	1.039	3
45	The YouTube channel's videos, such as NCED Virtual, might offer instructional ideas for teaching English more effectively.	0.115	0	0.147	0	-0.019	0

Note. The analysis and interpretation of this table are explored in depth in this chapter's Factor Interpretation section under the headings "Holistic First-Person Viewpoint" for each of the three factors and are further detailed in various sections of the subsequent chapter, aligning with the Q methodological tradition.

Teacher Responses to the Post-Sort Questionnaire

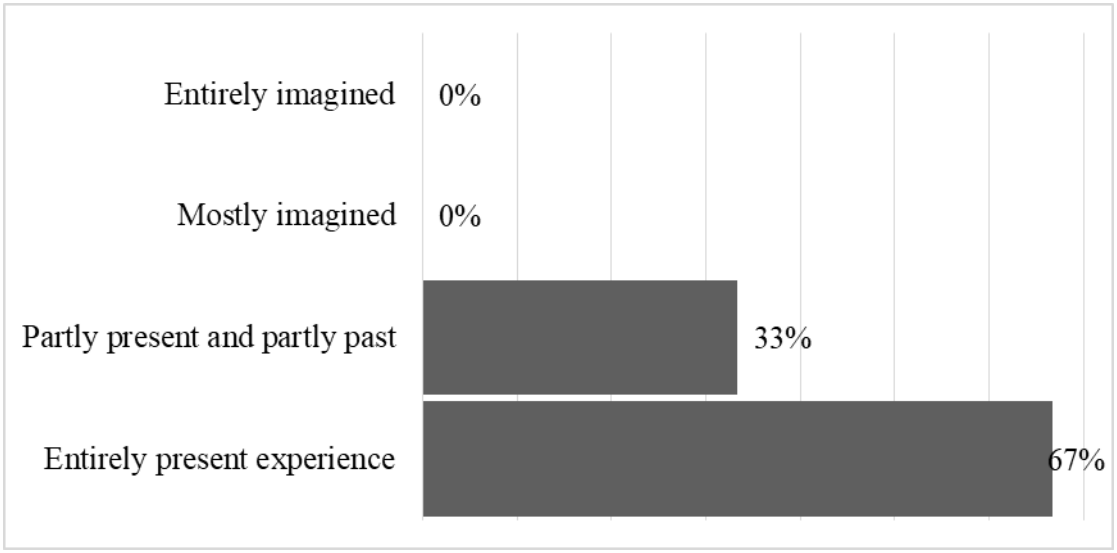
In the Post-Sort Questionnaire (Annex Seven), I looked into the reasoning behind the Q-sort decisions made by participants, which helped me to capture their reflections, emotional responses, and critical evaluations of the ICT affordances statements. In addition to the demographic and contextual data collected from Annex Five, I asked further questions regarding ICT lab functionality, services, and participants' ICT skillsets. This allowed me to gain more insights into what they reported and validate their responses, identifying any misunderstandings that may have arisen from their personal biases and other contextual factors during the Q-sorting process. Furthermore, it helped me to interlink the grounded findings to answer the research questions more critically, adhering to Gibson's (1977) affordances theory and Davis's (1985) TAM in Chapter V. The following sections illuminate the Post-Sort Questionnaire responses of ELT teachers minutely, setting the groundwork for deeper discussions in subsequent chapters.

Did you reflect upon your present experience of using ICT affordances in the ELT classroom, or just imagine their pedagogical usage in ELT?

I asked this question to find out if the 30 participants had direct experience with the statements reflected in ICT affordances of the Q set within their ELT contexts or if they depended on hypothetical situations. Most of the participants reported that they sorted the statements drawing on their current experiences, with 67% reflecting entirely on present experiences and 33% drawing on a mixture of present and past experiences (see Figure 10); notably, none were found offering imaginative responses.

Figure 10

Q Sorting Reflection Experience

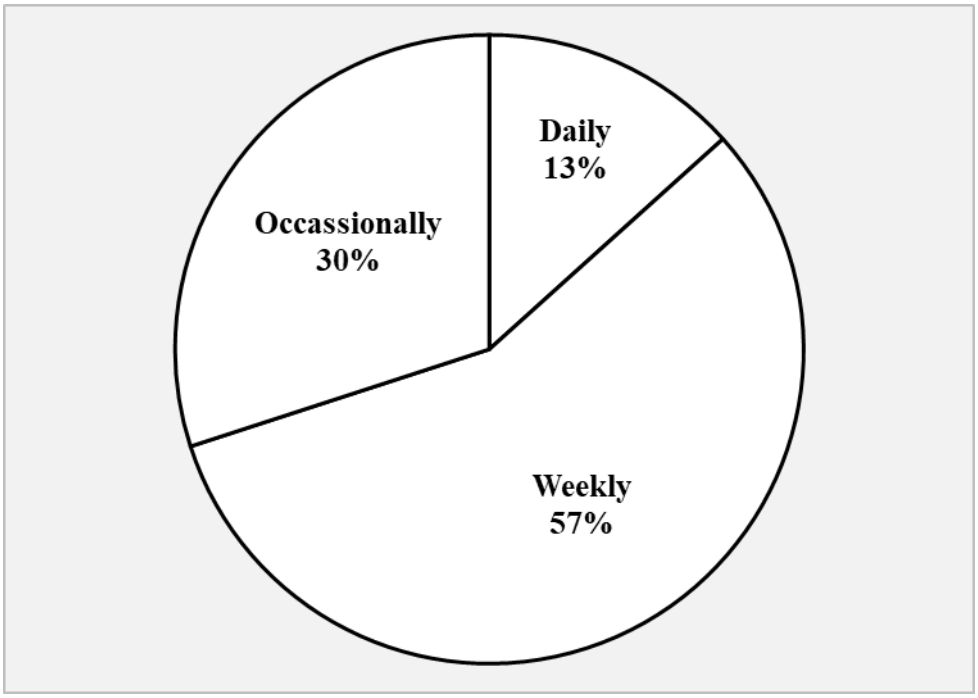


How often do you use ICT in your ELT classroom (if applicable)?

I posed this question as a follow-up to Question 1 to confirm participants' practical involvement with ICT affordances in their English classes. This question helped to verify that participants' responses reflected actual ELT practices rather than hypothetical scenarios. Figure 11 shows the frequency of ICT usage: 57% reported using ICT weekly, 30% occasionally, and 13% daily, reflecting varying levels of integration in ELT classes.

Figure 11

Frequency of ICT Usage in ELT Classrooms

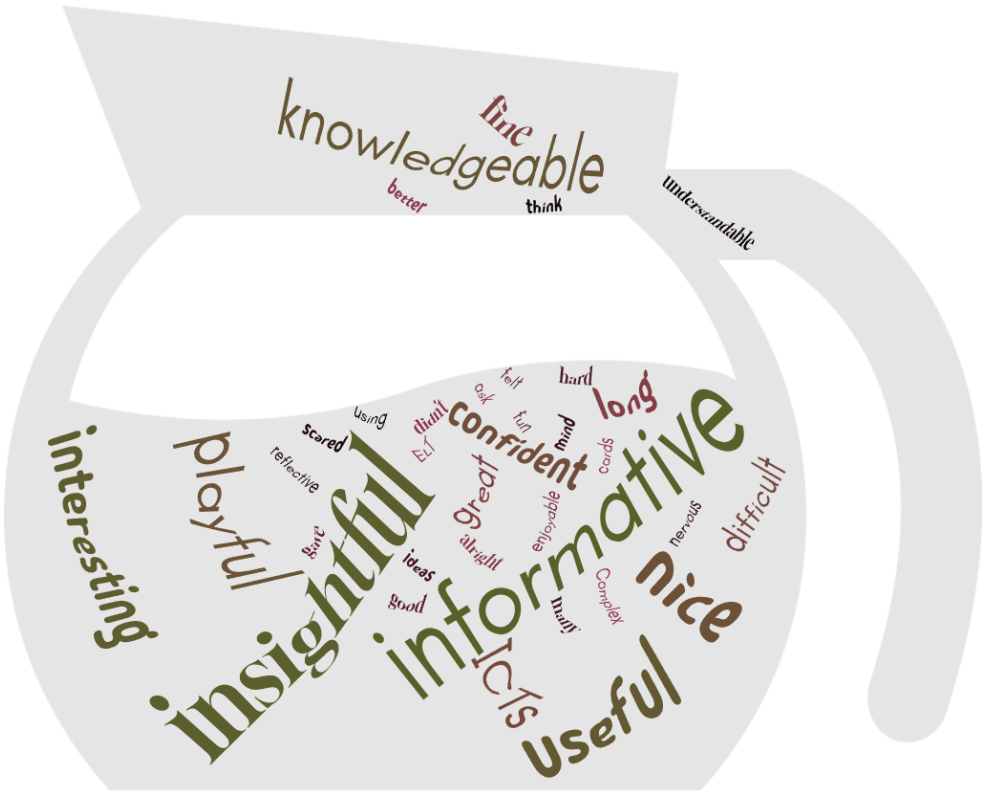


How did you feel about doing the activity?

Responses to this question varied from single-word to two-sentence phrases. I used a free online tool called wordclouds.com to create a word cloud of the responses, with the frequency of each description entered into a CSV template. The image generated from this platform is shown in Figure 12. In the figure, the bigger words highlight higher frequency while the smaller ones reflect lower frequency, as reported by participants.

Figure 12

Activity Description Word Cloud



What other ELT-related 'ICT affordances statements' should have been there?

Responding to this question, most participants reported that the statements were understandable and satisfactory. However, a few suggested minor improvements. For instance, P18 noted that outlining more modern ICT tools in the Q set could have generated further insights. Likewise, P21 suggested that the Q set should consider the government's ICT infrastructure status in secondary schools. The remaining participants agreed that the statements were inclusive and reflected most ICT affordances practised in rural ELT contexts.

Which statement did you not understand or feel difficult to sort out?

This question was added to administer the Q-set properly and to detect any remaining comprehension issues with the Q-set. Many issues were dealt with during piloting. For example, P4 mentioned that item 4 was a bit confusing, so I reworded it, and P2 indicated that some statements, like items 16 and 36, are long, so I made them shorter for clarity. All three pilot participants also asked for the Q-set to be in Nepali to fit their linguistic backgrounds, so I carefully translated the Q-set into Nepali to minimize language barriers. Consequently, no major comprehension issues were raised by any of the participants in the main study, despite a few participants asking for clarification on unfamiliar ICT terms. Since I was there with them throughout the Q-sort procedure, I facilitated the entire process by closely following the Q-sorting instructions in Annex Four. Furthermore, I read the statements aloud and provided additional support as required to complete the sorting process without any hurdles.

Teacher Responses to the Most Agreed and Disagreed Statements

To generate teacher responses on their underlying reasoning behind most agreed and disagreed statements, I asked the following two post-sort interview questions to reveal their agreement and disagreement with these statements. These questions further assisted in validating the mapped-out affordances in Chapter V and uncovered the rationale and contextual factors influencing participants' choices of enacted affordances. The questions, as mentioned in Appendix G's four and five numbers, are as follows:

- Which statement(s) did you mostly agree with? Why did you agree? Provide the statement number(s) and briefly explain your agreement.
- Question 5: Which statement(s) did you mostly disagree with? Why did you disagree? Please provide the statement number(s) and briefly explain your disagreement.

These questions proved the validity of the sorting processes that participants undertook, revealing not only their preferences but also some considerations and contextual factors that influenced their choices. The responses are summarized in the following tables, drawn from field data: Table 7 presents statements (items) with which participants mostly agreed; Table 8 shows those they mostly disagreed with.

Table 7
Responses to Most Agreed Statements

Sort ID	Item Number	Reason for agreement
P1	31	"I find multimedia tools useful for displaying real objects through pictures, which helps in teaching vocabulary items like synonyms and antonyms."
	29	"Online activities allow students to share ideas and learn native speakers' pronunciation, thereby supporting in the development of speaking skills among others."
P2	7	"English movies, poems, and series should be watched because these activities can improve students' pronunciation, speaking fluency, and accent, alongside other paralinguistic features."
	40	"Games allow students to learn English easily, making learning fun alongside their coursework in an engaging and interactive way."
P3	31	"PowerPoint is an effective tool in ELT; it attracts students and keeps them focused during learning activities."
	9	"Various apps may distract students from useful language-learning apps."
P4	24	"Writing tutorials with captions help students note ideas from videos, which they can later use in writing practice."
	29	"Social media exposes students to different accents and vocabulary when they discuss with peers from other countries."
P5	31	"PowerPoint helps improve students' listening skills, making learning long-lasting and enhancing creativity."
	39	"Some apps introduce students to unfamiliar vocabulary, which helps with pronunciation skills."
P6	41	"Real-time feedback in online learning enables students to understand lessons more clearly."
	17	"Keeping up with ICT advancements is challenging, especially as an experienced user adjusting to new software and functions."
P7	39	"Offline dictionaries and apps are valuable for students without internet access at home, allowing them to practice

		pronunciation and other language skills.”
	40	“ICT-based games make English learning effective and fun. Vocabulary games, for example, increase student motivation and interest.”
P8	32	“Authentic materials serve as accurate grammar models, supporting grammar and language skills teaching.”
	42	“Offline apps are useful when the internet is slow; they can be downloaded for easy use in classroom activities, especially for listening and speaking assignments.”
P9	9	“Mobile apps, by their nature, may distract students towards non-educational activities.”
	44	“YouTube’s download feature is useful for replaying videos, making lessons easily accessible by level and student proficiency.”
P10	42	“Offline resources help students practice pronunciation, vocabulary, and other language skills without requiring internet access.”
	9	“Certain online features like chatting and gaming can distract students’ attention during class.”
P11	44	“YouTube and similar apps allow me to teach and test listening and speaking skills effectively in ELT classrooms.”
	30	“I have fast, medium, and slow learners in my class, and I adapt my teaching methods to cater to all speeds.”
P12	42	“Offline content, once downloaded, lets students study easily, helping with vocabulary and pronunciation.”
	31	“Multimedia tools provide maximum exposure for students to engage with English language content and skills.”
P13	31	“Using projectors makes presenting content more engaging, effective, and interesting in my ELT classroom.”
	37	“Authentic articles expand students' knowledge and allow them to practice language skills beyond classroom activities.”
P14	42	“When internet isn’t available, students can use downloaded resources to improve their English proficiency.”
	30	“In our multilingual rural society, even Nepali can be a barrier. Offline apps in students’ mother tongues are more accessible than online English resources.”

P15	7	“Students exposed to technology early benefit from poems and rhymes, enhancing vocabulary, confidence, and competence.”
	3	“Since listening is foundational in language learning, mobile apps offer real-time feedback reducing speaking anxiety.”
P16	7	“Games and poems increase student motivation toward learning, making classes more enjoyable.”
	31	“Multimedia integration helps boost engagement, motivation, and active participation in class.”
P17	12	“ICT integration improves instructional delivery, assessments, and learning outcomes, enhancing student engagement and growth.”
	13	“Self-paced courses and blogs have significantly improved my technology skills for teaching English, offering flexibility and effective learning.”
P18	39	“Offline dictionaries are readily available, assisting in pronunciation practice.”
	36	“Authentic materials enhance pronunciation when students analyze native speakers’ accents and speech patterns.”
P19	31	“PowerPoint slides with visuals attract students, making it easier to teach language functions like directions.”
	3	“Mobile apps correct students’ pronunciation and enhance speaking and listening skills through continuous feedback.”
P20	42	“Mobile apps aid listening and speaking proficiency through dictionaries and grammar resources.”
	3	“These apps allow students to self-assess their listening and speaking skills while providing feedback over time.”
P21	13	“Online courses and blogs help design effective language teaching materials and improve instructional methods.”
	31	“PowerPoint helps students retain content effectively, enhancing learning experiences and outcomes.”
P22	3	“Mobile devices and multimedia materials help us to test students’ listening skills and give them feedback through authentic audio.”
	39	“Dictionaries are great for teaching pronunciation, phonetic transcription, and supra-segmental features of words.”

P23	6	“Authentic materials help develop fluency and necessary phonological features, improving spoken language skills.”
	13	“Using ICT promotes teacher-student engagement, making ELT more fruitful and interactive.”
P24	42	"Offline apps are essential in areas without internet, helping students learn English independently."
	7	"English films, songs, and poems provide students with vocabulary and language learning opportunities."
P25	39	“Offline apps provide vocabulary resources for students without internet, aiding language development.”
	44	“Repeated listening practice using videos enhances students' listening and speaking proficiency.”
P26	39	“I use offline dictionaries and listening scripts to assess listening and language skills, which I find useful.”
	31	“PowerPoint captures students’ attention and makes learning engaging, motivating, and enjoyable.”
P27	31	“Slides can be prepared easily without the internet, allowing for practical and engaging teaching.”
	29	“Collaborating with peers from other countries helps students learn new English language functions.”
P28	37	“Offline versions of resources like news articles help develop real communicative skills in contexts where students lack internet access.”
	13	“Self-paced courses and instructional blogs have allowed me to learn and implement strategies in class at my convenience.”
P29	31	“PowerPoint supports vocabulary learning and makes language content engaging.”
	7	“English movies and other tech tools help students develop vocabulary and language skills more effectively.”
P30	36	“Authentic materials provide diverse listening experiences, helping students understand different speech patterns.”
	39	“Apps and dictionaries make it easier to learn the pronunciation of difficult words and are effective learning tools.”

Table 8

Responses to Most Disagreed Statements

Sort ID	Item Number	Reason for agreement
P1	26	“These tools allow students to develop speaking skills and improve listening comprehension.”
	11	“Limited ICT access restrICT students’ potential by limiting practice opportunities for language skills.”
P2	5	“Evaluating and administering online activities is time-consuming. It’s challenging to organize content in rural ELT settings.”
	20	“Not all students have access to mobile phones. Many parents can’t afford or don’t allow them due to potential negative effects.”
P3	4	“Without the internet and ICT, we cannot effectively teach. Internet is vital for accessing authentic resources.”
	35	“Online communication tools aren’t complex once basics are known. Available resources make these tools meaningful and suitable for ELT.”
P4	20	“Parents and school administration should allow these devices since they are important tools for language learning if used judiciously.”
	34	“When students have limited access to ICT and the internet, learning cannot become easier or faster, creating a barrier to fair and authentic learning.”
P5	20	“In the 21st century, students know what’s useful. Banning ICT isn’t a sensible decision in itself.”
	27	“It’s challenging as students might not have access to such ICT all the time in their vicinity.”
P6	27	“Students should be given access to devices to search the internet and other platforms; only then will they be able to learn, enhance their knowledge, and become competent in English.”
	20	“School administration should decide which tools or apps to allow and how they should be deployed so students can explore new content and enhance language learning.”
P7	4	“If there is no internet access in ELT contexts, English language learning is questionable due to the inability of some rural students to communicate effectively.”
	27	“Inequality invites unfair learning opportunities among students. Those with unequal access lag in mastering language skills and perform poorly in academics and careers.”

P8	7	“English movies, poems, and rhymes of foreign native speakers are not suitable for Nepali children.”
	35	“While teaching English, I do not find any complexity in using these tools, and I don’t think online communication tools are unsuitable for ELT.”
P9	4	“A majority of children lack ICT access and can’t communicate directly with teachers. Replaying such content isn’t accessible if delivered via radio.”
	11	“Without ICT access at school, students can’t practice learning consistently, leading to disparities and inequalities.”
P10	4	“In rural areas, this is the age of ICT, and students shouldn’t be deprived of these technologies.”
	5	“It’s challenging because I might not have access to all forms of ICT in my ELT context.”
P11	4	“Because it is not possible due to access issues. Children do not have access to such devices in my context.”
	27	“It is challenging because not all children have equal access, which might create disparities in learning.”
P12	27	“It is challenging because, without using the internet and ICT, modern teaching and learning is impossible in the 21st century.”
	34	“Limited access will be a barrier as students can’t learn effectively, and teaching will be hampered.”
P13	14	“Without government support for ICT resources, it's hard to use them effectively in teaching and enhance students’ learning.”
	4	“Students can exchange videos and listen to radios and TVs, which don’t require the internet, thereby supporting English learning.”
P14	4	“Modern communication is somewhat related to electricity and internet access. Without these, rural students can’t compete globally.”
	27	“The inability to access the internet and electronic resources prevents mobile learning. One hour isn’t enough to practice all skills when device access is limited.”
P15	20	“Proper use of digital devices helps improve language skills and L2 knowledge, especially in under-resourced ELT contexts.”
	34	“Without access to the internet and ICT, learning loses its relevance in the 21st century, leaving students disempowered globally.”

P16	9	“Students become addicted to mobile phones rather than engaging in learning.”
	11	“Without practice, learning doesn’t last. This leaves students disempowered compared to their peers.”
P17	27	“Lack of training and infrastructure creates barriers to utilizing ICT affordances effectively.”
	35	“They are not complex; I can deploy them if available, and they are suitable for my ELT classroom.”
P18	14	“ICT integration skills might not be mastered by all teachers, and access to electricity or internet isn’t available everywhere. Affording such resources can be difficult.”
	11	“Facilities available in school may not be accessible or affordable at home, which can hinder students’ ability to practice language skills taught through ICT.”
P19	22	“Students in my school don’t have access to ICT services, nor are they well-trained to use ICT features.”
	5	“I’m not competent with ICT devices, and I don’t know where to find or grade resources, which is challenging in rural ELT contexts.”
P20	35	“Although I’m not ICT-proficient, I see its value in enhancing learning in ELT if used properly.”
	27	“Students in these areas lack regular internet access, which creates a barrier to making mobile learning possible.”
P21	38	“Students lack ICT devices and necessary technical skills, making these activities difficult in my classroom.”
	20	“Students are deprived of a multitude of English learning resources, such as dictionaries, grammar, and practice apps, without ICT.”
P22	11	“Limited access to technology hinders students from practising what they learn at school.”
	34	“Without reliable internet, we can’t access authentic resources, which creates a barrier to learning.”
P23	27	“Limited ICT skills make it challenging to assess students’ work efficiently.”
	38	“I lack expertise in using ICT for student assessment, making collaboration tough.”
P24	4	“Without internet access, students miss out on new vocabulary and

		language skills."
	5	"It's really challenging when there's limited knowledge on using ICT in ELT classrooms."
P25	20	"Without ICT, students lose access to valuable English resources, affecting their language development."
	27	"Unequal ICT access creates learning disparities; those without ICT may not perform as well as their peers."
P26	26	"I think students can learn easily with ICT, enhancing collaboration without lowering engagement."
	20	"This is the age of technology, and ICT is highly beneficial for language learners."
P27	27	"All students don't have mobile devices or internet at all times, so they can't learn English flexibly."
	38	"In remote areas, I lack ICT access and skills, limiting use in the classroom."
P28	20	"It's the age of ICT, and, um, tools like mobile phones and computers must be used for learning. If parents and school administrators ban these, how can we expect better outcomes?"
	4	"ICT are, I think, essential today... we can't have different standards for urban and rural schools. There should be equal access to devices and services in rural areas, like in urban ones."
P29	34	"Without ICT, it's not possible to teach large classes and access different resources from the internet."
	38	"Evaluating students and handling related issues is difficult without having access to ICT."
P30	1	"Technical difficulties have a greater effect on teaching English among other subjects when using ICT and online access issues."
	35	"I don't think they are unsuitable and complex. I have found them simple, and as I said earlier, I am using them regularly."

Factor Interpretation

Interpreting factors in Q methodology demands us to consider the factor scores, which indicate composite Q sorts or general viewpoints. These composite Q sorts represent the common views of those participants whose individual Q sorts significantly load onto the same factor. To make a meaningful interpretation of each factor, it was essential first to consider the holistic configuration of items within the

factor array (Watts & Stenner, 2012) in terms of their relationships with one another rather than focusing on individual items in isolation. For this research, I opted to take a holistic view by applying abductive reasoning and taking a social constructionist approach to describe the viewpoint of each factor as a unified whole.

In the following sections, I first present each factor with an appropriate name and a summary from a first-person perspective as an English language teacher. Then, I elucidated the statistical details such as eigenvalues, explained variance, and loadings of significant Q-sorts were provided, along with factor-wise contextual information about participants, exemplifying each factor and omitting specific identifiers, like the location of the school, to maintain confidentiality. Next, I present the composite Q-sort figures for each factor derived from KADE software in a quasi-normal distribution format. Finally, I offer a holistic first-person perspective for each factor, taking into account items with their corresponding Q-sort values holistically as per the Q-methodological tradition. The interpretation of the first factor commences as follows.

Factor 1: Practical and Accessible ICT

Summary

As an English teacher in a rural region, I utilize practical ICT tools that improve language skills (e.g., listening, speaking, and vocabulary) and, at the same time, cope with infrastructural challenges. I rely on mobile applications, PowerPoint presentations, and self-directed online courses emphasizing offline functionality to ensure continuity in learning. These simple tools promote student autonomy and authentic learning, which compensates for not having updated and advanced ICT tools or resources in my ELT. Although ICT access is often restricted, I use the digital tools available to me very purposefully to maximize language learning outcomes through effective content delivery.

Statistical and Contextual Information

Factor 1 had an eigenvalue of 8.65 and explained 29% of the variance of the study. Five participants – four males and one female – were significantly associated with this factor. Their teaching experience varied; however, on average, they had over a decade of teaching English in rural ELT contexts. All participants hold an M.Ed. in English; one has an additional M.A. degree.

These teachers adopted diverse digital tools to enhance language learning and applied their ICT training skills to integrate ELT resources effectively. They

especially used mobile applications to provide support for listening, speaking, and vocabulary skills. Some of the teachers used these apps for pronunciation assessment and vocabulary enhancement as well. Others have utilized the Microsoft Office suite for the creation of test papers, revisions of scores, and designing language resources. They also used smartboards, projectors, and multimedia tools to engage in grammar lessons and authentic dialogue practice. For content generation and support in teaching, they accessed Google and YouTube for resources on pronunciation, writing tasks, and lessons in diverse multimodal forms.

Participants loading on this factor deployed ICT on a different frequency basis; for example, 40% of them reported they used it weekly, 20% of them used it daily, and 20% used it occasionally. These participants worked in isolated schools that had limited ICT facilities, including mobile devices and sporadic internet access, along with very few projectors and multimedia resources. Most of the participants' responses were based on current ICT usage, with 80% representing full reflection on present usage and 20% representing a mix of current and past usage. The next page, Figure 13, offers a comprehensive summary of Factor 1; statements in cells with light shading are significant at <0.05 and those in densely shaded cells at <0.01.

Figure 13

Composite Q sort for Factor 1

-5	-4	-3	-2	-1	0	1	2	3	4	5
20. School administration and parents should start restricting mobile apps for language learning purposes.	35. Online communication tools are complex and unsuitable for my English language teaching.	14. Government support for ICT resources and authentic materials has minimal influence on my decision to use them.	29. Collaborative online activities can enhance students' English-speaking skills when discussing with peers across the globe.	41. Real-time feedback features in online collaborative tools may enable students to potentially receive immediate support and clarification.	16. Sharing and working on documents through collaborative ICT tools may promote summarization and information synthesis skills during project work.	37. Engaging students with offline versions of news articles and educational videos may expose them to authentic English used in the real world.	13. Self-paced online courses and blogs might be an effective way to improve technology skills for teaching English.	12. Integrating ICTs into existing teaching methods may impact instructional delivery, assessment, and learning outcomes.	42. Offline functionality in mobile apps can be beneficial in areas with poor or no internet access for learning English language.	3. Mobile apps with audio recording and playback features might be a useful tool for assessing student listening and speaking skills.
27. Unequal access to e-devices and the internet poses minimal challenges for mobile learning.	11. Students with limited access to ICTs can still apply and enhance the digital skills they acquire in school.	22. The effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments.	8. Online discussions and presentations could stimulate critical thinking by encouraging students to analyze and respond to ideas.	19. Collaborative online forums and chat functions offer a platform for peer-to-peer practice and development of English language skills.	43. Online communication tools like email and chat platforms are helpful for sharing resources and solving English language problems.	2. Mobile apps offer students a high degree of autonomy and control over their English language learning.	7. Students can improve their English vocabulary repertoire by watching and listening to English movies, rhymes, chants, etc., in the classroom.	30. Online communication tools may vary in suitability depending on students' language proficiency levels.	39. Mobile dictionary with offline pronunciation is a useful resource for students to practice pronunciation and develop vocabulary.	31. Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills.
	38. I am comfortable with assessing students' online collaborative works despite the ICTs access and technical skills issues.	34. Limited access to technology and the internet presents only minor issues to incorporating authentic materials creatively in the classroom.	33. Participating in authentic social media discussions could be a valuable way for students to learn English in a more contextual and engaging way.	18. Software like EPaath and Google Classroom might be useful for assessing multiple aspects of students' English language skills.	28. Integrating email and internet tools is a great way for introverted students to develop digital literacy and interpersonal skills.	15. Online teacher support groups may provide resources for designing rubrics and assessing individual/group performance.	36. Authentic materials (e.g., interview, podcast, and documentary) can offer diverse listening experiences featuring various accents and speech patterns.	40. Educational games can make grammar practice more engaging, potentially increasing motivation.	17. The initial set up of online communication platforms for teaching may require some investment of time and technical skills.	
		26. Collaborating and exchanging ideas with peers on online platforms can decrease students' dedication and engagement towards their learning.	5. Evaluating online resources for accuracy and appropriateness posses minimal barrier to integrating ICTs into teaching.	21. Integrating synchronous and asynchronous instruction via web and LMS platforms can accommodate diverse learning needs and interests.	45. YouTube channel's videos such as NCED Virtual might offer instructional ideas for teaching English more effectively.	44. Adjustable audio/video playback features on YouTube and other apps may be a tool for improving listening and speaking skills.	9. The variety of features on mobile devices distracts and hinders focus during class activities.	6. Authentic materials (e.g., native speakers' speech, text, video, etc.) might be useful for creating contextualized grammar lessons.		
			1. I am confident in handling technical difficulties during online collaborative activities.	23. Online collaborative tools support students to develop project-based skills and interpersonal skill as envisioned in the curriculum.	24. Accessibility of captioned writing tutorials (e.g., online/offline video) on laptops could enhance student's writing skills.	32. Exposing students with authentic texts like news articles, blog posts, or online articles may be beneficial for developing reading comprehension skills.	10. Chat platforms like Meta's WhatsApp and Messenger provide opportunities to improve student's speaking skills.			
					4. It is better to use other means of communication tools in rural ELT contexts instead of modern ICTs and internet connectivity.					
					25. Collaborative writing activities can improve editing and revision skills through peer feedback.					

Holistic First-Person Viewpoint

As an English educator in a rural area, I focus on employing ICT tools that are simple and readily available to promote basic language skills such as speaking, listening, and vocabulary development. One major concern is the unequal access to technology and the internet, which can impede these components significantly (Item 27, -5). Therefore, offline functionality becomes essential (Item 42, +4). For this particular reason, I depend on mobile applications that have audio recording and playback features to adequately evaluate students' listening and speaking skills on an individual basis (Item 3, +5). Mobile dictionaries with offline pronunciation help students practice pronunciations while enhancing their vocabulary (Item 39, +4). Multimedia resources such as PowerPoint presentations serve an essential role in my instruction by offering visually attractive content that aids vocabulary acquisition and other aspects of language development (Item 31, +5).

Establishing the infrastructure of online communication tools for teaching is complex and can be time-consuming, as well as requiring some technical knowledge (Item 17, +4). I also believe that these tools do not seem to meet the needs of all student language levels (Item 30, +3). Yet I disagree with the fact that online communication tools are very complex and unsuitable for my ELT practices (Item 35, -4). The integration of ICT in teaching methods would positively impact instructional delivery, assessment, and learning outcomes (Item 12, +3). Self-paced online courses and blogs delivered through these ICT helped me acquire technology skills to teach English effectively (Item 13, +2). Sometimes, not all students have access to the technology and internet at home, which creates minor challenges in the imaginative integration of authentic materials within the classroom setting (Item 34, -3). However, chat applications such as Meta's WhatsApp and Messenger improve students' speaking abilities (Item 10, +2); online communication tools like email and chat applications help share resources and questions about problems related to the English language (Item 43, 0).

I realize that the different features available on mobile devices sometimes distract students from the central focus of an activity in class (Item 9, +2). However, I do not believe that mobile applications for language learning should be restricted by school administrations and parents (Item 20, -5). I think that educational games can be employed to improve students’ participation, which would make grammar practice more motivating (Item 40, +3). Furthermore, the use of English movies, rhymes, and

chants in teaching adds to the development of learners' vocabulary (Item 7, +2). To offer varied listening experiences, I utilize authentic materials such as interviews, podcasts, and documentaries, which serve to expose students to different accents and speech patterns (Item 36, +2). These materials help in developing grammar lessons based on context and using the speech and video of native speakers to make learning more relatable and effective (Item 6, +3).

I do not profess to be competent in managing technical issues within the context of online collaborative activities (Item 1, -2). This, therefore, adversely affects my conception of the possibility of integrating synchronous and asynchronous instruction through the web and LMS platforms to cater to the diverse needs and interests of learners (Item 21, -1). I acknowledge that mobile apps grant students total autonomy and control regarding their English language learning (Item 2, +1) and think that online teacher support groups will probably be a useful source for rubric creation and assessment of group work (Item 15, +1). I do not think collaborative online forums and chat features work well as the medium for peer-to-peer practice and development of English language skills (Item 19, -1). Nor do I believe collaborative online activities can significantly enhance students' English-speaking skills in discussing with peers around the globe (Item 29, -2).

I do not claim to be confident in handling technical difficulties during online collaborative activities (Item 1, -2), which impacts my conceptualization of the potential for integrating synchronous and asynchronous instruction via web and LMS platforms to meet diverse learning needs and interests (Item 21, -1). While I recognize that mobile apps offer students a high degree of autonomy and control over their English language learning (Item 2, +1) and believe that online teacher support groups may provide valuable resources for designing rubrics and assessing group performance (Item 15, +1), I remain sceptical about the effectiveness of collaborative online forums and chat functions as a platform for peer-to-peer practice and the development of English language skills (Item 19, -1). Similarly, I do not believe that collaborative online activities can enhance students’ English-speaking skills when discussing with peers across the globe (Item 29, -2).

Although I am against the idea that students with limited access to ICT at home can still apply and enhance digital skills learned in school (Item 11, -4), I believe that sharing and working on documents through collaborative ICT tools may sometimes foster summarization and information synthesis during project work (Item

16, 0). Nor am I sure that collaborative writing activities, assisted by peer feedback, will enhance students' editing and revision skills (Item 25, 0). Perhaps exposing students to such genuine materials as news articles and blogs might help improve their reading habits, too (Item 32, +1). I am also sceptical about whether integrating email and internet tools can benefit more shy students and assist them in developing digital literacy and interpersonal skills (Item 28, 0).

I do not agree that being comfortable with assessing students' online collaborative work removes issues concerning access to ICT and technical skills (Item 38, -4), and I do not believe that evaluating online resources for their accuracy and appropriateness is a trivial barrier in the way of integrating ICT into ELT (Item 5, -2). I do not support the idea that collaborating and sharing ideas with peers online cannot heighten students' dedication and engagement towards their learning (Item 26, -3). However, making them familiar with offline versions of news clips and educational videos can expose them to authentic English in real-world usage (Item 37, +1). I disagree with the statement that government support for ICT resources and authentic materials has minimal influence on my decision to use them (Item 14, -3).

I disagree that the effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments (Item 22, -3). Similarly, I am not convinced that online discussions and presentations could stimulate critical thinking by encouraging students to analyze and respond to ideas (Item 8, -2). I am also uncertain that using other communication tools in rural ELT contexts is better than modern ICT and e-devices with internet connectivity (Item 4, 0). I also am not sure whether easily available captioned writing tutorials on laptops could significantly improve students' writing skills (Item 24, 0).

I do not think authentic social media discussions would be a valuable way for students to learn English more contextually and engagingly (Item 33, -2). I am not sure if software such as EPaath and Google Classroom can be useful for assessing various aspects of students' English language skills (Item 18, -1). I also doubt that online collaborative tools help students develop project-based skills and interpersonal abilities as per the requirements of the curriculum (Item 23, -1). However, I do think that adjustable audio/video playback features on YouTube and similar apps may be helpful tools for improving listening and speaking skills (Item 44, +1), and YouTube channels like NCED Virtual might offer useful instructional ideas for teaching English more effectively (Item 45, 0). Lastly, I do not fully agree that real-time

feedback features in online collaborative tools may enable students to receive immediate support and clarification (Item 41, -1).

Reflections on Factor 1

From the interpretation of Factor 1, it can be argued that participants gave priority to the value of ICT despite the constraints of their ELT contexts. The emphasis on simple, offline tools raises an important question: Do the lower and neutral rankings of complex, internet-dependent ICT reflect more significant concerns about access and practicality of ICT affordances and infrastructures? Indeed, in these under-resourced schools, reliable and inclusive tools were found to be of greater significance than the sophisticated online resources and tools used in resourceful ELT contexts.

Factor 2: Collaborative and Interactive ICT

Summary

As an English teacher, I focus on the use of interactive ICT tools that support collaborative, authentic experiences in language learning. I actively employ online discussions, project-based work, and collaborative writing activities that let my students engage with and practice using English in a variety of different global contexts. Implementing these activities does invite challenges, such as issues of limited ICT access and policies that may impede language acquisition and hinder learners from being autonomous. Yet, I mitigate these challenges by optimizing existing resources and exploring the possible ways to ensure a collaborative and critical classroom learning environment that meets diverse learners' needs and interests.

Statistical and Contextual Information

Factor 2 had an eigenvalue of 4.17 and explained 14 per cent of the study variance. Five participants, two males and one female, were primarily linked to this factor, with an average of over seventeen years of teaching experience in rural ELT settings. All of these participants held an M.Ed. degree in ELE. These teachers deployed varied digital tools to enhance language learning and followed collaborative approaches for classroom instruction. Among these tools, they primarily deployed tools such as PowerPoint and collaborative chat platforms to facilitate grammar lessons and assess the learners. Similarly, audio-visual materials and Google Classroom were used for task assignments and assessments of listening and speaking;

to some extent, offline resources like EPaath and mobile applications were also used for practising vocabulary and other language skills.

ICT usage in their ELT classrooms varied: 67% of participants reported weekly ICT use, 33% occasionally, and none daily. These teachers worked in semi-urban schools with well-equipped ICT labs, access to laptops and PCs, stable Wi-Fi, and extensive multimedia resources. Regarding experience, 67% based their responses on a blend of present and past practices, while 33% focused exclusively on current usage with no hypothetical scenarios included. Figure 14 below presents the composite Q sort for this factor, with statements in lightly shaded cells indicating significance at <0.05 and those in densely shaded cells at <0.01 levels.

Figure 14

Composite Q sort for Factor 2

-5	-4	-3	-2	-1	0	1	2	3	4	5
20. School administration and parents should start restricting mobile apps for language learning purposes.	27. Unequal access to e-devices and the internet poses minimal challenges for mobile learning.	26. Collaborating and exchanging ideas with peers on online platforms can decrease students' dedication and engagement towards their learning.	16. Sharing and working on documents through collaborative ICT tools may promote summarization and information synthesis skills during project work.	33. Participating in authentic social media discussions could be a valuable way for students to learn English in a more contextual and engaging way.	18. Software like EPaath and Google Classroom might be useful for assessing multiple aspects of students' English language skills.	32. Exposing students with authentic texts like news articles, blog posts, or online articles may be beneficial for developing reading comprehension skills.	21. Integrating synchronous and asynchronous instruction via web and LMS platforms can accommodate diverse learning needs and interests.	36. Authentic materials (e.g., interview, podcast, and documentary) can offer diverse listening experiences featuring various accents and speech patterns.	40. Educational games can make grammar practice more engaging, potentially increasing motivation.	29. Collaborative online activities can enhance students' English-speaking skills when discussing with peers across the globe.
11. Students with limited access to ICTs can still apply and enhance the digital skills they acquire in school.	14. Government support for ICT resources and authentic materials has minimal influence on my decision to use them.	30. Online communication tools may vary in suitability depending on students' language proficiency levels.	38. I am comfortable with assessing students' online collaborative works despite the ICTs access and technical skills issues.	12. Integrating ICTs into existing teaching methods may impact instructional delivery, assessment, and learning outcomes.	22. The effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments.	3. Mobile apps with audio recording and playback features might be a useful tool for assessing student listening and speaking skills.	39. Mobile dictionary with offline pronunciation is a useful resource for students to practice pronunciation and develop vocabulary.	19. Collaborative online forums and chat functions offer a platform for peer-to-peer practice and development of English language skills.	25. Collaborative writing activities can improve editing and revision skills through peer feedback.	31. Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills.
	34. Limited access to technology and the internet presents only minor issues to incorporating authentic materials creatively in the classroom.	5. Evaluating online resources for accuracy and appropriateness posses minimal barrier to integrating ICTs into teaching.	10. Chat platforms like Meta's WhatsApp and Messenger provide opportunities to improve student's speaking skills.	2. Mobile apps offer students a high degree of autonomy and control over their English language learning.	9. The variety of features on mobile devices distracts and hinders focus during class activities.	41. Real-time feedback features in online collaborative tools may enable students to potentially receive immediate support and clarification.	15. Online teacher support groups may provide resources for designing rubrics and assessing individual/group performance.	24. Accessibility of captioned writing tutorials (e.g., online/offline video) on laptops could enhance student's writing skills.	23. Online collaborative tools support students to develop project-based skills and interpersonal skill as envisioned in the curriculum.	
		4. It is better to use other means of communication tools in rural ELT contexts instead of modern ICTs and internet connectivity.	35. Online communication tools are complex and unsuitable for my English language teaching.	13. Self-paced online courses and blogs might be an effective way to improve technology skills for teaching English.	45. YouTube channel's videos such as NCED Virtual might offer instructional ideas for teaching English more effectively.	6. Authentic materials (e.g., native speakers' speech, text, video, etc.) might be useful for creating contextualized grammar lessons.	7. Students can improve their English vocabulary repertoire by watching and listening to English movies, rhymes, chants, etc., in the classroom.	17. The initial set up of online communication platforms for teaching may require some investment of time and technical skills.		
			1. I am confident in handling technical difficulties during online collaborative activities.	43. Online communication tools like email and chat platforms are helpful for sharing resources and solving English language problems.	42. Offline functionality in mobile apps can be beneficial in areas with poor or no internet access for learning English language.	37. Engaging students with offline versions of news articles and educational videos may expose them to authentic English used in the real world.	8. Online discussions and presentations could stimulate critical thinking by encouraging students to analyze and respond to ideas.			
					44. Adjustable audio/video playback features on YouTube and other apps may be a tool for improving listening and speaking skills.					
					28. Integrating email and internet tools is a great way for introverted students to develop digital literacy and interpersonal skills.					

Holistic First-Person Viewpoint

As an English teacher, I appreciate the use of interactive ICT tools that promote a collaborative and enthusiastic learning environment by optimizing available resources. I believe collaborative online activities can significantly enhance students' English-speaking skills in discussing with peers around the globe (Item 29, +5). Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills (Item 31, +5). Yet, I do not believe that those students who do not have ICT access at home can apply and develop the digital skills they acquired in school (Item 11, -5), and I equally do not believe that unequal access to devices and internet connectivity causes least challenges into mobile learning (Item 27, -4).

To develop students' project-based skills and interpersonal skills as envisioned in the curriculum, I deploy online collaborative tools (Item 23, +4), as these collaborative writing activities can improve editing and revision skills through peer feedback (Item 25, +4). However, incorporating these activities along with authentic materials creatively is often restricted by limited access to technology and the internet in ELT classrooms (Item 34, -4). Despite internet access, I normally leverage educational games, which make grammar practice fun and, meanwhile, inspiring for the students, thereby creating a very interactive and enjoyable language learning environment (Item 40, +4).

I often utilize authentic materials such as interviews, podcasts, and documentaries, which develop students' listening skills by exposing them to different accents and speech patterns (Item 36, +3). I also utilize English movies, rhymes, and chants to develop learners' vocabulary skills (Item 7, +2). Meanwhile, I believe that easily available captioned writing tutorials on laptops could significantly improve students' writing skills (Item 24, +3). Furthermore, authentic materials, including native speakers' speech, text, and video, are particularly effective for creating contextualized grammar lessons that resonate with students (Item 6, +1). However, I strongly oppose the idea that government support for ICT resources and authentic materials has minimal influence on my decision to use them (Item 14, -4).

Due to their diverse range of features, I disagree with the notion that online communication tools may fail to meet the needs of all student language levels (Item 30, -3). Instead, I think using synchronous and asynchronous instruction via web and LMS platforms will assist me in addressing the diverse learning needs and interests of

students (Item 21, +2). I also agree that online discussions and presentations can further develop critical thinking since they require students to evaluate and react to discussed ideas (Item 8, +2). I also believe that collaborative online forums and chat features create an excellent opportunity for peer-to-peer practice and developing skills in English (Item 19, +3). However, I doubt whether email and web tools will serve as a beneficial means to help introverted students acquire digital skills and interpersonal skills (Item 28, 0).

Next, I think that a mobile dictionary with offline sound is a useful tool for students to learn pronunciation and build vocabulary (Item 39, +2) since offline functionality in mobile applications can aid access to learning the English language for regions with poor or unavailable internet connectivity (Item 42, 0). For this reason, I do not agree that the school administration and parents should begin banning mobile applications to aid in learning languages (Item 20, -5). However, at times, the mobile devices' features create distractions and impede concentration on the class activities (Item 9, 0). I also don’t think using other communication tools in rural ELT contexts is better than modern ICT e-devices and internet connectivity (Item 4, -3).

Likewise, I think that the initial setup of online communication platforms requires some time and technical skills on the part of teachers (Item 17, +3). To some extent, I also think that mobile apps with audio recording and playback features could be useful tools for evaluating students' listening and speaking skills (Item 3, +1). However, I do not think that mobile applications give students greater autonomy and power over their language learning process (Item 2, -1). Also, I am not convinced that the integration of ICT into the existing pedagogy would have a significant impact on instructional delivery, assessment, or learning outcomes (Item 12, -1). Moreover, I do not believe that self-paced online courses and blogs would help me much in acquiring technology skills to teach English (Item 13, -1).

In a similar vein, I do not think that I am competent enough to address technical issues during an online collaborative activity (Item 1, -2) or that I would comfortably assess students' work involving online collaboration given ICT access and the technical issues involved (Item 38, -2). This uncertainty makes me sceptical about the efficacy of online interactive tools in fostering participation and active learning environments (Item 22, 0). In my opinion, online communication tools such as email and chat seem not to share resources or solve problems concerning the English language (Item 43, -1). I also do not agree that sharing and collaborating on

documents through ICT tools effectively promotes summarization and information synthesis skills during project work (Item 16, -2).

Similarly, I don't believe online communication tools are complex or unsuitable for my English language teaching (Item 35, -2). However, I recognize the benefit of immediate feedback in collaborative tools, where student clarification can be accomplished right away and contributes to interactive learning (Item 41, +1). Software such as EPaath and Google Classroom will probably help evaluate various aspects of students' English language skills (Item 18, 0). I also think that using offline versions of the latest news and educational videos might provide authentic English exposure to students used in the real world (Item 37, +1). YouTube and other applications with adjustable audio and video in channels like NCED Virtual might also enhance the listening and speaking skills of a learner and, meanwhile, offer instructional ideas (Item 44, 0; Item 45, 0).

I value online teacher support groups for designing rubrics and assessing performance (Item 15, +2). However, I do not think that online peer collaboration can increase student engagement (Item 26, -3). I also question the contribution of chat applications such as Meta's WhatsApp and Messenger to the enhancement of students' speaking skills (Item 10, -2). Instead, students can read genuine texts, for instance, news articles, to improve their reading comprehension skills (Item 32, +1). Finally, I do not agree that evaluating online resources for accuracy poses minimal challenges while integrating these tools and resources in ELT (Item 5, -3) and that students can learn English effectively by participating in social media discussions (Item 33, -1).

Reflections on Factor 2

Factor 2 participants preferred collaborative ICT tools to expose learners to interactive and authentic language learning resources. However, the cautious use of assessment platforms and sceptical attitudes toward some communication tools for speaking practice seems to imply training or confidence gaps. These findings highlight the deeper challenges related to training, infrastructure, or support that constrain the use of ICT in rural ELT. Participants emphasized tools that would engage them while being practical, thereby assuring reliability and optimizing resources in their contexts.

Factor 3: Adaptive and Content-Driven ICT

Summary

As a rural English teacher, I apply responsive and adaptive ICT tools that offer a wide range of ELT content despite connectivity and infrastructural constraints. For instance, I use offline resources, such as mobile dictionaries and multimedia platforms, to strengthen students' vocabulary acquisition, pronunciation, and comprehension skills. Likewise, platforms like EPaath and Google Classroom also facilitate structured assessment and instruction in my case. While tools such as e-mail and the internet do not seem feasible in rural ELT, the deployment of authentic materials, such as current news and documentaries, provide contextual understanding to create a meaningful and engaging learning environment. Likewise, the use of educational games on mobile devices and collaborative online sites assisted in engaging my learners and promoting peer-to-peer learning to some extent amidst the infrastructural and other classroom management challenges during my instruction.

Statistical and Contextual Information

Factor 3 had an eigenvalue of 5.67 and explained 19% of the study variance. Five participants, including two males and one female, were significantly associated with this factor, with an average of 11 years of teaching experience. Two participants held an M.Ed. in English, while one had an M.A. plus an M. Phil. in English.

These teachers utilized different ICT tools to support language learning among their students, both within the classroom settings and beyond. They also employed online video tools and mobile devices to ensure collaborative and interactive learning activities. PowerPoint slides and vocabulary games on the laptop were also used for language practice outside of the classroom. ICT tools, in this factor, were mainly deployed to assess listening skills and perform speaking exercises like dialogues, recitations, and dictation to develop basic language competencies through varied digital resources.

ICT use in these English teachers' classrooms was varied; 33 % of teachers used the ICT weekly, while 67% used ICT occasionally, and none of the teachers used ICT daily. These teachers were from remote schools where only basic ICT infrastructure was available. The tools available in these settings primarily constituted mobile devices, sporadic availability of Wi-Fi, and limited multimedia devices such as projectors and smartboards. All teachers loading on this factor (i.e., 100%) reported

that they sorted Q-sorts and offered responses based on both their present and past ICT usage. Figure 15 provides a visual summary of Factor 3 based on the KADE-generated composite Q sort figure, with shaded cells indicating statements that are significant at $p < 0.05$ and $p < 0.01$ levels.

Figure 15

Composite Q sort for Factor 3

-5	-4	-3	-2	-1	0	1	2	3	4	5
4. It is better to use other means of communication tools in rural ELT contexts instead of modern ICTs and internet connectivity.	1. I am confident in handling technical difficulties during online collaborative activities.	5. Evaluating online resources for accuracy and appropriateness posses minimal barrier to integrating ICTs into teaching.	21. Integrating synchronous and asynchronous instruction via web and LMS platforms can accommodate diverse learning needs and interests.	43. Online communication tools like email and chat platforms are helpful for sharing resources and solving English language problems.	22. The effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments.	13. Self-paced online courses and blogs might be an effective way to improve technology skills for teaching English.	33. Participating in authentic social media discussions could be a valuable way for students to learn English in a more contextual and engaging way.	17. The initial set up of online communication platforms for teaching may require some investment of time and technical skills.	9. The variety of features on mobile devices distracts and hinders focus during class activities.	32. Exposing students with authentic texts like news articles, blog posts, or online articles may be beneficial for developing reading comprehension skills.
35. Online communication tools are complex and unsuitable for my English language teaching.	28. Integrating email and internet tools is a great way for introverted students to develop digital literacy and interpersonal skills.	11. Students with limited access to ICTs can still apply and enhance the digital skills they acquire in school.	20. School administration and parents should start restricting mobile apps for language learning purposes.	10. Chat platforms like Meta's WhatsApp and Messenger provide opportunities to improve student's speaking skills.	12. Integrating ICTs into existing teaching methods may impact instructional delivery, assessment, and learning outcomes.	25. Collaborative writing activities can improve editing and revision skills through peer feedback.	7. Students can improve their English vocabulary repertoire by watching and listening to English movies, rhymes, chants, etc., in the classroom.	31. Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills.	18. Software like EPaath and Google Classroom might be useful for assessing multiple aspects of students' English language skills.	39. Mobile dictionary with offline pronunciation is a useful resource for students to practice pronunciation and develop vocabulary.
	38. I am comfortable with assessing students' online collaborative works despite the ICTs access and technical skills issues.	27. Unequal access to e-devices and the internet poses minimal challenges for mobile learning.	26. Collaborating and exchanging ideas with peers on online platforms can decrease students' dedication and engagement towards their learning.	23. Online collaborative tools support students to develop project-based skills and interpersonal skill as envisioned in the curriculum.	19. Collaborative online forums and chat functions offer a platform for peer-to-peer practice and development of English language skills.	41. Real-time feedback features in online collaborative tools may enable students to potentially receive immediate support and clarification.	42. Offline functionality in mobile apps can be beneficial in areas with poor or no internet access for learning English language.	3. Mobile apps with audio recording and playback features might be a useful tool for assessing student listening and speaking skills.	30. Online communication tools may vary in suitability depending on students' language proficiency levels.	
		2. Mobile apps offer students a high degree of autonomy and control over their English language learning.	14. Government support for ICT resources and authentic materials has minimal influence on my decision to use them.	34. Limited access to technology and the internet presents only minor issues to incorporating authentic materials creatively in the classroom.	45. YouTube channel's videos such as NCED Virtual might offer instructional ideas for teaching English more effectively.	24. Accessibility of captioned writing tutorials (e.g., online/offline video) on laptops could enhance student's writing skills.	6. Authentic materials (e.g., native speakers' speech, text, video, etc.) might be useful for creating contextualized grammar lessons.	44. Adjustable audio/video playback features on YouTube and other apps may be a tool for improving listening and speaking skills.		
			15. Online teacher support groups may provide resources for designing rubrics and assessing individual/group performance.	36. Authentic materials (e.g., interview, podcast, and documentary) can offer diverse listening experiences featuring various accents and speech patterns.	37. Engaging students with offline versions of news articles and educational videos may expose them to authentic English used in the real world.	8. Online discussions and presentations could stimulate critical thinking by encouraging students to analyze and respond to ideas.	40. Educational games can make grammar practice more engaging, potentially increasing motivation.			
					29. Collaborative online activities can enhance students' English-speaking skills when discussing with peers across the globe.					
					16. Sharing and working on documents through collaborative ICT tools may promote summarization and information synthesis skills during project work.					

Holistic First-Person Viewpoint

As an English teacher, I prioritize mobile-based authentic resources and ICT tools that are feasible and practicable for enhancing reading comprehension and developing vocabulary skills. Mobile dictionaries with offline pronunciation capability are of great value to the students because they support effective vocabulary building and pronunciation practice (Item 39, +5). I strongly hold the view that exposing learners to such authentic texts as newspaper articles, blog entries, and online pieces will enhance their reading comprehension skills (Item 32, +5). Contrastingly, I do not agree that all other alternatives are better than modern ICT and internet connectivity (Item 4, -5).

I do not think online communication tools are too complex or inappropriate for my English language teaching (Item 35, -5). Although I think that tools like EPaath and Google Classroom could be useful in evaluating different aspects of students' English language skills (Item 18, +4), I think that online communication tools may vary in their suitability depending on students' language proficiency levels (Item 30, +4). I also feel that offline features in mobile applications are very important for learning English in areas with low internet connectivity or no internet connection (Item 42, +3). Besides, similar apps that support audio recording and playback would be beneficial when assessing students' listening and speaking abilities (Item 3, +3).

Likewise, I also agree that when setting up online communication tools for the first time, these tools require a one-time investment of time and technical skills (Item 17, +3). However, I disagree with the idea that evaluating online resources for accuracy and appropriateness is not a major barrier to the integration of ICT into teaching (Item 5, -3). Also, limited access to ICT at home invites real challenges for students to practice and apply the digital skills that they acquire in school (Item 11, -3). Meanwhile, I think that the different features available on mobile devices can distract and hinder students’ concentration while engaging in classroom activities (Item 9, +4).

In a similar vein, I do not consider that incorporating email and other internet tools will allow introverted students to develop digital literacy and interpersonal skills (Item 28, -4) or that online communication tools such as email and chat will be particularly helpful in sharing resources and troubleshooting problems concerning the English language (Item 43, -1). Yet, I do think that involvement in social media talk with other students can provide a focused and interesting way for learners to learn

English more contextually and engagingly (Item 33, +2). To some extent, I also think that online discussions and presentations motivate critical thinking through the demand for analysis and response of ideas (Item 8, +1). Working together on web places and texting features might give an excellent space for practice among peers for peer-to-peer practice and developing English language skills (Item 19, 0).

I disagree that unequal access to e-devices and the internet poses only minimal challenges for mobile learning (Item 27, -3), as this limitation exacerbates the difficulty of comfortably assessing students' online collaborative work when ICT access and technical skills are barriers – something I strongly disagree with (Item 38, -4). To help address these problems, I think it would be good to assist learners in increasing their English vocabulary by adding such activities as watching and listening to English movies, rhymes, and chants in the classroom setting (Item 7, +2). Other multimedia tools like PowerPoint also assist in vocabulary development and enhance other language skills (Item 31, +3). I also think that adjustable audio and video play options on YouTube and other applications can greatly support the enhancement of listening and speaking skills (Item 44, +3).

Though I do not feel at all confident about dealing with technical hitches in the course of conducting online collaborative activities (Item 1, -4), I believe collaborative writing activities might serve to develop better editing and revision skills through the use of peer feedback (Item 25, +1). While I fully acknowledge that mobile applications do provide students with freedom and power over their learning of English, I find such benefits rather limited in the absence of adequate support and direction (Item 2, -3). I also doubt the role of chat apps like Meta's WhatsApp and Messenger in improving students' speaking skills. (Item 10, -1) However, I think school administrations and parents should not begin to ban mobile apps for language learning purposes. (Item 20, -2).

Despite educational games make grammar practice engaging and increase students' raise motivation (Item 40, +2), I doubt the idea that I also doubt that ICT integration into the current teaching method affects instructional delivery, assessment, and learning outcomes positively (Item 12, 0). I also do not know if online interactive tools such as polls and breakout rooms promote students' engagement through language learning activities (Item 22, 0). Likewise, I do not think that online collaborative tools meet students' requirements in developing project-based and interpersonal skills as envisioned in the curriculum (Item 23, -1). I also do not agree

with the idea of online teacher support groups providing a range of materials and resources to create rubrics or evaluate students' assessments (Item 15, -2).

I think self-paced online courses and blogs might work well to enhance technological skills for teaching English (Item 13, +1). I doubt that combining synchronous and asynchronous instruction through web and LMS platforms can address such a wide diversity of learning needs and interests (Item 21, -2). I believe more accessible online or offline captioned writing tutorials would make students improve their writing skills because of explicit and well-organized guidance (Item 24, +1). However, I do not think that working and exchanging ideas on online sites with peers improves students' commitment and involvement with their learning (Item 26, -2).

While I think real-time feedback features in online collaborative tools provide students with immediate support and clarification, enriching their learning experience (Item 41, +1), I do not know whether collaborative online activities improve students' English-speaking skills when discussing and communicating with peers around the world (Item 29, 0). I also doubt whether collaborative ICT tools that share and work on documents promote summarization and information synthesis in project work (Item 16, 0). Also, I'm sceptical about the usefulness of YouTube channels such as NCED Virtual in offering instructional ideas for making English teaching more effective (Item 45, 0), and I question whether engaging students with offline versions of news articles and educational videos exposes them to real-world English usage outside of the classroom (Item 37, 0).

Reflections on Factor 3

Factor 3 participants actively prioritized ICT tools that supported independence of vocabulary, comprehension, and pronunciation development using offline resources to be able to adapt to a resource-limited environment. Such emphasis on practical, connectivity-independent ICT measures confirms their commitment to equitable learning and underscores the need for stronger foundational ICT support directed toward remote, resource-constrained classrooms. Hence, addressing these challenges may enable teachers to adopt a more inclusive approach to integrating ICT into their ELT practices.

Factor Comparison

Comparison across factors enables us to have a comprehensive view of how different aspects of factors intersect and diverge in many possible ways. In this study, KADE software facilitated this comparison process by figuring out Z-scores for each item within the factor arrays, considering the participants' rankings. These Z-scores show how an item's average ranking differs from the overall mean (See Creation of Factor Estimates and Factor Arrays, section above for details). Higher scores mean agreement; lower scores mean disagreement. Detailed Z-score contrasts for each set of factors can be found in Annex Ten, with key distinctions of distinguishing statements summarized below.

Comparison Between Factors 1 and 2

The moderate correlation of 0.4914 between Factors 1 and 2 reflects an overlapping but distinct view on ICT affordances in the rural ELT contexts. These factors highlight different aspects of teachers' conceptualizations of ICT tools' including their usefulness, ease of integration, and potential to encourage language learning in resource-constrained settings.

Factor 1 prioritized pragmatic and foundational affordances, emphasizing tools that afford reliable, offline functionality to support core language skills such as vocabulary development, listening, and speaking. Teachers perceived these tools as enhancing classroom performance by reducing infrastructural dependencies while aligning with learners' cognitive capacities. The emphasis on offline tools and organized integration, based on their perceived usefulness factor, demonstrates the prudent use of these tools within rural ELT contexts.

On the other hand, Factor 2 raised more interactive and collective ICT tools. These tools improve the speaking and writing skills of students, among others, through peer learning, critical thinking, and participatory language learning activities. Therefore, teachers who are part of this group viewed collaborative platforms and online tools as radically improving student engagement and interactive learning. Such affordances are perceived as useful because of their capability to create engaging and dynamic learning environments. The integration, however, is mediated by concerns about usability across the different levels of student proficiency alongside the need for governmental support to maximize ICT usage.

Notwithstanding the differences, both factors nonetheless place ICT tools within a common framework for understanding how infrastructural enablement would translate into improved student outcomes. Those teachers who are aligned with Factor 1 prefer a practical and organized method to use ICT as a means of broadening learning opportunities. In contrast, teachers associated with Factor 2 emphasize collaborative affordances, peer interaction, and creativity despite limited ICT access and support from related authorities.

Comparison Between Factors 1 and 3

Factors 1 and 3 had a strong correlation of 0.6004, with a significance level of 0.01. Both factors stress the use of ICT to solve infrastructural constraints while improving fundamental language skills. However, these factors differ in their ways of ICT integration, thereby revealing subtle differences in how rural teachers conceptualize affordances and their usefulness in ELT contexts.

Factor 1 focused more on the functional and foundational ICT affordances. It highlighted tools that can be accessed offline and would activate learner autonomy and support essential skills like speaking, listening, and vocabulary development. Participants in this factor perceived these tools as practical and easy to use despite ICT access and infrastructural constraints. They prioritized the use of mobile dictionaries and multimedia platforms to expose the students to authentic English usage in a learner-friendly and accessible environment.

Contrastingly, Factor 3 teachers shifted their focus on utilizing content-driven ICT integration, exposing students to real-world materials. These teachers incorporated materials such as news articles, blogs, and documentaries to bridge the gap by increasing the usage of more real-world and contextual language. Through these resources, they exposed students to both cultural and linguistic repertoires of language while fostering critical thinking and reading comprehension. Meanwhile, they also deployed tools like EPaath and Google Classroom, which emerged for both delivering their content effectively and assessing the learners with the features available on these platforms to meet the outlined instructional objectives in the curriculum.

To conclude, both factors raised the issues of rural ELT context and highlighted diverse practices implemented by the English language teachers. Factor 1 was more concerned with affordances that take learning beyond the classroom and provide foundational language skills. Hence, it favoured simple, predictable, and low-

risk tools. Factor 3 emphasized the usage of those resources and tools that help raise learners' opportunities for engaging with complicated, authentic materials.

Comparison Between Factors 2 and 3

The correlation of 0.4757 between Factors 2 and 3 with a significance level of 0.01 signifies a moderate correlation between these factors. Considering their commonalities, both factors highlighted infrastructural and technical aspects as archetypical constraints in rural ELT contexts. These factors include the use of offline mobile applications and platforms like EPaath and Google Classroom as ways of integrating ICT amidst the challenges. However, they conceptualized and enacted the affordances inherent in these factors distinctively.

Factor 2 teachers emphasized the role of ICT in fostering collaboration and interaction. They remarked on the use of tools such as Zoom breakout rooms, Google Docs, and interactive online platforms to enhance peer-to-peer engagement, project-based learning, and critical thinking skills. Teachers aligned with this factor perceive ICT tools as a way of enhancing active participation and collective problem-solving. Their emphasis on interactivity manifests a tendency to use easy-to-use tools for facilitating participatory and interactive learning by exerting less effort.

On the other hand, Factor 3 teachers utilized ICT tools that provided students with maximum linguistic exposure through blogs, documentaries, and downloaded YouTube videos. These teachers integrated such resources to develop their students' reading comprehension through contextual interpretation. Among other aspects, teachers loading on this factor prioritized the use of responsive ICT tools to foster cultural awareness and critical engagement via diverse content-rich linguistic resources.

Although these factors differed from each other, English language teachers' conceptualizations of these factors were focused more towards reaping the maximum benefit of ICT affordances by optimizing the existing resources and mitigating infrastructural barriers. Factor 2 was related to collaborative engagement and participatory learning, whereas Factor 3 was directed more towards offering linguistic exposure via authentic content. Hence, both of these factors conveyed different meanings of actionable affordances and the dualities of both possibilities and constraints in rural ICT integration.

Chapter Summary

This chapter illuminated the analytical procedures involved in uncovering secondary-level English teachers' conceptualizations of ICT affordances in rural ELT contexts. Centroid Factor Analysis (CFA), along with Varimax rotation via KADE software, was used to reveal the distinct teacher perspectives on ICT tools. The findings also illuminated variations in conceptualizations shaped by contextual and personal factors, such as infrastructural limitations, teaching experience, and access to resources. The Post-Sort Questionnaire examined participants' reasoning, emotional responses, and critical evaluations, shedding light on the practical challenges and opportunities for leveraging ICT affordances. These findings underscore the interplay of pedagogical needs, technological infrastructure, and teachers' lived experiences, emphasizing the importance of targeted interventions to enhance ICT integration in rural ELT settings. While this chapter presents the core findings, the subsequent chapter delves deeper into their broader theoretical and empirical implications concerning the formulated research questions.

CHAPTER V
Discussion of findings

In this chapter, I discuss and synthesize teachers' conceptualized and enacted ICT affordances and the underlying factors influencing the enactment of such affordances. Particularly, the following research questions are explored in detail: (a) How do secondary-level English language teachers conceptualize and enact ICT affordances in rural ELT contexts? (b) What factors enable or hinder the enactment of these conceptualized ICT affordances in rural ELT contexts? I examine these interrelated questions by drawing on participants' Q-sort rankings and post-sort interview data using an integrated and holistic approach.

Drawing on Gibson's (1977) Affordances Theory and Davis's (1985) TAM, I attempt to map out how English language teachers in rural Nepal enact key ICT affordances and factors influencing them by triangulating data conceptualized in the previous chapter. Building on these insights, I devise a holistic framework that links these affordances to both affordances theory concepts and TAM constructs. This framework addresses the first part of the first research question while also attempting to answer the first and second parts of the second research question to a reasonable extent. To address the second research question, I first map out the factors, drawing on relevant key enablers and barriers patterns of both quantitative and qualitative data. The chapter concludes with a brief summary of how these procedures were followed throughout the chapter.

English Language Teachers' Conceptualization of ICT Affordances

This section examines the conceptualization of ICT affordances as enacted by secondary-level English teachers in a rural ELT context, adhering to the theoretical ideas and constructs of Gibson's (1977) and Davis's (1985) TAM. The application of diverse ICT tools, surfaces, and mediums by English language teachers in an ICT-enabled rural environment is discussed, taking account of the intrinsic properties of ICT tools as well as the physical, cultural, and contextual factors (Gibson, 1977; Norman, 1988) inherent in these under-resourced settings.

While mapping out the enacted ICT affordances, I have structured the analysis adhering to three categorical dimensions: physical features, contexts of use, and

language-related activities. These dimensions are drawn from post-sort interview data organized and reported in Tables 5, 7, and 8 under Chapter IV, which collectively offer insights into the ICT integration experiences of teachers as well as the underlying reasons behind participants' agreements and disagreements with each factor's significant statements. The following section discusses these ideas, triangulating the relevant quantitative and qualitative data presented in the earlier chapter alongside the relevant literature and aligning it with the relevant themes and patterns of emerging ICT affordances.

Mapping and Analyzing Factor 1's ICT Affordances in Rural ELT Context

Although accounting for the largest explained variance (29%) among all factors, Factor 1 offers more critical insights into how rural ELT teachers conceptualized and enacted ICT tools. In this factor, five affordances guiding the ICT-based instruction of rural ELT context were mapped out: Mobility, Multimodality, Accessibility, Continuity, and Authenticity. Extracted from the Factor 1 array in Table 6, Table 9 below maps out the meaningful and coherent statements with their Q-sort values and Z-scores of derived affordances. Based on this mapping, Table 10 further outlines the physical features, contexts of use, and language-related activities connected with these affordances. The subsequent sections provide an in-depth discussion of each table.

Table 9

Mapping of Factor One's ICT Affordances

Item Number	Q Sort Values	Z-Scores	Affordances
39, 10, 9, 20,	+4, +2, +2, -5	1.431, 0.571, 0.928, -1.843	Mobility
31, 40, 7, 45, 44	+5, +3, +2, 0, +1	1.546, 1.052, 0.994, 0.115, 0.374	Multimodality
42, 27, 15, 17	+4, -5, +1, +4	1.529, -1.890, 0.382, 1.213,	Accessibility
3, 13, 11, 14, 34	+5, +2, -4, -3, -3	1.678, 1.015, -1.599, -0.945, -1.108	Continuity
33, 6, 36, 37	-2, +3, +2, +1	-0.74, 1.03, 0.966, 0.540	Authenticity

Table 9 systematically maps the ICT affordances associated with Factor One, identifying key statements from Table 6 that strongly define this factor. Out of the 45 Q-set statements, only those with the most salient rankings—either highly endorsed (+4, +5) or strongly rejected (-4, -5)—were included to ensure a meaningful representation of Factor 1's perspective. Statements with positive scores reflect affordances that teachers actively recognized and valued, whereas negative scores highlight affordances they found restrictive or unsuitable in rural ELT settings. While mapping the above affordances in the above table, in addition to positive and negative statements, a few mid-range statements (e.g., 0, +1, -1) with neutral values were incorporated to capture context-dependent affordances. Yet, the majority of these neutral statements were excluded to avoid ambiguous interpretations and better analytical precision. Only the statements that contributed to the strongest shared viewpoints of Factor 1 participants were kept intact.

Table 10

ICT Affordances of Factor One

Affordances	**Physical features of ICT**	**Contexts of use**	**Practised language-related activities**
Mobility	Mobile dictionaries, chat platforms (e.g., WhatsApp, Messenger)	Vocabulary building and speaking skill improvement in conventional and resource-limited rural ELT contexts.	Developing students' vocabulary and pronunciation and enhancing their speaking skills through peer-based learning.
Multimodality	Multimedia aids (e.g., PowerPoint, slides), Educational games, Audiovisual media (e.g., YouTube videos)	Delivering content through visually and auditorily engaging platforms to foster active participation and motivate learners.	Grammar reinforcement, vocabulary learning, listening/ speaking skill development, and repeated practice.
Accessibility	Offline apps and Online teacher support groups	Providing equitable access to rubrics designing and assessing learners' technical skill development.	Mobile apps for language learning, assessing learners, and developing teachers' technical skills.
Continuity	Mobile apps and Self-paced courses	Ensuring uninterrupted instruction and fostering learner autonomy in low-connectivity contexts.	Assessing learners' language skills and developing teachers' assessment skills.
Authenticity	Authentic materials and offline multimedia resources (e.g., audiovisual resources, news articles, etc.)	Real-world English exposure and contextualized grammar learning in limited ICT access context.	Listening comprehension, grammar practice, and contextual language development through native-like accents and speech.

Mobility

Table 10 above presents that English language teachers implemented mobility-related affordances by using tools such as mobile dictionaries, chat platforms, and audio applications. These tools and resources opened up various possibilities for developing language skills and aspects in rural students. Primarily, these tools assisted teachers in facilitating vocabulary building, practising pronunciation, and developing speaking fluency. For example, the relatively high Q-sort value of statement 39 (i.e., +4, with Z = 1.431) suggests that offline mobile dictionaries provided both linguistic and grammatical support beyond classroom settings. As P7 noted, "Offline dictionaries and apps are valuable for students without internet access at home, allowing them to practice pronunciation and other language skills."

Teachers, in enacting this affordance, also outlined the suitability of online chat applications like Meta's WhatsApp and Messenger to facilitate collaborative and peer learning to some extent (Statement 10; +2, Z = 0.571). P5 observed, "Some apps introduce students to unfamiliar vocabulary, which helps with pronunciation skills." Studies by Shrestha (2011) and Singh (2018) affirm the value of chat applications like WhatsApp in fostering flexible, low-bandwidth solutions for regions with limited ICT infrastructure. However, the distractive nature of mobile apps was an immediate concern of these factors (Statement 9; +2, Z = 0.928). As P9 remarked, "Mobile apps, by their nature, may distract students towards non-educational activities". These remarks resonate with the findings of Shrestha et al. (2021) that the versatile features of mobile applications can lead to unanticipated distractions in unsupervised learning contexts.

Besides, school administrators' and parents' resistance to using mobile devices in ELT classrooms (statement 20; -5, Z = -1.843) was another issue that disabled the full implementation of mobility affordances in these teachers' ELT context. Highlighting this, P6 commented, "School administration should decide which tools or apps to allow and how they should be deployed so students can explore new content and enhance language learning." These findings suggest the emerging need for strong awareness-raising initiatives for relevant stakeholders from concerned authorities to activate the administration to devise clear ICT policies to make the judicial use of ICT tools and resources in rural ELT classrooms.

In this study, teachers activated multimodality affordances by utilizing diverse multimodal aids such as PowerPoint slides, educational games, and other audio-visual resources available on platforms like YouTube. These tools and resources were found to be both useful and easy to use and allowed both the teacher and students to witness the delivered lessons more engagingly and interactively through visual and auditory media. As P12 noted, “Multimedia tools provide maximum exposure for students to engage with English language content and skills” (Statement 31; +5, Z = 1.546). The action potentials of these multimodal affordances emerged as essential in constructing dynamic and effective pedagogies, echoing Choi and Yi’s (2015) assertion that multimodal teaching deepens understanding and participation.

Educational games, in particular, stood out as highly effective tools for interactive grammar and vocabulary instruction, fostering student motivation and active participation (Statement 40; +3, Z = 1.052). As P7 emphasized, “ICT-based games make English learning effective and fun”. This conceptualization aligns with Davis’s (1989) TAM, where tools are more likely to be adopted when seen as beneficial and easy to integrate into teaching. Kessler (2022) has also noted the usefulness of these interactive tools to support learner engagement in resource-constrained settings. Likewise, Baykal (2021) highlighted that these multimodal tools enhance creativity and foster an active learning environment.

Likewise, teachers of this factor also highlighted the usefulness of adjustable playback features available on YouTube for developing students’ listening and pronunciation skills (Statement 44; +1, Z = 0.374). In this regard, P9 highlighted, “YouTube’s download feature is useful for replaying videos, making lessons easily accessible by level and student proficiency”. This echoes results from Johnson and Mayer’s (2009) multimedia principles that accentuate the staleness of the material through both auditory and visual ways to develop language skills. However, on the promise of YouTube channels such as NCED Virtual (Statement 45; 0, Z = 0.115), teachers stayed neutral and questioned whether it could be used to help them attain their main objective of strengthening pedagogical and technological skills.

These educators also acted upon different kinds of resources – films, poems, and songs – to enlarge their vocabulary with authentic sources, i.e., linguistic and cultural resources (Statement 7; +2, Z = 0.994). “Games and poems increase student

motivation toward learning, making classes more enjoyable", remarked P16. However, challenges such as limited infrastructure, unreliable technical support, and inadequate training prevented the maximum exploitation of these affordances. In this regard, P17 highlighted, "Lack of training and infrastructure creates barriers to utilizing ICT affordances effectively".

Accessibility

Teachers, in this factor, enacted accessibility affordances by utilizing diverse tools to facilitate English language instruction and overcome the connectivity barrier and digital divide inherent in rural contexts. Teachers used resources like pre-downloaded videos, mobile-based offline apps and other offline resources to facilitate equitable and accessible learning. For instance, the mobile app feature can be a proxy offline alternative in executing pedagogical material (Statement 42; + 4, Z = 1.529) instead of going for higher solutions like laptops, smartboards, and online platforms. In this regard, P10 added: "Offline resources help students practice pronunciation, vocabulary, and other language skills without requiring internet access".

In a like manner, these teachers also strongly disagreed with the idea that unequal access to ICT devices and the internet poses minor issues for mobile learning (Statement 27; -5, Z = -1.89). For example, P19 pointed out that "Students in my school don't have access to ICT services, nor are they well-trained to use ICT features". Reinders and Chong (2024) also stress that although technology theoretically removes barriers to retrieving high-quality resources, its practical utilization lies in learners' ability to access these technologies.

To become accessible with online collaborative assessment platforms, teachers in this factor also tend to lean towards online collaboration and resource-sharing groups (Statement 15; +1; Z = 0.382) to some extent. Yet, to implement and sustain such platforms, teachers agreed that they would have to invest considerable time and technical expertise (Statement 17; +4, Z = 1.213). These insights are also coherent in Joshi and Ayer's (2024) study, which brought up the issues of infrastructural constraints and a lack of digital competencies in rural teachers as major challenges in the effective integration of ICT in rural contexts.

Continuity

In the current study, teachers leveraged continuity affordances, using tools such as mobile apps, offline materials or resources, and self-paced learning platforms to sustain their ICT-based instruction in rural ELT contexts. They considered these

tools both feasible and easily accessible to promote students' listening and speaking skills (Statement 3; +5, Z = 1.678) in a self-directed and autonomous way. Regarding the actionable potential and utility of mobile apps, P20 posited: "These apps allow students to self-assess their listening and speaking skills while providing feedback over time". An et al. (2021) supported this claim and stressed that mobile tools create an empowering condition and invite opportunities for students to continuously practice language despite external challenges.

Teachers also utilized self-paced online courses and instructional blogs to enhance their technological skills (Statement 13; +2, Z = 1.015) in their ELT practices. When using these tools, teachers reported that they could get the opportunity to learn which skills to improve in a flexible manner based on their time and schedule. As P28 noted, "Self-paced courses and instructional blogs have allowed me to learn and implement strategies in class at my convenience." Xue and Churchill (2019) also note that through autonomous and reflective practices, self-paced digital platforms play a significant role in teachers' sustained professional development.

However, systemic and infrastructural challenges hindered the full realization of these affordances. Participants rejected the idea that government support had minimal impact on ICT integration (Statement 14; -3, Z = -0.945), instead pointing to persistent barriers such as limited infrastructure, restricted opportunities to practice digital skills at home (Statement 11; -4, Z = -1.599), and inadequate access to technology and the internet, which constrained the creative use of authentic materials in classrooms (Statement 34; -3, Z = -1.108). As P17 observed, "Lack of training and infrastructure creates barriers to utilizing ICT affordances effectively." Bohara (2024) underscores that inadequate government investment, unreliable connectivity, and insufficient teacher training remain significant obstacles to ICT adoption in rural ELT contexts.

Authenticity

English teachers, in this factor, utilized tools including YouTube videos, recorded interviews, blogs, and documentaries to reap the benefits of ICT-based authentic language resources. These tools assisted the teachers in promoting contextualized learning and critical thinking skills in students. For example, teachers, in this factor, emphasized the value of authentic materials for getting students to master English accents and speech patterns (Statement 36; +2, Z = 0.966). P23 emphasized, "Authentic materials help develop fluency and necessary phonological

features, improving spoken language skills." Reinders and Chong (2024) note that technology-based resources connect learners to authentic L2 materials and provide opportunities to interact with target language speakers, creating rich, immersive environments.

Apart from listening, authentic materials also assisted teachers in facilitating contextualized grammar lessons (Statement 6, +3, Z = 1.03) through the use of native speakers' speech, texts and videos. Similarly, offline resources like news articles and educational videos (Statement 37; +1, Z = 0.54) provided the learners with an enhanced exposure level to real-world English beyond traditional textbooks. This was noted by P22 as: "Mobile devices and multimedia materials help us to test students' listening skills and give them feedback through authentic audio".

However, limited ICT access and infrastructural rural challenges hindered these teachers from getting their students to participate in authentic social media discussions (Statement 33; -2, Z = -0.74). Likewise, cultural relevance concerns also emerged; for example, P8, calling for resources that cater to local cultural and linguistic contexts, expressed that "English movies, poems, and rhymes of foreign native speakers are not suitable for Nepali children".

Mapping and Analyzing Factor 2's ICT Affordances in Rural ELT Context

As reported earlier, factor 2 explained only 14 per cent of study variance compared to factors 1 and 3 and highlights the affordances enacted in semi-rural ELT contexts. Upon careful mapping out of the meaningful, relevant statements in this factor, three ICT affordances were derived, namely, collaboration, interactive learning, and resource optimization.

These affordances were mapped out from the Factor 2 array in Table 6. Table 11 below outlines these mapped-out statements incorporating the statements' Q-sort values and Z-scores for each derived ICT affordances. Table 12 highlights the physical features, contexts of use, and language-related activities inherent in these affordances.

Table 11

Mapping of Factor Two's ICT Affordances

Item Number	Q Sort Values	Z-Scores	Affordances
23, 29, 25, 26, 35	+4, +5, +4, -3, -2	1.182, 0.908, 1.248, -1.045, -0.75	Collaboration
40, 31, 36, 21, 22, 28	+4, +5, +3, +2, 0, 0	1.406, 1.511, 1.056, 0.783, 0.318, 0.033,	Interactive Learning
24, 11, 27, 1, 15, 18	+3, -5, -4, -2, +2, 0	0.848, -1.975, -1. 603, -1. 023, 0.728, 0.350	Resource Optimization

Note. The affordances mapped in Table 11 were identified using the same systematic approach as in Table 9, prioritizing highly endorsed (+4, +5) and strongly rejected (-4, -5) statements. Statements with moderate Q-sort values (0, +1, -1) were selectively included to capture context-dependent affordances. At the same time, those with neutral or ambiguous interpretations were excluded to maintain the analytical precision of Factor 2's affordances.

Table 12

ICT Affordances of Factor Two

Affordances	**Physical features of ICT**	**Contexts of use**	**Practised language-related activities**
Collaboration	Online and social media collaborative platforms	Facilitating group projects, real-time teamwork, and participatory discussions. Writing development and interpersonal communication.	Brainstorming, Peer editing and revision during collaborative writing, team-based discussions, and engaging learners.
Interactive Learning	Educational games, multimedia aids and resources (e.g., PowerPoint, Pre-downloaded authentic video); Online LMS platforms	Engaging and motivating vocabulary development. Exposing learners to diverse listening accents and patterns. Accommodating diverse learners' needs and interests in resource-constrained settings.	Vocabulary building, listening comprehension, and addressing diverse learners' needs and interests through learning management systems.
Resource Optimization	Pre-downloaded captioned videos, online teacher support groups, Epaath platform	Optimizing existing resources for developing writing skills, teacher professional development, and learner assessment in a limited resource context.	Developing writing skills and assessing learners using both online and offline mediums (e.g., via Epaath)

Collaboration

English language teachers reaped the benefits of collaborative ICT tools through platforms (e.g., Zoom, Google Classroom, and Google Docs) to facilitate group projects, participatory discussions, and peer editing activities. Strong endorsement by participants of Statements 23 (+4, Z = 1.182) and Statement 29 (+5, Z = 2.145) indicates the extent to which they have used these platforms and tools to encourage students to improve curriculum-based English oral proficiency and other communicative skills through global interaction. Teachers identified these tools as ICT-based "niches" (Gibson, 1977) within their rural ELT context, concerning their usefulness in promoting learners' communication skills. P1 stressed that "Online activities allow students to share ideas and learn native speakers' pronunciation, thereby supporting the development of speaking skills among others."

Furthermore, participants reported that these collaborative tools fostered productive language skills and interpersonal development through activities like peer feedback and group discussions (Statement 25; +4, Z = 1.248). This finding is consistent with Kumi-Yeboah (2018) and Gutiérrez and O'Dowd (2021), who assert that collaborative ICT platforms expose students to diverse accents and cultures, which in turn eliminates linguistic and cultural barriers. Similarly, P4 noted that "Social media exposes students to different accents and vocabulary when they discuss with peers from other countries".

Tools like Zoom breakout rooms and Google Docs further facilitated brainstorming, teamwork, and cultural exchanges. These tools were flexible and highly accessible, enabling synchronous and asynchronous participation. Eraković and Topalov (2021) demonstrated how features like Zoom breakout rooms and Google Docs' real-time editing capabilities effectively engage students, making collaborative work interactive and enjoyable. Highlighting their perceived ease of use (PEU), P8 remarked, "While teaching English, I do not find any complexity in using these tools, and I don't think online communication tools are unsuitable for ELT."

Although some concerns were raised, participants largely dismissed negative conceptualizations of collaborative platforms. For instance, statement 26 (-3, Z = -1.045), which suggested reduced student dedication, and statement 35 (-2, Z = -0.75), which claimed these platforms as unsuitable communication tools, received low ratings. These findings underscore teachers' confidence in using collaborative tools effectively to foster engagement and enhance English language teaching.

Interactive Learning

The interactive learning affordances were taken up by teachers through educational games and multimedia resources, which they used to deliver language learning content related to grammar and vocabulary in a motivating and interactive way. Supporting the motivating potential of educational games in language learning (Statement 40; +4, Z = 1.406), P7 reflects that "ICT-based games make English learning effective and fun. Vocabulary games, for example, increase student motivation and interest". In this regard, Al-Mutairi (2024) also contends that gamified learning environments engage learners with the content while making the process of English vocabulary learning less tedious.

Furthermore, teachers deployed other interactive media, including pre-downloaded videos and PowerPoint presentations, to deliver their ELT content in an accessible, adaptable and interactive manner. For instance, teachers highly valued the use of multimedia aids like PowerPoint presentations to facilitate vocabulary learning and develop other language skills (Statement 31; +5, Z = 1.511) in their classrooms. P1 also maintained that "I find multimedia tools useful for displaying real objects through pictures, which helps in teaching vocabulary items like synonyms and antonyms".

The tools discussed in the paragraph above were both friendly and easy for the teachers to use due to their intuitive design and features, which enabled teachers to employ them in their teaching without any difficulty. Alobaid (2020) notes that interactive multimedia enhances engagement, offers ample exposure time, supports comprehensible learning, and improves the intelligibility of materials for language learners (p.27). Likewise, the use of authentic materials in teaching, for example, poems, interviews, and documentaries, helped these teachers to diversify their listening experiences and provide students with exposure to real-world accents and speech patterns (Statement 36; +3, Z = 1.056). P15 remarked that "Students exposed to technology early benefit from poems and rhymes, enhancing vocabulary, confidence, and competence".

However, participants hesitated to consider the usefulness of certain tools' affordances despite their interactive learning affordances. For instance, although participants considered the applicability of LMS platforms to address diverse learners' needs and interests to some extent (Statement 21; +2, Z = 0.783), they were neutral on considering the usefulness of tools like online polls and breakout rooms in promoting

an active and participatory learning environment (Statement 22; 0, Z = 0.318). Likewise, participants gave limited weight to the Email and internet tools (statement 28; 0, Z = 0.033) for improving introverted students' speaking skills. These mixed conceptualizations indicate a need for the professional development of these teachers as well as a higher penetration rate of digital infrastructures to maximize the potential of integrating these tools in semi-rural areas.

Resource Optimization

In this factor, teachers enacted resource optimization affordances by using existing tools such as pre-downloaded video tutorials, online teacher support groups, and software like Epaath. These teachers attempted to best utilize the locally available infrastructures, such as smartboards and projectors, to create an ICT-based ELT and learning environment amidst the challenges of limited resources and tools. They also valued the use of captioned writing tutorials for developing students' writing skills (Statement 24; +3, Z = 0.848). In this regard, P4 stated that "Writing tutorials with captions help students note ideas from videos, which they can later use in writing practice".

Teachers in these semi-rural contexts encountered severe infrastructural challenges, including unequal access to electronic devices (Statement 11; -5, Z = -1.975) and internet connectivity (Statements 27; -4, Z = -1.603). As P14 put it best with the remarks, "Modern communication is somewhat related to electricity and internet access. Without these, rural students can't compete globally". Baral (2022) also highlighted that this kind of limitation is likely to increase the digital divide among learners from disadvantaged rural areas.

Besides these access issues, teachers who are part of this factor also highlight the issue of confidence in handling technical issues during online collaborative activities (Statement 1; -2, -1.023). However, to mitigate these issues and concerns, teachers utilized online teacher support groups to some extent to strengthen their capacity and share resources (Statement 15; +2, Z = 0.728). Likewise, they also deployed platforms such as EPaath and Google Classroom to assess students' multiple language skills (Statement 18; 0, Z = 0.350). Hence, teachers, in this factor, optimized the existing ICT resources at their best to address the issue of limited resources and access issues in these semi-rural ELT settings.

Mapping and Analyzing Factor 3's ICT Affordances in Rural ELT Context

Factor 3 was the second most explained variance factor, with 19 per cent of the total variance in this study after factor 1. Like in other factors, the rigorous mapping of the most relevant statements underlying this factor resulted in the emergence of four ICT affordances. As with other factor affordances extraction, the affordances of this factor were also derived from the factor array's column of Factor 3, outlined in Table 6. The resulting affordances, alongside their Q-sort values and Z-scores, are presented in Table 13 below. The consecutive Table 14 offers a snapshot of the physical features involved, the context of these affordances enactment, and language-related activities performed using these affordances. Following this table, each affordance is discussed in detail, taking account of mapped-out statement themes as well as other relevant insights emerging from the post-sort interview.

Table 13

Mapping of Factor Three's ICT Affordances

Item Number	**Q Sort Values**	**Z-Scores**	**Affordances**
7, 40, 26, 31, 22, 25	+2, +2, -2, +3, 0, +1	0.897, 0.660, -0.632, 1.142, 0.207, 0.566	Critical Engagement
28, 30, 42, 17, 24	-4, +4, +2, +3, +1	-1.757, 1.217, 0.890, 1.172, 0.376	Adaptability
6, 14, 32, 9, 24, 39, 44	+2, -2, +5, +4, +1, +5, +3	0.719, -0.700, 1.748, 1.341, 0.376, 1.624, 1.039	Exposure
3, 18, 19, 41	+3, +4, 0, +1	1.115, 1.304, 0.000, 0.557	Assessment

Note. The affordances mapped in Table 13 were identified using the same analytical approach as in Tables 9 and 11, prioritizing highly endorsed (+4, +5) and strongly rejected (-4, -5) statements to reflect Factor 3's shared perspective. Statements with moderate Q-sort values (0, +1, -1) were selectively included to capture context-dependent affordances, while neutral or ambiguous statements were excluded to maintain analytical precision in defining Factor 3's ICT affordances.

Table 14

ICT Affordances of Factor Three

Affordances	**Physical features of ICT**	**Contexts of use**	**Practised language-related activities**
Critical Engagement	Multimedia tools and resources (e.g., PowerPoint, movies, chants) and offline mobile games; Collaborative tools (breakout rooms)	Facilitating interactive and engaging lessons with real-world examples; Occasional online collaborative writing activities	Grammar and vocabulary reinforcement, speaking practice and critical thinking, and writing skill development.
Adaptability	Online communication tools, video tutorials, and mobile apps	Tailoring personalization instruction for developing writing skills and learning language.	Addressing diverse learners' levels, Developing writing skills and language.
Exposure	Authentic materials (e.g., blogs, documentaries, native speaker recordings) and offline dictionaries	Offering cultural and linguistic exposure, Pronunciation practice	Vocabulary building, cultural awareness, and contextualized language practice.
Assessment	Mobile apps and LMS platforms (e.g., mobile apps, EPaath)	Conducting formative assessments with immediate support and feedback.	Evaluating listening and speaking skills.

Critical Engagement

In this factor, teachers enacted critical engagement affordances using multimedia tools, mobile apps or games, digital resources like movies, and chants to create meaningful and critically engaging ELT and learning activities. Deploying multimedia tools such as PowerPoint presentations further helped these teachers enhance vocabulary skills and get their students' attention during classroom activities (Statement 31; +3, Z = 1.142). On this matter, P3 said, “PowerPoint is an effective tool in ELT; it attracts students and keeps them focused during learning activities.” These insights concur with the results identified by Reinders and Chong (2024), which indicate that the participation of learners in language activities critically through multimedia tools improves their language skills and cognitive skills.

While enacting these affordances, teachers normally used mobile-based vocabulary and grammar as well to motivate and engage the students (Statement 40; +2, Z = 0.66). P7 further validated this, saying that “ICT-based games make English learning effective and fun. Vocabulary games, for example, increase student motivation and interest”. Xu (2022) affirms that gamification sustains interest, reduces cognitive load, and deepens L2 learning. Teachers also believed that integrating authentic multimedia resources like English movies and chants (Statement 7; +2, Z = 0.897) into their lessons helped them to offer cultural exposure and contextual understanding for learners.

Likewise, breakout rooms and online polls (Statement 22; 0, Z = 0.207), as well as collaborative writing activities (Statement 25; +1, Z = 0.566), were limitedly taken up by these teachers. These tools were occasionally utilized to facilitate peer feedback and critical discussion in these rural ELT contexts. Xue and Churchill (2020) also noted that collaborating in online mediums enables students to engage in real-time, develop interpersonal communication, and learn L2 effectively in EFL learners. Also, teachers in this factor disregarded the idea of online collaborating activities, decreasing learner engagement and dedication towards learning (Statement 26; -2, Z = -0.632). In this regard, Xue and Churchill’s preceding study (2019) also supports this idea, as they claim that technology-enabled collaboration facilitates collaborative knowledge construction and enhances learner engagement and cognitive development.

Adaptability

Adaptability affordances were realized through the enactment of ICT tools such as task-specific offline apps as well as online platforms to implement differentiated instruction and flexible learning opportunities to address the diverse needs and interests of English language learners. Teachers, in this affordance, acknowledged that the utilization of online communication tools is context-dependent and should be utilized considering diverse students' proficiency levels (Statement 30; +4, Z = 1.217). As P11 reflected, "I have fast, medium, and slow learners in my class, and I adapt my teaching methods to cater to all speeds." Parson et al. (2016) also emphasize that flexible digital platforms assist teachers in devising instructional plans that meet a wide range of learner abilities and promote equitable and inclusive learning environments.

Teachers, in this factor, also occasionally employed video tutorials with offline captions to enhance students' writing skills (Statement 24; +1, Z = 0.376). Xu (2022) also notes that these kinds of offline resources minimize cognitive load, develop students' language skills, and encourage meaningful engagement with content. However, these teachers found themselves less adaptable to the online platforms and found these tools technically complex and requiring a considerable amount of time when learning to set them up for the first time (Statement 17; +3, Z = 1.172). Likewise, infrastructural barriers further exacerbated these difficulties in adapting email and internet-based resources in their ELT context (Statement 28; -4, Z = -1.757).

Consequently, teachers sought out easy and viable alternatives (e.g., mobile apps) that could be used offline and without regular access to the Internet. As P8 described, "Offline apps are useful when the internet is slow; they can be downloaded for easy use in classroom activities, especially for listening and speaking assignments". This is better captured by studies of Sánchez-Prieto et al. (2019), who argue that mobile learning tools provide the teacher with an opportunity to develop adaptable activities and mitigate the issue of the digital divide in an effective manner. Likewise, teachers also considered the usefulness of mobile apps for language learning purposes (Statement 42; +2, Z = 0.890) in areas where internet access was poor or not available.

Exposure

English teachers reaped the benefits of exposure affordances by integrating authentic materials, pre-recorded interviews, and mobile applications in rural ELT contexts. These English teachers significantly valued the benefit of authentic materials such as native speakers' speech, text, and video content (Statement 6; +2, Z = 0.719) in developing students' reading comprehension skills (Statement 32; +5, Z = 1.748). For example, P8 noted, "Authentic materials serve as accurate grammar models, supporting grammar and language skills teaching". Cárdenas-Claros and Oyanedel (2016) further validated that these kinds of authentic resources enhanced meaningful engagement with L2 content for EFL learners.

Mobile dictionaries with offline pronunciation features (Statement 39; +5, Z = 1.624) proved highly useful for building vocabulary, pronunciation, and listening skills. P30 noted, "Apps and dictionaries make it easier to learn the pronunciation of difficult words and are effective learning tools", aligning with Hsu (2013), who emphasized that mobile-assisted language learning (MALL) fosters interactive, constructivist opportunities for skill development in EFL contexts. Similarly, adjustable playback features on apps like YouTube (Statement 44; +3, Z = 1.039) enriched listening and speaking practices. Riswandi (2016) also highlighted YouTube's multimedia features for improving students' speaking skills and motivation. Offline captioned writing tutorials (Statement 24; +1, Z = 0.376) further supported writing skill development by offering adaptable, proficiency-level-specific resources to address diverse learner needs.

These tools enabled both the teachers and students to expose themselves to ELT and learning content in a rural ELT context. Teachers showed concerns regarding the use of authentic materials, disagreeing with the idea that government support has minimal influence in deploying these materials in their ELT context (Statement 14; -2, Z = -0.700). Likewise, these teachers also showed concerns regarding the judicial use of mobile devices as some features in these could distract the students from engaging in classroom activities (Statement 9; +4, Z = 1.341). In this regard, Kay et al. (2017) also noted the same dilemma since learners were often found engaged in other non-educational pursuits during the lesson periods via emails and social media on mobile devices.

Assessment

Teachers, in this factor, adapted assessment affordances mainly by utilizing offline scalable solutions like Epaath and mobile apps for facilitating and assessing learners in rural ELT contexts. For example, teachers valued the usefulness of mobile apps for assessing learners' speaking and listening skills by utilizing recording and playback features in these apps (Statement 3; +3, Z = 1.115). P19 agreed to this enactment, "Mobile apps correct students' pronunciation and enhance speaking and listening skills through continuous feedback". P15 also added further, "Since listening is foundational in language learning, mobile apps offer real-time feedback reducing speaking anxiety."

Likewise, teachers utilized interactive learning platforms like Epaath and Google Classroom to assess diverse English language skills and aspects (Statement 18; +4, Z = 1.304). Green (2020) acknowledges the usefulness of these platforms as they offer teachers administrative control and more practical timing of assessments. Likewise, teachers also seemed to favour the real-time feedback features in online collaborative tools to offer their students immediate feedback and support (Statement 41; +1, Z = 0.557) to some extent. P6 also stated, "Real-time feedback in online learning enables students to understand lessons more clearly". However, teachers were hesitant to acknowledge the usefulness of online collaborative forums and chat functions to offer peer-to-peer language practice and develop linguistic skills (Statement 19; 0, Z = 0). These findings demonstrate that offline ICT tools and apps were more effective than their online counterparts.

In conclusion, conceptualizing ICT affordances in rural ELT contexts reveals both opportunities and challenges shaped by teachers' conceptualizations, systemic constraints, and contextual realities. These mapped-out affordances highlighted various action potentials of ICT tools and resources to facilitate interactive and flexible ELT in a more engaging and motivating manner. Yet, various challenges, such as infrastructural and access limitations, authentic resource misalignments, and limited professional development of these teachers, affected both PU and PEU of the enacted affordances to a varying extent. To enact these affordances more robustly, related stakeholders must identify the hindering factors and devise effective strategies and policies at both the national and local levels. The following section proposes a

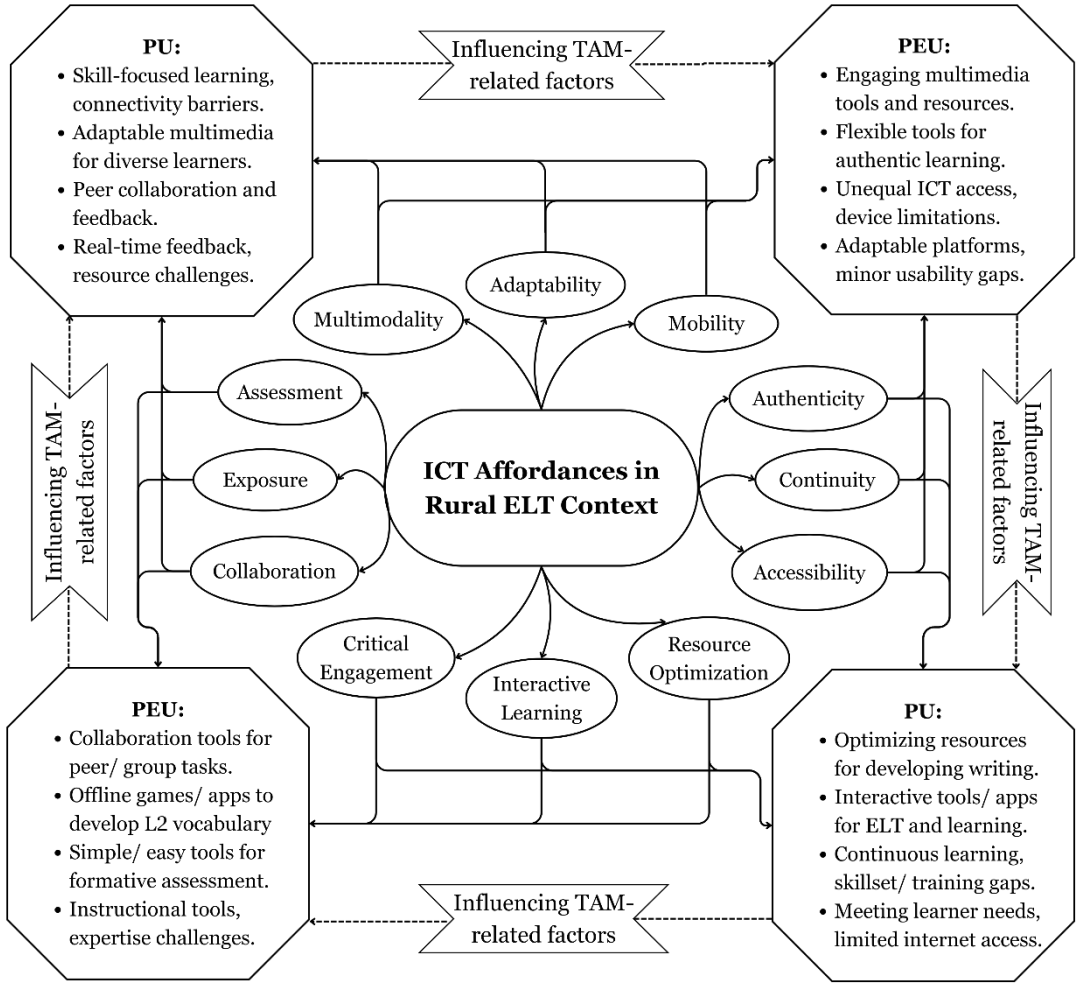
framework for further critically evaluating these findings, responding to the theoretical framework proposed earlier in Chapter II.

Visualizing the Interaction: ICT Affordances Framework

In an attempt to synthesize ELT teachers' conceptualizations of ICT affordances and their thorough enactment (as discussed in the previous section), this section presents a visual framework of ICT affordances enacted within this study's coverage or context. The framework is drawn by triangulating relevant qualitative and quantitative data of this study and broadly adheres to the theoretical ideas of Gibson's (1977) affordances theory and Davis's (1985) TAM illuminated in Figure 2's theoretical framework. As portrayed in Figure 16 below, the enacted twelve affordances by English language teachers in this study are interlinked with TAM's constructs of PU and PEU through four boxes. The bullets within these boxes outline the comprehensive action potentials of these twelve enacted affordances in a holistic manner. The following paragraphs offer a detailed interpretation of these affordances, explaining each TAM's boxes' pedagogical implications as well as the inherent challenges underlying the enacted affordances.

Figure 16

Visual Framework of ICT Affordances in Rural ELT Context



Specifically, the twelve affordances, outlined and interconnected through four boxes (of TAM's PU and PEU) in the figure above, were extracted from Tables 10, 12, and 14 of the previous section's write-up. Since teachers in this study enacted the same tools for enacting multiple ICT affordances in their rural ELT context (Haines, 2015), all these ICT tools have not been outlined in the above figure first, as these tools were already discussed in detail under respective affordances section; second to avoid redundancy and address space limitations constraints within the boxes of the figure. However, an attempt has been made to clarify the figure first and then connect its findings to the adopted theoretical and empirical studies with the following discussions.

The top-left PU box in the figure above outlines the action potentials and limitations of six key affordances, including Collaboration, Exposure, Assessment,

Multimodality, Adaptability, and Mobility. Teachers found these affordances tools and resources useful for developing students' various language skills and aspects and tailoring their instruction to address diverse learners' needs and formatively assess learners through real-time feedback and peer collaboration despite connectivity barriers and resource challenges. Likewise, the top-right PEU box covers Multimodality, Adaptability, Mobility, Authenticity, Continuity, and Accessibility affordances. English teachers perceived these affordance tools/ resources as easy to use or deploy because they were adaptable, engaging, and flexible for ELT and learning regardless of ICT access, device limitations, and usability concerns.

In the same way, the bottom-right PU box incorporates the ICT affordances, namely Interactive Learning, Critical Engagement, Resource Optimization, Authenticity, Continuity, and Accessibility. Teachers utilized these affordances to develop students' writing skills by optimizing available resources and ensuring uninterrupted and continuous learning. Despite the limited internet access and skill set gaps teachers have in using the interactive tools inherent in these affordances, they enacted these affordances to address diverse learners' needs and ensure that learning continues amidst the challenges. Lastly, the bottom-left PEU box encompasses ICT affordances, including Collaboration, Interactive Learning, Critical Engagement, Assessment, and Exposure. Teachers effortlessly employed the collaborative tools, offline games/ apps, and other instructional tools of these affordances primarily for vocabulary instruction and assessing learners despite lacking expertise in using the tools of these affordances.

Similar to these findings, earlier studies using TAM and its extensions have similarly noted the role of MALL or ICT-based instruction to enhance students' engagement, linguistic interactivity, and critical thinking skills (Alharbi, 2023; Rahman et al., 2021), as well as the benefits of mobile messaging apps in professional development (Dahya et al., 2019). Ranjbaran et al. (2022) also argued that instructional ICT tools, when selected carefully, are less likely to get rejected and help mitigate the implied challenges during their implementation. Likewise, Arif and Handayani (2022) indicated that students adopt ICT when they consider the tools to be both useful and easy to use for language learning. Furthermore, Parajuli (2024) stressed the role of PU and PEU in technology (i.e. using smartphones) for teachers' professional growth through networking and collaboration activities. These combined

insights highlight the efficacy of technology and the role of PU and PEU in effectively facilitating English language instruction in diverse ELT contexts.

Affordances theory-related works exploring ICT affordances in the domain of ELT (e.g., Churchill et al., 2016; Parsons et al., 2016; Ilic, 2022; Qin & Wei, 2021; Xue & Churchill, 2019, 2020; Xu, 2022; Reinders & Chong, 2024; Shrestha, 2023) concur with the fundamental affordances such as mobility, multimodality, collaboration, authenticity, continuity, and accessibility of this study. For example, Parsons et al. (2016) underscore that mobile devices enable learning beyond classroom boundaries. Ilic (2022) also considers smartphone dictionaries useful for vocabulary and pronunciation in EFL contexts. Qin and Wei (2022) consider multimedia lectures (e.g., PowerPoint, audio/video clips) as an effective enabler for active and engaging language learning. Churchill et al. (2016) highlight the role of an interactive multiple affordances framework for enhancing language skills, whereas Xu (2022) has emphasized the efficiency of mobile tools in facilitating collaborative EFL writing. Extending from this, Xue and Churchill (2019, 2020) show how mobile social media can be leveraged to create authentic feedback and resource-sharing loops using collaborative tools like WhatsApp. Reinders and Chong (2024, in their recent study, propose a multiple affordances pedagogical framework for offline and accessible multimodal learning applicable in limited resource contexts. Finally, Shrestha (2023) highlights the educational and technological affordances of ICT for effective lesson delivery and fosters learner engagement in Nepali ELT contexts.

Though previous studies share overlapping themes, none have explored secondary-level rural ELT contexts through the combined lens of Gibson's affordance theory (1977), Davis's TAM (1985), and Q methodology. Rana (2023) examined the affordances theory in rural Nepal, focusing on primary teachers' conceptualizations of ICT training. While his study highlighted the collaborative affordances of ICT for professional growth and student motivation, it centred on primary education and employed interpretative phenomenology rather than Q methodology. Given the absence of studies using Q methodology to investigate similar issues through these combined frameworks, this investigation makes a unique contribution. It reveals how affordances and TAM constructs intersect to shape ICT adoption in secondary-level rural ELT (as discussed in the preceding sections), revealing how contextual factors, infrastructural realities, and teacher conceptualizations influence ICT integration. The next section explores in greater depth the factors influencing the conceptualized

affordances outlined in the framework, focusing on enabling factors and potential barriers.

Factors Shaping ICT Affordances in Rural ELT: Enablers and Barriers

In this study, different factors influenced the enactment of conceptualized ICT affordances due to both enabling and disabling conditions prevalent in rural ELT contexts. Enabling conditions such as accessible mobile devices' offline apps and games, downloaded audio and video resources from apps like YouTube, digital learning platforms such as EPaath, and collaborative online platforms in a few areas with internet access facilitated the enactment of these affordances. Meanwhile, disabling conditions that hindered the full realization of the enacted ICT affordances included limited access to devices, unreliable electricity and internet access, limited digital literacy skills or training gaps, and restrictive institutional policies, among others. Considering these realities and building on the findings from Q-sort rankings and post-sort interview responses, an attempt has been made to classify the influencing factors alongside their enablers and barriers in Table 15 below.

Table 15

Factors Shaping ICT Affordances in Rural ELT Context

Factor	Enablers	Barriers
Infrastructural	• Computer labs with digital multimedia devices (e.g., projectors, smartboards, laptops, AV devices), Mobile devices and Internet access (available in some areas).	• Unreliable internet, limited devices, and limited ICT access at home.
Technological	• Offline and online-based mobile apps or games. • Access to interactive and multimodal digital technologies and software. • Collaborative online platforms and services.	• Low confidence or limited skills in handling and using online and offline learning tools. • Disruptive nature of mobile apps. • Parental and administrative concerns

		regarding mobile usage restrictions.
Pedagogical	• Use offline ICT tools to practice English language skills (listening, speaking, reading, writing) and aspects (grammar, vocabulary, pronunciation) in motivating and engaging ways. • Exposing learners to authentic language through offline tools and resources. • Online-based collaborative tools or platforms for developing language and interpersonal skills and accessing assessment-related ideas and resources.	• Limited training to use and evaluate instructional tools, resources and activities. • Lack of government support for developing and providing authentic and culturally relevant resources. • Underestimation of infrastructural and technological needs in integrating ICT tools into ELT classrooms.

The three factors infrastructural, technological, and pedagogical delineated in the table above 15 influenced the teachers' holistic conceptualizations across three factors as well as the mapped-out twelve affordances from those factors. In the following sub-sections, each factor is dealt with in greater depth to illuminate how these factors played their role in the enactment of ICT affordances discovered in this study.

Infrastructural Factor

In this study, infrastructural factors relate to the contextual ICT realities of participants' ELT contexts, encompassing available and utilized ICT facilities, devices, equipment, software, connectivity access, and other resources. These ICT realities invited an environment where participants faced both comfort and hurdles due to the enablers and barriers implied in their ELT contexts when enacting the uncovered ICT affordances. These contextual ICT realities differed across the factors. For instance, Factor 1 was lagging in ICT infrastructure compared to the other two factors as this factor lacked internet access and modern ICT tools (which Factor 2 had access to) despite the availability of a few fundamental devices and tools, such as mobile apps and devices like projectors, limited within school surroundings and only to teachers. Hence, the enablers and barriers outlined in Table 15 above applied distinctively to the three factors' twelve ICT affordances identified in this study.

To be specific, the strong endorsement of statements related to the usefulness of multimedia aids (Statement 31; +5, Z=1.546, in Factor 1; +5, Z=1.511, in Factor 2; and +3, Z=1.142, in Factor 3), mobile apps (Statement 3; +5, Z=1.678, in Factor 1; and +3, Z=1.115, in Factor 3), educational games (Statement 40; +4, Z=1.406, in Factor 2), and collaborative online tools (Statement 29; +5, Z=2.145, in Factor 2) indicate that teachers in their ELT had access to computer labs, laptops, mobile phones, A/V devices, and internet access (to some extent). Furthermore, English teachers utilized equipment such as projectors, smartboards, mobile phone apps and collaborative online platforms to enact affordances such as mobility, multimodality, collaboration, and resource optimization, among others. Therefore, these tools and resources served as enablers to foster ELT and learning activities in their rural classrooms.

In contrast, numerous barriers influenced English teachers while enacting the ICT affordances in their rural ELT contexts, as highlighted in Table 15. For example, participants' strong opposition of statements such as unequal access to electronic

devices and internet (Statement 27; -5, Z = -1.890, Factor 1; -4, Z = -1.603, Factor 2; -3, Z = -1.180, Factor 3), limited access to ICT at home (Statement 11; -4, Z = -1.599, in Factor 1; -5, Z = -1.975, Factor 2; and -3, Z = -0.925, Factor 3), and strong hesitant of online communication tools failing to meet the needs of all students (Statement 30, +3, 1.111, Factor 1), likewise, the lack of ability to resolve technical skills (Statement 1; -4, Z = -1.482, Factor 3) played a disabling role in the enactment of ICT affordances of these three factors. Likewise, these participant remarks strikingly validate these barriers, "Unequal ICT access creates learning disparities; those without ICT may not perform as well as their peers" (P25, Table 8), and "Limited access to technology hinders students from practising what they learn at school" (P22, Table 8).

These insights suggest that infrastructural factors influenced the enactment of ICT affordances to a greater extent to realize the full potential of ICT in the rural context. According to the findings, although a small portion of teachers (Factor 2 participants, as explained by its lowest variance) had access to ICT tools and internet access, the majority of teachers in rural areas do not use modern ICT tools and resources due to a lack of devices at their school and home. Hence, intervention from related stakeholders (e.g., funding initiatives and capacitating ICT labs and their end-users) is mandatory to integrate ICT smoothly and effectively in these rural ELT contexts.

Technological Factor

Building on the previous infrastructural factor of available and enacted ICT facilities, this technological factor encompasses a wide range of digital tools, software, services, and platforms and their usage status while enacting the ICT affordances in rural ELT contexts. Some statements discussed in the infrastructural factor above converge in this factor as well due to their wide coverage of some of the technological aspects of enacted ICT affordances. In this regard, this factor focuses on teachers' enactment process of ICT affordances due to software systems, tools and services rather than due to hardware resources and devices discussed in the infrastructural factor.

The technological factor positively influenced the enactment of ICT affordances related to multimodality, authenticity, mobility, and interactive learning, among others. For example, participants strong agreements with statements such as integrating PowerPoint tool in classroom (Statement 31; +5, Z=1.546, in Factor 1; +5,

Z=1.511, in Factor 2; and +3, Z=1.142, in Factor 3), offline functionality of mobile apps in areas without internet access (Statement 42; +4, Z=1.431, Factor 1; and +2, Z=0.890, Factor 3), and availability of audio recording and playback feature in mobile apps (Statement 3; +5, Z=1.678, Factor 1; +3, Z=1.115, Factor 3), engaging features of educational games (Statement 40; +3, Z=1.052, in Factor 1; and +4, Z=1.406, in Factor 2; and +2, Z=0.660, in Factor 3), and online collaborative platforms to support interactive engaging and learning (Statement 29; +5, Z=2.145; Statement 23; +4, Z=1.182; Statement 25; +4, Z=1.248) collectively indicate that these technological aspects facilitate in the enactment of ICT affordances. Participants also acknowledged these technological enablers, reporting the role of multimedia integration for boosting engagement and motivation (P16, Table 7) and online courses and blogs to design effective teaching materials and tailor their instructional methods (P21, Table 7).

Meanwhile, many technological barriers related to participants' skills and confidence influenced the enactment of ICT affordances related to collaboration, interactive learning, and critical engagement, among other offline-based enacted ICT affordances. For instance, although participants identified online tools as not too complex and unsuitable (Statement 35; -4, Z = -1.458, Factor 1; -2, Z = -0.750, Factor 2; -5, Z = -1.870), they acknowledged that they did not have skills to use these tools (Statement 38; -4, Z = -1.668, Factor 1; -2, Z = -0.399, Factor 2; -4, Z = -1.813, Factor 3). Likewise, some participants distrusted the application of mobile apps to use in classrooms (Statement 9; +2, Z = 0.928, Factor 1; 0, Z = 0.164, Factor 2; +4, Z = 1.341, Factor 3); meanwhile, they highlighted concerns regarding the restriction of mobile usage confirming it as malpractice for ICT-based learning (Statement 20; -5, Z = -1.843, Factor 1; -5, Z = -1.794, Factor 2; -2, Z = -0.556, Factor 3). These issues were also raised in participants' post-sort interview responses; for example, P23 had acknowledged that s/he lacked expertise in using ICT and that limited ICT skills made it challenging to use these tools efficiently (Table 8). Highlighting the distractive nature of mobile apps, P16 believed that rather than being engaged in learning, students become addicted to mobile phones (P16, Table 8). Another participant remarked, "Students in my school don't have access to ICT services, nor are they well-trained to use ICT features" (P19, Table 8).

In conclusion, it can be said that although several technological tools with their multimodal and interactive features enabled to realize the potential of collaborative, multimodality, mobility, and other ICT affordances, technical issues

regarding the skills to deploy these tools effectively have remained a significant challenge in rural ELT contexts to reap the benefits of ICT. The participants' remarks further not only reflect the teachers' lack of technical skills but also the students' training gaps, which show the low-level integration of ICT in these contexts. As discussed earlier, only 13 % of teachers used ICT in their daily ELT practices in this study (see Figure 11). This highlights a significant professional development gap that needs to be addressed immediately by the concerned authorities to minimize the skillset digital divide in the Nepali ELT landscape.

Pedagogical Factor

In this study, the pedagogical factor encompasses a wide range of teachers' beliefs, practices, and strategies that emerged during the use of different ICT apps, services and resources in rural ELT contexts. Through this factor, an attempt has been made to uncover aspects that fostered and hindered English language teachers' instructional goals and ELT and learning-related activities while enacting the ICT affordances identified in this study. During the creation of this factor, statements that participants consistently agreed or disagreed with across all three factors were retained, including some previously mentioned statements that aligned with the theme of this factor.

Pedagogically, English language teachers embraced ICT tools and resources that were adaptable, accessible, portable, practicable, authentic, and multimodal to facilitate and develop students' English language skills and aspects, as well as for their professional growth. The implication of ICT tools such as the use of mobile apps to assess students' listening and speaking skills (Statement 3; +5, Z=1.678, Factor 1; +3, Z=1.115, Factor 3), using offline mobile dictionary to practice pronunciation and develop vocabulary (Statement 39; +4, Z = 1.431, Factor 1; +2, Z = 0.772, Factor 2; +5, Z = 1.624, Factor 3) signify the pedagogical value and aspects of these portable and adaptable tool while enacting the ICT affordances. Likewise, other pedagogical considerations of enacted ICT affordances can be observed through these Q-sort rankings: the role of multimedia PowerPoint presentations to facilitate vocabulary and other language skills (Statement 31; +5, Z=1.546, Factor 1; +5, Z=1.511, Factor 2; and +3, Z=1.142, Factor 3), the potential of educational games to practice grammar in engaging and motivating way (Statement 40; +3, Z=1.052, Factor 1; +4, Z=1.406, Factor 2; +2, Z=0.660, Factor 3), the ability of authentic materials for creating contextualized grammar lessons and offer diverse listening experiences through

various accents and speech patterns (Statement 36; +2, Z=0.966, Factor 1; +3, Z=1.056, Factor 2; Statement 6; +3; Z=1.030, Factor 1; +1, Z=0.443, Factor 2; +2, Z=0.719, Factor 3).

In addition to these aspects, teachers enacted ICT affordances also through software like Epaath and Google classroom to assess students' language skills (Statement 18; +4; Z=1.304, Factor 3), exposing students to English movies, rhymes, and chants to improve vocabulary skills (Statement 7; +2, Z=0.994, Factor 1; +2, 0.688, Factor 2; +2, Z=0.897, Factor 3), using online collaborative tools to enhance students' language skills (e.g., speaking and writing) as well as interpersonal skills, (Statement 29; +5, Z=2.145, Factor 2; Statement 25; +4, Z=1.248, Factor 2; +1, Z=0.566, Factor 3; Statement 23; +4, Z=1.182, Factor 2). Likewise, teachers opposed the idea that collaborative tools may decrease students' engagement level (Statement 26, -3, Z=1.343, Factor 1; -3, Z = -1.045, Factor 2; -2, Z = -0.632, Factor 3), while they acknowledged the usefulness of online teacher support group to provide resources for designing rubrics and assessing learners (Statement 15; +1, Z=0.382, Factor 1; +2, Z=0.728, Factor 2).

Moreover, these participants' post-sort interview remarks highlight how these tools have enabled teachers to enact the identified affordances. For example, P1 reflected that she found multimedia tools useful for displaying real objects through pictures to teach synonyms and antonyms (Table 7). Another participant, P2, stressed that students should watch English movies, poems, and series to improve their fluency, accent, and other paralinguistic features (Table 7). Likewise, P7 highlighted that "Offline dictionaries and apps are valuable for students without internet access at home, allowing them to practice pronunciation and other language skills" (Table 7). Considering the usefulness of authentic resources, P8 further noted that authentic materials serve as accurate grammar models and support grammar-teaching language skills (Table 7). P17 signified the usefulness of self-paced courses, arguing, "Self-paced courses and blogs have significantly improved my technology skills for teaching English, offering flexibility and effective learning". Hence, these sample responses of participants reflect that the employed ICT tools, as highlighted in the reported Q-sort ranking statements paragraph above, enabled the participants to act upon the conceptualized ICT affordances effectively and meaningfully.

On the contrary, several pedagogical barriers emerged in the enactment of ICT affordances, such as mobility, multimodality, authenticity, interactive learning,

critical engagement, resource optimization, and assessment, among others. To be specific, participants disagreed with the idea that they felt comfortable with assessing students' online collaborative works (Statement 38; -4, Z = -1.668, Factor 1; -2, Z = -0.399, Factor 2; -4, Z = -1.813, Factor 3), they also realized that evaluating online resources for accuracy and appropriateness as a challenge (Statement 5; -2, Z = -0.762, Factor 1; -3, Z = -1.396, Factor 2; -3, Z = -0.841 Factor 3), and demonstrated low confidence in administering online collaborative activities (Statement 1; -2, Z = -0.797, Factor 1; -2, Z = -1.023, Factor 2; -4, Z = -1.482). Likewise, to effectively enact ICT affordances pedagogically, participants felt the dire need for government support for ICT resources and authentic materials (Statement 14; -3, Z = -0.945, Factor 1; -4, Z = -658, Factor 2; -2, Z = - 0.700, Factor 3). Above all these barriers, limited ICT infrastructure penetration and lack of ICT tools and resources further disabled the enactment of ICT affordances to reap their pedagogical benefits (e.g., Statement 27; -5, Z = -1.890, Factor 1; -4, Z = -1.603, Factor 2; -3, Z = -1.180, Factor 3; Statement 11; -4, Z = -1.599, in Factor 1; -5, Z = -1.975, Factor 2; and -3, Z = -0.925, Factor 3; Statement 34; -3, Z = -1.108, Factor 1; -4, Z = -1.702, Factor 2; -1, Z = -0.376).

These barriers are further complemented by participants' post-sort interview responses, which reflect the challenges that persisted in enacting ICT affordances. For example, P23 acknowledged that s/he lacked expertise in using ICT to assess students, thereby hindering her/him to ensure collaborative learning (Table 8). P9 further said that it is difficult to get students to practice learning consistently without ICT access at school, and this can lead to learning disparities (Table 8). Likewise, P13 felt the need for government support to access ICT resources to effectively improve students' learning (Table 8). P8 highlighted the need for culturally relevant resources, discarding the suitability of English movies, poems, and rhymes available in native speakers' voices for Nepalese children. P14 further demanded that offline apps be made more accessible for learners if offline apps were available in students' mother tongues due to the multilingual rural ELT context in order to minimize the digital divide. As noted in other factors, participants' concerns about limited ICT tools and resources also align with this factor as the majority of participants reported this issue for the enactment of identified ICT affordances (e.g., relevant remarks of P1, P4, P5, P7, P9, P10, P11, P12, P15, P17, P19, P20, P21, P22, P24, P25, P27, and P29 from Table 8).

In conclusion, the three factors discussed above establish the well-acknowledged Gibson's (1977) affordances theory's 'duality of affordances' concept – in his words, "the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill" (2015, p. 119). To relate his concept here, although English teachers enacted the ICT affordances in rural ICT-availed ELT environments, their enactment of these affordances was influenced by the wide range of technological tools' enablers and barriers in their goal-directed act of ELT and learning. The enablers of these factors (see Table 15), with their higher instructional value of PU and PEU in rural ELT contexts, served to positively influence teachers' enactment of ICT affordances. In contrast, the barriers delineated in these factors, with their lower PU and PEU, influenced the enactment process quite negatively. From these insights, a new idea emerges: that affordances remain dormant or become inactive if the tools, actions, and resources demanded by such affordances are not satisfied or fulfilled by their enactors (or beneficiaries). Therefore, stakeholders should take account of the above barriers and implement actions that enable the teachers to realize the full potential of ICT affordances in rural ELT contexts.

Chapter Summary

This chapter discussed the way English teachers conceptualized and enacted ICT affordances in their rural ELT contexts and also delineated the underlying factors in their (ICT affordances) enactment. After triangulating the extracted three factors' Q-sort rankings data and post-sort interview data, twelve ICT affordances – mobility, multimodality, accessibility, authenticity, continuity, collaboration, interactive learning, critical engagement, adaptability, resource optimization, and assessment – were identified. Then, to align these findings with the adopted theoretical framework of this study, a holistic framework was developed linking these affordances to Gibson's affordances theoretical ideas (subtly) and TAM constructs. Finally, the chapter identified the three factors, including infrastructural, technological, and pedagogical, that influenced the enactment of ICT affordances. The next chapter discusses the key themes and perspectives of this study, pedagogical and policy implications, limitations of the study, and future research directions.

CHAPTER VI
CONCLUSIONS AND INSIGHTS

In this chapter, I illuminate the key insights that emerged from the earlier chapter findings and present the study's contributions to the audience. The main aim of this study was to uncover the ICT affordances as conceptualized and enacted by teachers amidst the diverse range of enablers and barriers prevalent in the rural ELT context. The application of Q methodology alongside the adopted theoretical and conceptual framework assisted in achieving this goal. In this regard, first, I outline the key themes and perspectives on ICT affordances (taking account of its underlying factors as well), theoretical, pedagogical, and policy insights, key limitations, and some areas of future research in the section that follows.

ICT Affordances in Rural ELT: Key Themes and Perspectives

As noted in the earlier chapter, teachers in rural secondary classrooms identified the action potentials of a diverse range of ICT tools and resources that addressed their ELT needs and instructional goals. Primarily, the three different holistic conceptualizations of English teachers, as interpreted in Chapter IV, highlight that teachers, even within different rural contexts, actualize the ICT devices, tools, and resources differently. For example, teachers loading in factor 1 enacted upon practical and accessible tools such as mobile devices' offline apps and features and multimedia presentations, among others. In comparison, Factor 2 teachers conceived tools such as collaborative online tools and their implied features, educational games on mobiles, and multimedia features like in Factor 1 for both useful and easy to use. Teachers grouped into Factor 3 focused on ICT tools similar to factor 1 (due to its moderate correlation with factor 1), including mobile apps, authentic resources and offline learning solutions like EPaath.

Although these conceptualized three factors enabled the identification of the actual realizations of various ICT affordances across factors alongside their perceived usefulness and ease of use-related constraints (see Figure 16), they shared the enablers and barriers of infrastructural, technological, and pedagogical barriers (see Table 15) collectively. The infrastructural and technological enablers enabled the ICT affordances underlying these three factors to get implemented, although with a limited

set of tools weekly, thereby impacting the pedagogical processes to function with ICT-based activities and resources for the development of different language skills and aspects in learners. The key barriers inherent in these factors (mainly the lack of ICT facilities and resources) hindered the effectiveness of ICT-based instruction.

To be specific, the majority of participants (in Factors 1 and 3) succeeded in actualizing the affordances of mobile-based and multimedia devices and authentic resources to develop students' grammatical, vocabulary and listening and writing skills through formative assessment and occasional usage. The online and collaborative ICT tools (alongside a few mobile games) were less utilized in these rural contexts (as reflected in only 14 % of Factor 2 total variance, which highlighted these tools) and limited to developing students' productive language skills instead of utilizing the tools for the development of other receptive skills and language aspects and the tools were mainly used for psychological process of learning such as learner engagement, motivation, critical thinking, etc. rather than developing learners' grammatical and communicative competence.

These realizations of ICT affordances indicated that teachers deployed a limited set of conventional ICT tools, as the majority of modern tools requiring internet access and other facilities were marked neutral by participants across the factors. This enactment practice of participants, as taken into account earlier, was primarily influenced by infrastructural constraints, alongside the skillset gap amongst the participants in finding the tools useful and easy to use to enhance their English language teaching effortlessly and effectively. Hence, these key insights and perspectives inform that there is a significant gap in the realization of ICT affordances inherent in existing rural ICT tools/ resources due to the skillset divide and infrastructural divide in rural ELT contexts of eastern Nepal.

Theoretical Insights and Contributions

The theoretical insights emerging from this study inform two critical contributions for Gibson's (1977) affordances theory and Davis's (1985) TAM. The findings of this study indicate that although participants perceive and conceptualize the action potentials of ICT affordances, their enactment remains dormant if the conditions are unfavourable for their actualization. In this study, even during the concourse generation, the majority of statements had to be devised considering the knowledge-level dimensions of ICT affordances emerging from naturalistic Q-set sampling strategy, although the ready-made favoured some skill-level aspects (which

was not quite relevant in this study's context). Consequently, the resultant affordances and realizations of participants in this study were enacted considering more localized and practical ICT tools rather than the invariant nature of ICT tools and their implied features.

Likewise, as outlined in Figure 16, the interplay of TAM's PU and PEU constructs highlighted that the majority of mobile-based tools and other multimodal, interactive and collaborative tools were found both useful and easy to use (to enhance ELT efficiently) by participants when enacting the ICT affordances identified in this study. This validates the role of PU and PEU in the enactment of ICT affordances; however, both PU and PEU-related aspects of affordances' enactment highlighted the challenges and constraints as well. The barriers were part of infrastructural, technological, and pedagogical factors, and their implied enablers and barriers served as the external variables of TAM, thereby recontextualizing it in the rural ELT context in this study.

By introducing the concept of "dormant affordances" in the domain of affordances theory and introducing identified factors' enablers and barriers as TAM's external factors, the study establishes the fact that affordances are "context-sensitive" and are influenced by institutionally, socially, and culturally shared pedagogical practices in their enactment. Although they emerge in an ELT environment compatible with the English teachers' behaviour or actions, they are inherently shaped by conditions that allow, enable, and encourage the users who are enacting them through shared infrastructural, technological, and pedagogical factors and practices. Hence, conditions that foster the actualization of affordances should be established to actualize ICT affordances in rural ELT contexts. The next section discusses the pedagogical contributions of this study in the field of rural ELT.

Pedagogical Implications

The pedagogical implications of this study take account of findings that highlight the potential of ICT affordances alongside the challenges in realizing the effective implementation of conceptualized ICT affordances in rural ELT contexts. English teachers in this study focused on practicable and feasible ICT tools and resources to facilitate their instruction and enhance engaging and motivating learning experiences through the use of ICT tools. The key pedagogical implications of this include the diverse range of activities and resources that the twelve identified teachers offered for conducting ICT-based instruction in rural ELT contexts.

The factor-wise contribution of this study is briefly described here, which can be transferred to similar ICT in rural ELT context. Factor 1 teachers facilitated specific language skills through the use of offline mobile-based, multimodal learning tools and a few online communicative and collaborative platforms in motivating and engaging ways. As discussed in Chapter V (with statistical rankings of five extracted affordances), the use of PowerPoint presentations, pre-downloaded YouTube videos, and offline vocabulary apps and grammar exercises assisted teachers in developing students' listening comprehension, pronunciation practice and authentic language exposure amidst the infrastructural barriers. Drawing on this factor also offers insights that through the use of online collaborative tools and chat platforms, students can develop their linguistic and communicative skills. Platforms like teacher support groups enable teachers to develop their technical skills to facilitate and assess the learners.

Likewise, Factor 2's preference over online collaborative tools and educational games informs that some of these tools assist in developing speaking and writing skills (e.g., via collaborative online activities and online/ offline videos) while others help develop vocabulary skills alongside other language skills (via authentic resources and LMS platforms) by addressing diverse needs and interests of the learners to some extent in a collaborative, engaging and interactive way (as outlined in its respective affordances in Chapter V). Yet, it should also be noted that to implement these activities and utilize the tools, teachers should be equipped with the necessary technical skills and adequate technological and pedagogical resources from related authorities.

Similar to factor 1, Factor 3 teachers' enactment of ICT affordances pinpoint that through the use of mobile apps and authentic resources, multimedia and platforms like EPaath, learners' pronunciation, vocabulary and reading comprehension alongside other language skills can be developed as the unmastered and unavailable online communication tools; albeit seeing its suitability and simplicity in their ELT contexts, cannot address diverse learners needs and interests of rural language learners. Teachers in this factor also observe the possibility that using self-paced courses might help develop their technological skills to some extent.

Hence, for these pedagogical potentials of ICT to be materialized and sustained for long-term use in rural ELT contexts, it is mandatory to mitigate the infrastructural, technological, and pedagogical barriers by establishing ICT

infrastructures and equipping teachers with necessary digital devices and technical skills from concerned authorities. Additionally, sustainable ICT integration in rural ELT relies on continued professional development and effective policies that support teachers in addressing their infrastructural, technological, and instructional needs and realities. The following section discusses these aspects in greater depth, taking account of the findings of this study.

Policy Recommendations

Considering the policy implications, ICT integration in the rural ELT landscape, as per the findings of this study, demands significant policy reforms to implement the envisioned plans or relevant documents effectively. Policies such as the School Sector Development Plan (SSDP) (2016–2023) and the National Education Policy (2019) have sought to promote ICT integration across subjects and as a distinct discipline (MoEST, 2016; MoEST, 2019b), likewise, School Education Sector Plan (SESP) (2022–2032), advocate the need to strengthening teacher capacity, there are inherent barriers in rural ELT contexts that hinder the effective implementation of these policies.

As noted earlier, due to technological hurdles and infrastructural constraints, very few teachers implement (only 13%) ICT in their daily ELT practices. Likewise, teachers across all factors reported that they lack technological skills in setting up the devices for the first time, handling technical difficulties and assessing learners' collaborative works using ICT tools. These findings contrast with the government-envisioned policies and plans considering their actual implementation in community schools of rural Nepal. Therefore, a few fundamental factors, as informed by this study, need to be taken into account when planning to devise ICT policies and plans for their scalable implementation across the schools.

Primarily, these factors include allocating more budgets or increasing investments in rural ICT infrastructure, designing and delivering training tailored to the specific needs of teachers and emerging ICT trends, and taking account of PU and PEU-related factors of TAM or similar models through baseline surveys to map out the skills of rural English teachers. Hence, to materialize these strategies, the concerned stakeholders need to adopt a collaborative approach, seeking cooperation and support from every possible organization, institution, and personnel in financial, technical, and strategic ways, either in cash, kind or any other form.

Limitations of the Study

This study explored significant insights about the ways English language teachers in rural secondary schools conceptualize and enact ICT affordances and the factors that influence these teachers' enactment of ICT affordances. Yet, this study is not aloof from limitations, considering its contextual scope, methodological alignment, sample size, and adapted theoretical framework.

Contextual and Generalizability Constraints

The study was conducted within the socio-cultural and infrastructural realities of the Taplejung, Dhankuta, and Panchthar districts of eastern Nepal. Although this study explored the ICT integration realities of these three distrICT' community schools ELT contexts, its generalizability is limited due to infrastructural, technological, and pedagogical constraints identified in this study, and the findings may not be replicable to other schools within rural Nepal or urban and international ELT settings with advanced ICT facilities and institutional support. Besides, this study did not include a sample of private schools, hence limiting its generalizability in these schools as well.

Methodological Limitations of Q Methodology

This study was conducted using Q methodology through its forced-distribution approach and a fixed Q-set structure (with its concourse and study's discussion limited to the concepts of Gibson's (1977) Affordances Theory and Davis's (1985) TAM throughout this study implicitly). Although this approach allowed for systematic exploration of teachers' conceptualizations of ICT affordances, it limited the participants to express implied responses and conceptualizations as they could with other qualitative narrative approaches. Moreover, logistical issues invited further challenges during the data collection process. Due to the unavailability of an advanced printing offset press in the research site distrICT, I had to rely on manually prepared and laminated cards, which were smaller in size and quite difficult to carry in the field. Besides, due to the lack of transportation in some areas of these districts, it was difficult to carry the research instruments such as laptops, mobile devices, and printed materials (e.g., translated questionnaires and post-questionnaire forms).

Challenges in Factor Extraction

Another methodological challenge was to extract the right number of factors using the appropriate factor extraction method. Although factors are extracted using PCA also in Q methodology, I chose CFA with the Horse 5.5 method in KADE over PCA because it helped me "avoid situations where eigenvalues of later factors are much higher than earlier factors" (Schmolck, 2012, as cited in Stollery, 2013). Yet, this method required me to perform iterative adjustments during the judgmental rotation when deciding upon the number and extracting the factors that best represent rural teachers' conceptualizations of ICT affordances.

Temporal Constraints and the Need for Longitudinal Data

This study was conducted at a single point in time; however, teachers' conceptualizations towards ICT affordances factors influencing them change over time as their institution's infrastructural and pedagogical realities, among other factors, upgrade or degrade. A longitudinal research design would have captured these evolving perspectives in a more dynamic and iterative fashion.

Sample Size and Potential Biases

Although the sample size adheres to the established Q methodological sample selection approaches (with 30 secondary-level English language teachers as samples of this study), provided the diverse ELT realities and heterogeneity of rural ELT contexts, a larger and more comprehensive sample might have captured a broader range of teachers' conceptualizations and their contrasting belief patterns.

Considering potential biases, Q methodology addresses certain biases to some extent by asking participants to relatively rank the statements rather than absolute judgments; in this study, the majority of participants 67 % reflected their Q-sorting decisions entirely based on present experiences, with 33% drawing on a mixture of present and past experiences, their self-reported data might not be free from the social desirability bias, and they might have framed their responses considering their perceived expectations rather than their actual beliefs or practices.

Directions for Future Research

This study explored various aspects of ICT affordances usage in a rural context, such as how teachers conceptualized and enacted ICT affordances in their ELT and what factors influenced the enactment of conceptualized affordances. There are several areas which need further investigation to address, including the gaps prevalent in its methodology and theory, alongside its scope or coverage of ICT in the ELT domain.

One of the major methodological gaps that existed in this study was the forced-choice distribution approach, which was also reported by participants as it prevented them from expressing their self-referential viewpoints more freely and explicitly. Hence, future studies can switch to its free-distribution approach or any other qualitative approach when exploring issues similar to this or any other issues in the domain of ICT usage in diverse areas of ELT and learning. Likewise, this study solely adopted the theoretical ideas of Gibson's (1977) affordances theory and Davis's (1985) TAM, which limited the study's scope only within the realm of affordances theory and TAM indirectly.

To resolve these theoretical gaps, other scholars can focus on embracing established theories such as Rogers' (2003) Diffusion of Innovations Theory, Vygotsky's Sociocultural Theory (1978) or the TPACK framework as proposed by Mishra and Koehler (2006). These theories and frameworks would help examine how ICT tools are dispersed and acknowledged by English teachers and identify their adoption stages and competencies in integrating in ELT contexts, among other aspects, using Q methodology or any other methodological approaches.

In this study, issues such as lack of ICT access and skills in using the ICT tools were highlighted by the participants, among other issues. Future studies can focus on exploring ways to bridge this sort of access and skill-related divide using Q methodology or any other methodologies (e.g., action research or case study), including more distrICT and larger sample size. Future research should explore ways to mitigate these concerns, focusing on scalable and affordable ICT solutions and approaches to seeking funding from relevant bodies or agencies.

In conclusion, although this study sets a foundational ground in the domain of using ICT affordances in ELT, many aspects beneath its surface are still unexplored. Therefore, by exploring the issues and filling the gaps raised in the above paragraphs, future research could fill this knowledge gap, make significant contributions to academia, and add another cornerstone in the domain of ICT usage in ELT.

Chapter Summary

In this concluding chapter, I reiterated my research issue at the very beginning; then I delved into highlighting the key themes and perspectives underlying the domain of ICT affordances in rural ELT context, taking account of significant insights related to ICT affordances enactment and influencing factors that shaped the identified affordances enactment. Next, I discussed the key theoretical insights and

implications, noting that affordances are context-sensitive and are only realized when the conditions in which they reside favour their actualization. Then, I outlined the pedagogical insights, drawing on and synthesizing the findings of three factors extracted in Chapter V. Furthermore, I touched upon policy recommendations, reviewing the existing policy gaps in light of this study and briefly proposing the strategies to mitigate such issues. Then, I delineated the study's limitations, highlighting contextual and generalizability concerns as well as methodological challenges encountered in this study. Finally, I concluded the chapter by presenting some directions for future research, aiming to fill the gaps in the domain of ICT in ELT for exploring diverse issues with different theories and methods.

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Annexes

Annex One

Informed Consent Letter

I volunteer to participate in this Q study and understand that:

1. I will be interviewed by MPhil student Tirtharaj Dhungana using an open interview format.
2. The questions I will answer address my views on using ICT affordances in ELT classrooms. I may be asked about my experiences with ICT and English language learning and the possibilities of ICT in my existing and past ELT experiences. I understand that the primary purpose of this research is to explore my viewpoints on ICT affordances and my current ELT practices.
3. I understand that my participation in the study will help to provide a clear picture of ICT affordance usage in my present ELT context and that, as a result of this research, practitioners may be able to devise and implement context-sensitive programs and policies in the future.
4. The research results will be presented as Tirtharaj's dissertation.
5. Interviews will be recorded to facilitate data analysis. The recordings will be digitally loaded into my computer and transcribed upon completion. If the participant desires, Tirtharaj will keep the recordings on his computer, which will be labelled with a pseudonym.
6. I understand that I may consent to my name being used in the research study or choose to remain anonymous, and Tirtharaj will respect this position. If I remain anonymous, Tirtharaj will use a pseudonym to protect my identity.
7. I may withdraw from part or all of this study at any time.
8. I understand that the results from this research may be included in Tirtharaj Dhungana's MPhil dissertation and manuscripts submitted to professional journals for publication.
9. I am free to participate or not to participate without prejudice.

Signature of Researcher:_____ Date:_____

Signature of Participant: _____ Date:_____

Annex Two

FGD Questionnaire for Concourse Generation

- Do you mind sharing some specific examples considering how you currently use ICT to facilitate your English language teaching (ELT)?
- What features of ICT do you feel are most useful and easy to use when delivering content related to English language skills and aspects?
- In your experience, how do these communication features of email/ internet platforms assist you in achieving your English language teaching goals?
- How easy or challenging do you find integrating these communication tools into your lessons?
- Do you use mobile apps or other portable ICT tools (e.g., tablet/ smartwatch) to improve your students' language skills? If so, can you share your experience?
- What do you think regarding the variety of features available on mobile tools? Do they help or distract students in learning language inside and beyond the classrooms?
- Do you consider the use of mobile tools to enhance the effectiveness of your ELT and students' learning? Why or why not?
- How comfortable are you using these mobile tools in your classroom setting?
- Have you explored online collaborative tools like Google Docs, WhatsApp, and Facebook groups for students' language learning purposes?
- Can you describe how these collaborative tools benefit your students' learning and interaction in your classroom?
- To what extent do you find managing and facilitating online collaborative activities for your students, considering their ease of use or difficulty level?
- Do you utilize any news articles or downloaded videos to ensure an authentic learning environment? If yes, please relate them here, reflecting on your usage.
- In your view, how does integrating authentic materials through technology enhance student engagement and learning?

- Do you find it easy or difficult to find and incorporate these authentic online resources into your lesson plans?
- Are there any technology tools or platforms, such as games, pronunciation apps, or websites, that you find particularly helpful for specific teaching methods in your English classes?
- Kindly highlight some of their positive potential in facilitating English language aspects such as grammar or vocabulary and enhancing students' learning.
- Is there anything left that was missed out on, and do you feel like sharing it, considering the focus of this study?

Annex Three

Q Set Statements for Q-Sorting

1. I am confident in handling technical difficulties during online collaborative activities.
   अनलाइनबाट गराईने क्रियाकलापहरुमा देखिने प्राविधिक कठिनाइहरू समाधान गर्न म निर्धक्क छु।
2. Mobile apps offer students a high degree of autonomy and control over their English language learning.
   मोबाइल एपहरूले विद्यार्थीहरूलाई उनीहरूको अंग्रेजी भाषा सिकाइमा उच्च स्तरको स्वायत्तता र नियन्त्रण प्रदान गर्दछन्।
3. Mobile apps with audio recording and playback features might be useful tools for assessing student listening and speaking skills.
   अडियो रेकर्डिङ र दोहान्याएर सुन्ने सुविधाहरू भएका मोबाइल एपहरू विद्यार्थीको सुनाई र बोलाई सीपहरू मूल्याङ्कन गर्न उपयोगी हुन सक्छन्।
4. It is better to use other means of communication tools in rural ELT contexts instead of modern ICT devices and internet connectivity.
   ग्रामीण क्षेत्रमा अंग्रेजी पढाउने सन्दर्भहरूमा आधुनिक ICT का उपकरणहरू र इन्टरनेट जडानको सट्टा अन्य सञ्चार उपकरणहरू प्रयोग गर्नु राम्रो हुन्छ।
5. Evaluating online resources for accuracy and appropriateness possesses minimal barriers to integrating ICT into teaching.
   शिक्षणमा ICT को प्रयोग गर्दैगर्दा अनलाइनमा उपलब्ध स्रोतहरूको शुद्धता र उपयुक्तता मूल्याङ्कन गर्नु एक सामान्य चुनौती हो।
6. Authentic materials (e.g., native speakers' speech, text, video, etc.) might be useful for creating contextualized grammar lessons.
   परिवेश सान्दर्भिक व्याकरणका पाठहरू निमार्ण गर्न आधिकारीक सामग्रीहरू (जस्तै, विदेशी व्यक्तिहरूको बोली, लेख, भिडियो, आदि) उपयोगी हुन सक्छ।
7. Students can improve their English vocabulary repertoire through English movies, rhymes, chants, etc., in the classroom.
   विद्यार्थीहरूले कक्षाकोठामा अंग्रेजी चलचित्रहरू, कविताहरू, बालगितहरू, इत्यादि मार्फत आफ्नो अंग्रेजी शब्दभण्डारमा सुधार गर्न सक्छन्।
8. Online discussions and presentations could stimulate critical thinking skills by encouraging students to analyze and respond to ideas.
   अनलाइनमा हुने छलफल र प्रस्तुतिहरूले विद्यार्थीहरूलाई विविध विचारहरूप्रति विश्लेषण गरी प्रतिक्रिया दिन प्रोत्साहित गरेर आलोचनात्मक सोचाइ सिपलाई उत्प्रेरित गर्न सक्छ।
9. The variety of features on mobile devices distracts and hinders focus during class activities.

मोबाइल उपकरणहरूमा रहेका विविध सुविधाहरूले कक्षागत गतिविधिमा ध्यान भड्काउने र सिकाइमा बाधा पुऱ्याउने हुन सक्छ।

10. Chat platforms like Meta's WhatsApp and Messenger provide opportunities to improve student's speaking skills.
    मेटा कम्पनीका WhatsApp र Messenger च्याट प्लेटफर्महरूले विद्यार्थीहरूको बोल्ने सीप सुधार्नका लागि अवसर प्रदान गर्दछन्।
11. Students with limited access to ICT can still apply and enhance the digital skills they acquire in school.
    बिध्यार्थीहरुमा ICT उपकरणहरूको सीमित पहुँच भएपनि विद्यालयमा सिकेका डिजिटल सीपहरू उनीहरूले प्रयोग र सुधार गर्न सक्छन्।
12. Integrating ICT into existing teaching methods may positively impact instructional delivery, assessment, and learning outcomes.
    हाल अभ्यासरत शिक्षण विधिहरूमा ICT लाई एकीकृत गर्नाले शिक्षण, मूल्याङ्कन र सिकाइ उपलब्धीहरूमा सकारात्मक प्रभाव पार्न सक्छ।
13. Self-paced online courses and instructional blogs might be effective ways to improve technological skills for teaching English.
    अङ्ग्रेजी शिक्षणको लागि प्रविधि-मैत्री सीपहरू सुधार गर्न आफ्नै गतिमा अध्यन गर्न मिल्ने अनलाइन कोर्षहरु र शैक्षिणक ब्लगहरू प्रभावकारी तरिकाहरु हुन सक्छन्।
14. Government support for ICT resources and authentic materials has minimal influence on my decision to use them.
    ICT का आधिकारीक स्रोत र सामग्रीहरूको प्रयोगलाई सरकारले सहयोग गरे वा नगरे पनि तीनीहरू प्रयोग गर्ने मेरो निर्णयलाई खासै प्रभाव पार्दैन।
15. Online teacher support groups may provide resources for designing rubrics and assessing individual/group performance.
    अनलाइन शिक्षक सहायता समूहहरूले रूब्रिक्स निर्माण गर्न र व्यक्तिगत/समूहगत कार्यको मूल्याङ्कनका लागि सन्दर्भ सामग्रीहरू उपलब्ध गराउन सक्छन्।
16. Sharing and working on documents through collaborative ICT tools may promote summarization and information synthesis skills during project work.
    सहकार्यात्मक ICT साधनहरूको प्रयोगले परियोजना कार्यमा कागजातहरू शेयर गरी सारांश लेख्ने र सूचना संश्लेषण गर्ने सीपलाई प्रवर्द्धन गर्न सक्छ।
17. The initial set up of online communication platforms for teaching may require some investment of time and technical skills.
    अनलाइनबाट सिकाईने सञ्चार मञ्चहरूको सुरुवाती सेटअप गर्न प्राविधिक सीपहरु र केही समय खर्चिनु पर्ने हुन सक्छ।
18. Software like EPaath and Google Classroom might be useful for assessing multiple aspects of students' English language skills.
    EPaath र Google Classroom जस्ता सफ्टवेयरहरु विद्यार्थीहरूको अङ्ग्रेजी भाषागत सीपका विविध पक्षहरूको मूल्याङ्कन गर्नका लागि उपयोगी हुन सक्छन।
19. Collaborative online forums and chat functions offer a platform for peer-to-peer practice and the development of English language skills.

सहभागितामूलक अनलाइन विमर्श केन्द्र र त्यसभित्रका च्याट सुविधाहरूले विद्यार्थी-विद्यार्थी अभ्यास गर्दै अङ्ग्रेजी भाषागत सीपको विकासका लागि उपयुक्त ठाँउ प्रदान गर्दछन्।

20. School administration and parents should start restricting mobile apps for language learning purposes.
भाषा सिकाइका लागि मोबाइल एपहरूको प्रयोगमा विद्यालय प्रशासन र अभिभावकहरूले प्रतिबन्ध लगाउन सुरु गर्नुपर्छ।
21. Integrating synchronous and asynchronous instruction via web and LMS platforms can accommodate diverse learning needs and interests.
Web र LMS मा भएका प्रत्यक्ष र अप्रत्यक्ष शिक्षण विधिहरूलाई एकीकृत गर्नाले बिद्यार्थीका विभिन्न सिकाइ आवश्यकता र रुचिहरू सम्बोधन गर्न सकिन्छ।
22. The effectiveness of online interactive tools like polls and breakout rooms may promote participation and active learning environments.
मतदान गर्न मिल्ने र छलफल गर्न मिल्ने अनलाइन अन्तरक्रियात्मक सुविधाहरूको प्रभावकारिताले सहभागिता र सक्रिय सिकाइ वातावरणलाई बढावा दिन सक्छ।
23. Online collaborative tools support students in developing project-based and interpersonal skills as envisioned in the curriculum.
अनलाइन सहकार्यात्मक साधनहरूले पाठ्यक्रममा परिकल्पना गरिएका परियोजना-आधारित र अन्तरव्यक्तिगत सीपहरूको विकास गर्न सहयोग गर्दछ।
24. Accessibility of captioned writing tutorials (e.g., online/offline video) on laptops could enhance students' writing skills.
ल्यापटपहरूमा क्याप्शनसहितको लेखाई-सम्बन्धित सिकाउने स्रोतहरूको (जस्तैः अनलाइन/ अफलाइन भिडियो) पहुँचले विद्यार्थीको लेखन कौशल बढाउन सक्छ।
25. Collaborative writing activities can improve editing and revision skills through peer feedback.
सहपाठीहरूको प्रतिक्रियाबाट सहकार्यात्मक लेखन गतिविधिहरूले सम्पादन र संशोधन सीप सुधार गर्न सक्छ।
26. Collaborating and exchanging ideas with peers on online platforms can decrease students' dedication and engagement towards their learning.
अनलाइन प्लेटफर्ममा सहपाठीहरूसँग सहकार्य र विचार आदान-प्रदान गर्दा विद्यार्थीहरूको सिकाइप्रतिको लगाव र संलग्नता कम हुन सक्छ।
27. Unequal access to e-devices and the internet poses minimal challenges for mobile learning.
लचिलो (फलदायी) सिकाईका लागि इन्टरनेट र इलेक्ट्रोनिक उपकरणहरुको असमान पहुँच खासै चुनौतीपुर्ण कुरा होइन।
28. Integrating email and internet tools is a great way for introverted students to develop digital literacy and interpersonal skills.
अन्तर्मुखी विद्यार्थीहरूमा डिजिटल साक्षरता र अन्तरव्यैत्तिक सीपहरूको विकास गर्न इमेल र इन्टरनेटका सुबिधाहरु अंगाल्दै शिक्षण गर्नु एक उत्कृष्ट तरिका हो।

29. Collaborative online activities can enhance students' English-speaking skills when discussing with peers across the globe.
    विश्वभरका साथीहरूसँग अनलाइनमा सहकार्यात्मक छलफल गर्दा गरिने क्रियाकलापहरूले विद्यार्थीहरूको अंग्रेजी बोल्ने सीपहरू बढाउन सक्छ।
30. Online communication tools may vary in suitability depending on students' language proficiency levels.
    विद्यार्थीहरूको भाषाको दक्षता स्तरअनुसार अनलाइन सञ्चारका साधनहरूको उपयुक्तता फरक हुन सक्छ।
31. Multimedia aids like PowerPoint presentations displayed in the classroom can facilitate vocabulary learning and develop other language skills.
    कक्षाकोठामा प्रदर्शन गरिने PowerPoint प्रस्तुतीकरण जस्ता मल्टिमिडिया सामग्रीहरूले शब्दभण्डार र अन्य भाषागत सीप सिक्न सहयोग पुऱ्याउँछन्।
32. Exposing students to authentic texts like news articles, blog posts, or online articles may be beneficial for developing reading comprehension skills.
    समाचार लेखहरू, ब्लग पोष्टहरू, वा अनलाइन लेखहरू जस्ता आधिकारिक सामग्रीहरूसँग विद्यार्थीहरूलाई साक्षात्कार गराउनु उनीहरूको पढ्ने क्षमताको विकासका लागि लाभदायक हुन सक्छ।
33. Participating in authentic social media discussions could be a valuable way for students to learn English in a more contextual and engaging way.
    विद्यार्थीहरूले सहभागीतामुलक र सान्दर्भिक रुपमा अंग्रेजी सिक्नका लागि सामाजिक सञ्जालका आधिकारिक छलफलहरूमा भाग लिनु एक महानतम तरिका हुन सक्छ।
34. Limited access to technology and the internet presents only minor issues to incorporating authentic materials creatively in the classroom.
    प्रविधि र इन्टरनेटको सीमित पहुँचले कक्षाकोठामा आधिकारिक सामग्रीलाई रचनात्मक रूपमा समावेश गर्न सामान्य चुनौती मात्र प्रस्तुत गर्दछ।
35. Online communication tools are complex and unsuitable for my English language teaching.
    अंग्रेजी भाषा शिक्षणको लागि अनलाइन सञ्चारका साधनहरू मेरो लागि जटिल र अनुपयुक्त छन् ।
36. Authentic materials (e.g., interviews, podcasts, and documentaries) can offer diverse listening experiences featuring various accents and speech patterns.
    विविध सुनाई अनुभवहरू लिनका लागि अंग्रेजीका आधिकारिक सामग्रीहरूले (जस्तैः अन्तर्वार्ता, पोडकास्ट, र वृत्तचित्र) विभिन्न उच्चारणका ढाँचा र बोल्ने शैलीहरूसँग साक्षात्कार गराउँछन्।
37. Engaging students with offline versions of news articles and educational videos may expose them to authentic English used in the real world.
    विद्यार्थीहरूलाई वास्तविक सन्दर्भमा प्रयोग हुने आधिकारिक अंग्रेजीका अफलाइन लेख, समाचारपत्र र शैक्षिक भिडियोहरु आदिसँग सहभागि गराई साक्षात्कार गराउन सकिएला।
38. I am comfortable with assessing students' online collaborative works despite the issues of ICT access and technical skills.

प्राविधिक सिप र ICT को पहुँचजस्ता समस्याहरू भएपनि विद्यार्थीहरुले अनलाइनमा गर्ने सहकार्यात्मक कार्यहरूको मूल्याङ्कन गर्न मलाई सहजै हुन्छ।

39. A mobile dictionary with offline pronunciation is a useful resource for students to practice pronunciation and develop vocabulary.
अफलाइन उच्चारणसहितको मोबाइल शब्दकोश विद्यार्थीहरूका लागि उच्चारणको अभ्यास गर्न र शब्दभण्डार विकास गर्न उपयोगी स्रोत हो।
40. Educational games can make grammar practice more engaging, potentially increasing motivation.
शैक्षिक खेलहरूले व्याकरण अभ्यासलाई थप आकर्षक बनाउँदै सम्भावित रूपमा उत्प्रेरणा बढाउन सक्छ।
41. Real-time feedback features in online collaborative tools may enable students to potentially receive immediate support and clarification.
अनलाइन सहकार्यात्मक साधनहरूमा हुने वास्तविक-समय प्रतिक्रिया सुविधाले विद्यार्थीहरूलाई तत्काल सहयोग र स्पष्टता प्राप्त गर्न सक्षम बनाउन सक्छ।
42. Offline functionality in mobile apps can be beneficial in areas with poor or no internet access for learning the English language.
इन्टरनेट पहुँच नभएका वा कमजोर भएका क्षेत्रमा मोबाइल एपहरूको अफलाइन सुविधा अङ्ग्रेजी सिक्नका लागि लाभदायक हुन सक्छ।
43. Online communication tools like email and chat platforms are helpful for sharing resources and solving English language problems.
ईमेल र च्याट प्लेटफर्म जस्ता अनलाइन सञ्चारका साधनहरू स्रोतहरू साझेदारी गर्न र अङ्ग्रेजी भाषाका समस्याहरू समाधान गर्न उपयोगी हुन्छन्।
44. Adjustable audio/video playback features on YouTube and other apps may be a tool for improving listening and speaking skills.
YouTube र अन्य एपहरूमा हुने अडियो/भिडियो प्लेब्याक समायोजन सुविधा विद्यार्थीहरूको सुनाइ र बोलाइ सीप सुधार्नका लागि उपयोगी साधन हुन सक्छ।
45. YouTube channel videos such as NCED Virtual might offer instructional ideas for teaching English more effectively.
NCED Virtual जस्ता YouTube च्यानलका भिडियोहरूले अङ्ग्रेजी शिक्षणलाई अझ प्रभावकारी बनाउनका लागि शैक्षिक उपायहरू प्रदान गर्न सक्छन्।

Annex Four

Q-Sort Researcher Protocol

1. Explain the research purpose and how you would like them to participate.
2. Share the informed consent form. Ask them to read it, ask questions about anything they do not understand, and sign if they are comfortable.
3. Make sure you have their permission to record the interview.
4. Ensure they understand that you will need follow-up interviews with them later.
5. Have them complete the teacher biography/ personal and professional information sheet.
6. Tell them you are going to begin the activity. Check the recorder to make sure it is working (for post-sorting follow-up purposes).
7. Explain the activity. You will provide 52 statements written on tiny cards and want to measure how strongly they agree or disagree with the statements or if they are neutral.
8. Explain that there are no right or wrong answers. I just want to get an idea of their beliefs and conceptualizations. The activity will be followed by a discussion and some interview questions.
9. First, they should read through all 52 statements and make sure they understand the meaning of each one. Clarify any they are unsure about.
10. Then, ask them to separate them into five piles: mostly agree, mostly agree, Neutral, Disagree, and mostly disagree.
11. Next, show them the Q-sort model of how you would like them to arrange the statements. Place it on the table for them to refer to. Ensure they are clear on which side is most agree to agree least. Ask them to go ahead and start arranging the items. Remind them that they can always move the stickies if they need to.
12. Wait until the participant is happy with their ordering, then take a picture of the layout and write +1, +2 / -1, -2, etc., on each stickie for later data analysis.
13. Tell them you would like to ask some questions about why they ordered the items as they did. Make sure the recorder is on, and also take some notes.

14. Start with the outliers. Why did they put those where they did? If necessary, ask open-ended, probing questions.

Annex Five

P-Set Characteristics Form

All information you provide in this form will be kept confidential. Your name and any other identifying details will not be linked to your responses in any reports or publications. Your participation in this study is completely voluntary. You have the right to withdraw at any point without penalty.

Please answer the following questions to the best of your ability.

1. Participant Number:_____
2. Gender**:**
    - Male
    - Female
    - Other (please specify): _____
3. Teaching experience:
    - Number of years teaching English language: _____
4. Academic Qualification:
    - Bachelor's Degree (e.g., BA/ B.Ed.)
    - Master's Degree (e.g., MA / M.Ed.)
    - Other (please specify): _____
5. Please describe your experience with integrating ICT in your English language classroom. Include details on the tools you used, how they addressed your teaching context, and the specific language activities they supported: ____

    _____

    _____

    _____

    _____

    _____

    _____

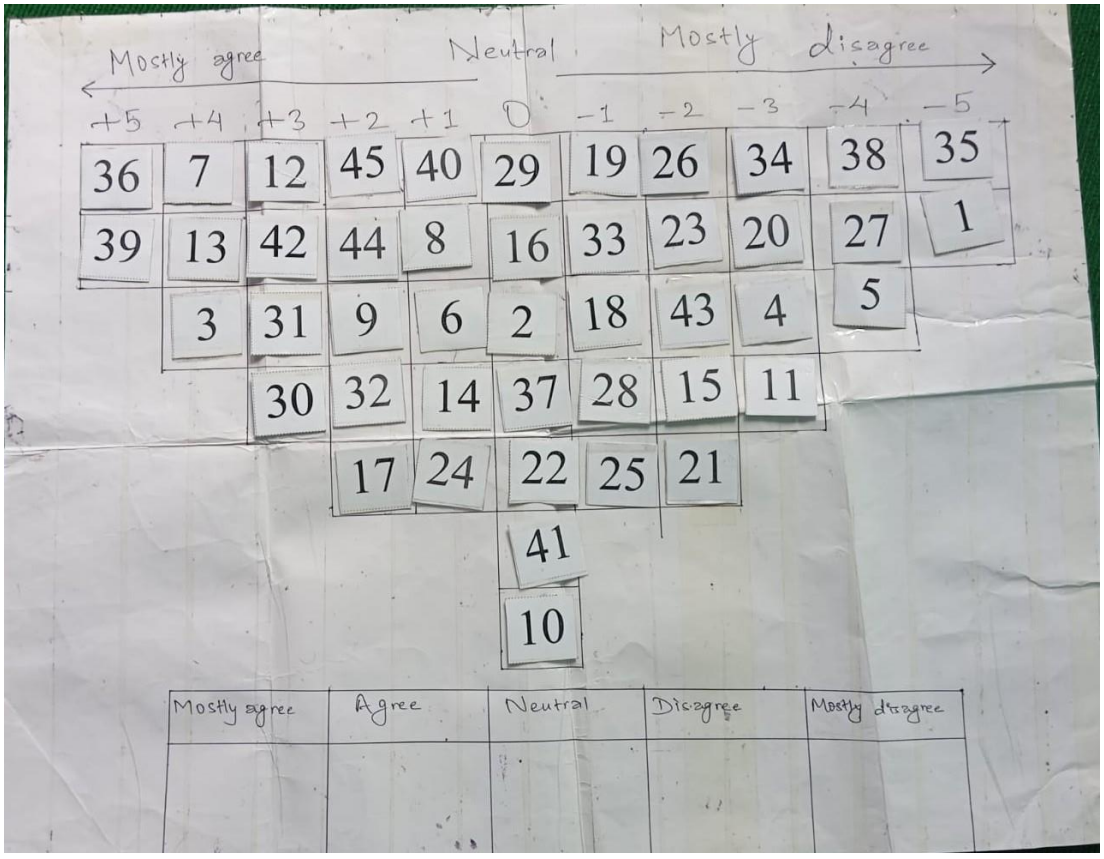
    _____

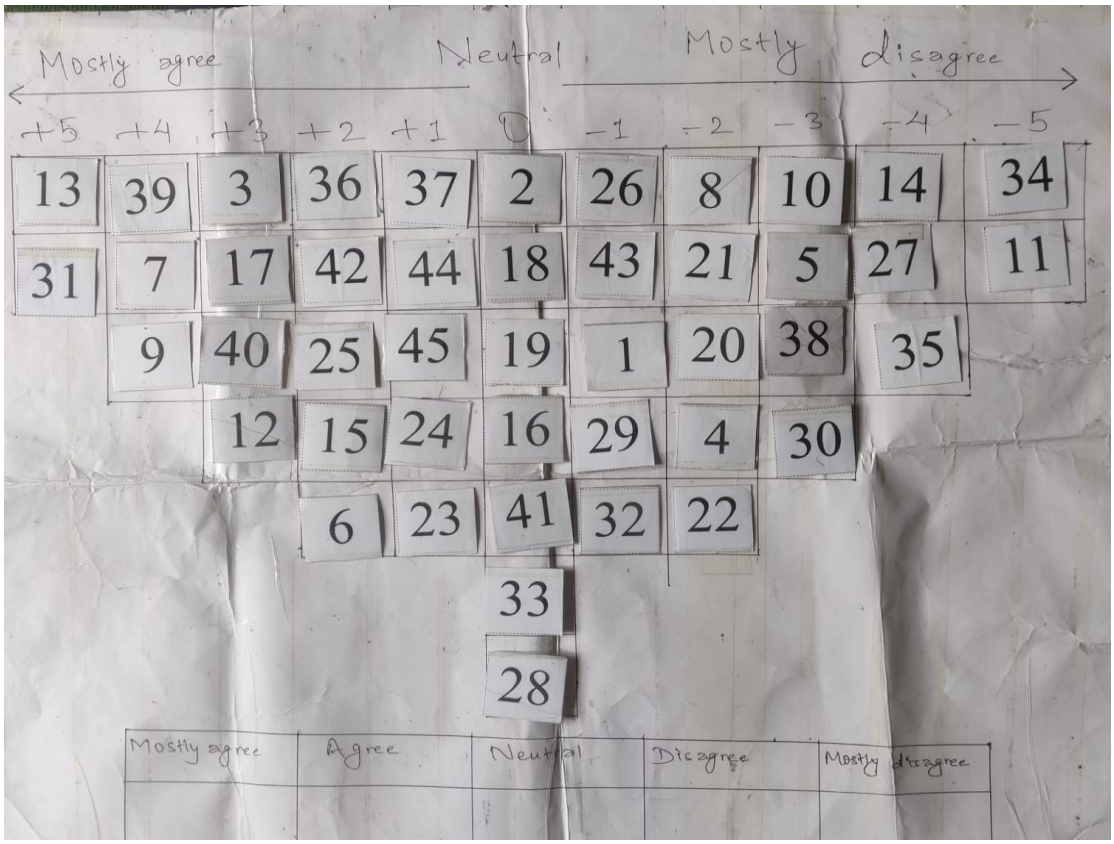
    _____

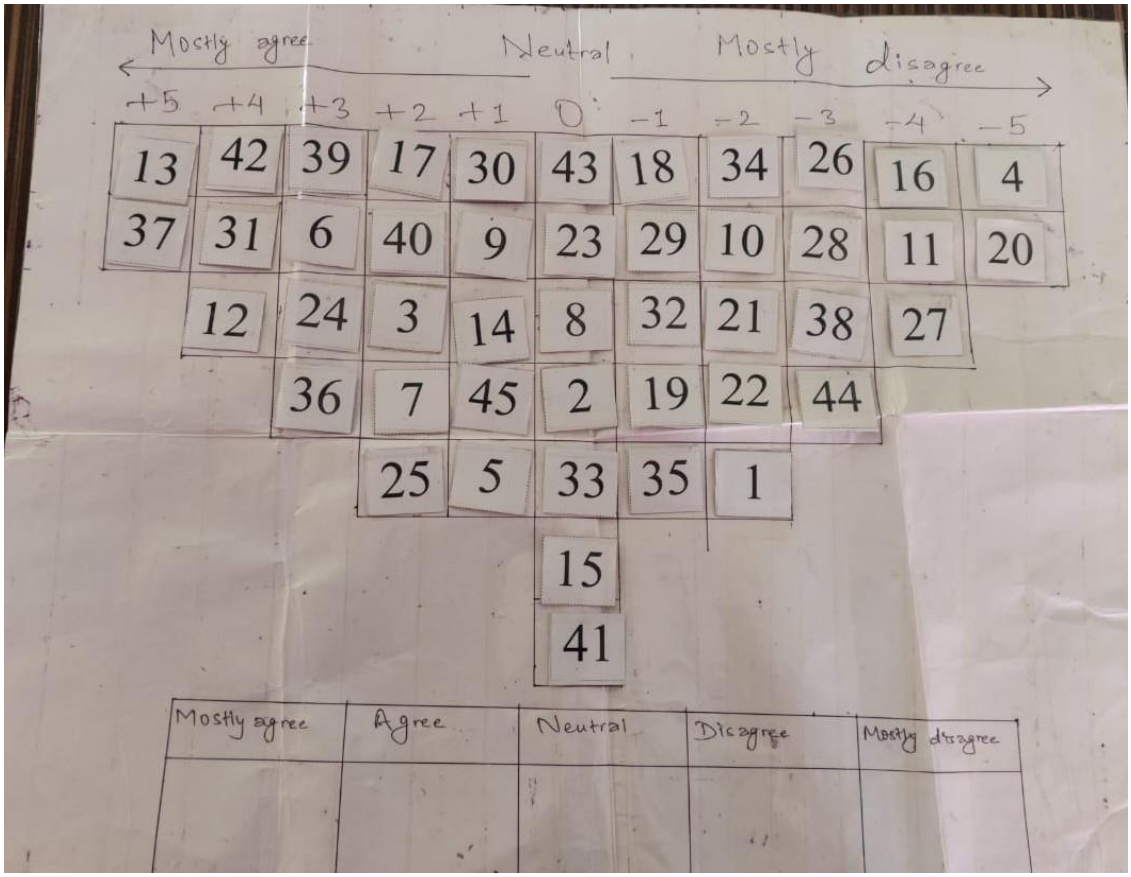
Thank you for your time and participation!

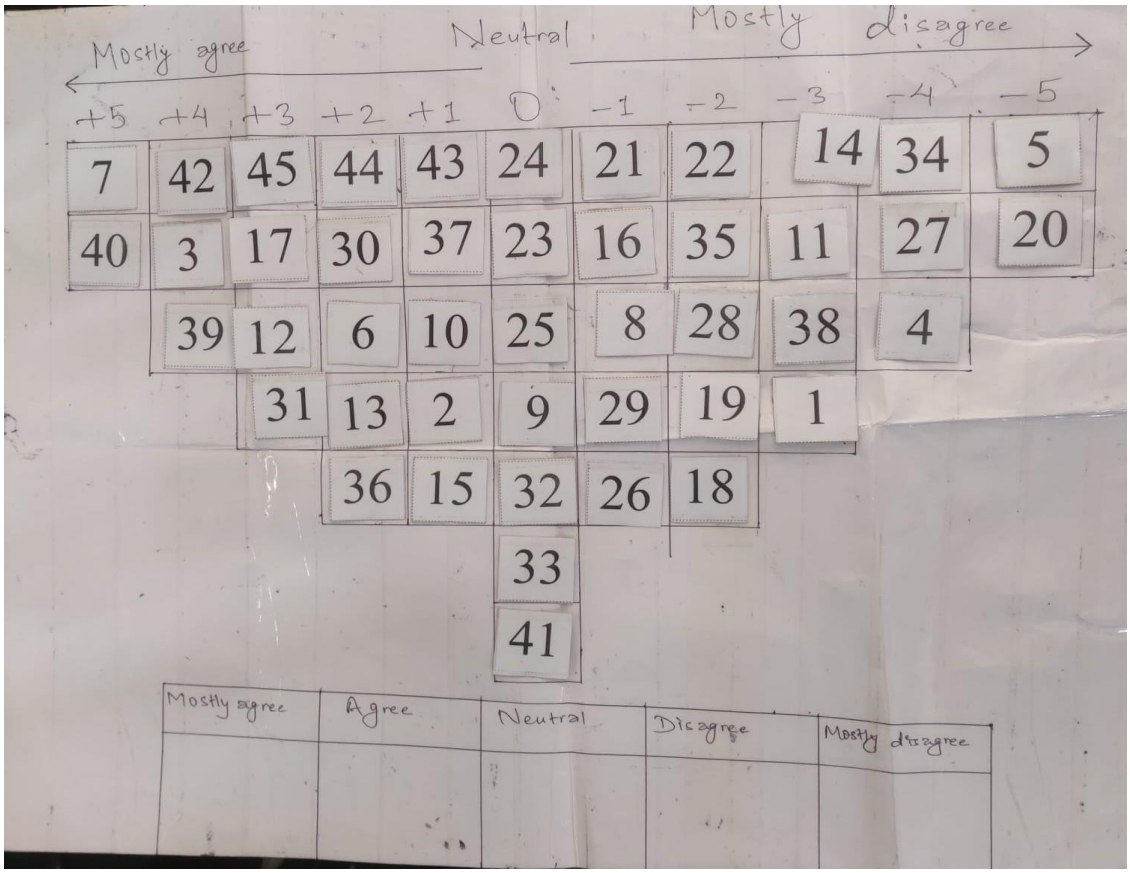
Annex Six

Samples of Completed Q-Sort Grids by Participants






Mostly agree
Neutral
Mostly disagree
+5 +4 +3 +2 +1 0 −1 −2 −3 −4 −5
13 42 39 17 30 43 18 34 26 16 4
37 31 6 40 9 23 29 10 28 11 20
12 24 3 14 8 32 21 38 27
36 7 45 2 19 22 44
25 5 33 35 1
15
41
Mostly agree
Agree
Neutral
Disagree
Mostly disagree


Mostly agree
Neutral
Mostly disagree
+5 +4 +3 +2 +1 0 −1 −2 −3 −4 −5
7 42 45 44 43 24 21 22 14 34 5
40 3 17 30 37 23 16 35 11 27 20
39 12 6 10 25 8 28 38 4
31 13 2 9 29 19 1
36 15 32 26 18
33
41
Mostly agree
Agree
Neutral
Disagree
Mostly disagree

Annex Seven

Post-Sort Questionnaire

Please tell me about how you found the Q-sorting activity. There are no right or wrong answers!

1. Did you reflect upon your present experience of using ICT affordances in the ELT classroom or imagine their pedagogical usage in ELT?
    a. Entirely reflected on the present experience.
    b. Partly present experience and partly imaginative
    c. Mostly imagined
    d. Entirely imagined
2. How often do you use ICT in your classroom (if applicable)?
    - Daily
    - Weekly
    - Occasionally
    - Other (please specify): _____
3. How did you feel about doing the activity?

4. What other ELT-related 'ICT affordances statements' should have been there?

5. Which statement(s) did you mostly agree with? Why did you agree? Please provide the statement number(s) and a brief explanation for your agreement.

6. Which statement(s) did you mostly disagree with? Why did you disagree? Please provide the statement number(s) and a brief explanation for your disagreement.

7. Which statement did you not understand or felt difficult sorting with?

Annex Eight

Table of Participants' Item Sorting

Q Sorts 1 – 10

Participant	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
S1	-3	-3	-4	-1	-2	-3	-3	0	-3	-4
S2	1	1	-2	-3	-2	1	-3	0	-2	-2
S3	3	4	1	0	0	0	3	2	3	1
S4	-4	-4	-5	-4	-3	-2	-5	-3	-5	-5
S5	-4	-5	-2	-3	-2	-2	0	1	0	-5
S6	-2	2	1	3	2	2	0	1	0	2
S7	1	5	3	3	4	0	1	-5	2	2
S8	4	-1	-1	0	-1	0	3	-2	-4	-1
S9	0	0	5	-2	-3	4	1	-4	5	5
S10	1	1	0	-3	3	-1	-1	1	-2	-3
S11	-5	-3	0	-4	-4	-4	-4	-4	-5	-2
S12	-1	3	1	0	1	0	0	2	2	0
S13	0	2	1	-1	0	-1	1	3	-1	1
S14	-3	-3	-3	-4	-3	-4	2	-2	-1	-3
S15	3	1	0	0	-1	2	-3	0	0	-3
S16	-2	-1	1	-1	0	1	-1	-2	0	0
S17	-1	3	2	2	2	5	1	1	4	3
S18	-1	-2	2	3	1	0	2	3	3	3
S19	2	-2	0	2	2	2	0	0	-2	0
S20	-2	-5	-4	-5	-5	-5	-2	-3	4	-2
S21	2	-1	-1	2	-1	1	0	-1	-1	0
S22	2	-2	-1	0	3	0	4	2	-3	1
S23	4	0	0	1	0	3	-1	-1	-3	0
S24	0	0	2	5	2	0	4	-1	-2	2
S25	2	0	3	4	1	2	0	-2	-3	0
S26	-5	-1	-3	0	-4	-2	-2	-3	0	-2
S27	-4	-4	-1	-2	-5	-5	-5	-3	-4	-4
S28	1	-2	-3	0	-3	-1	-3	1	1	-1
S29	5	-1	-2	5	0	4	2	-2	-1	3
S30	-3	2	4	-2	-4	-4	4	4	1	1
S31	5	3	5	2	5	3	1	2	3	3
S32	-1	0	4	1	4	4	2	5	2	0
S33	1	0	3	1	3	-3	-1	0	0	4
S34	-3	-4	-2	-5	-2	-3	-4	0	-1	-3
S35	-1	-2	-5	-2	1	-2	-2	-5	-2	-4
S36	0	2	0	4	2	3	3	-4	1	2
S37	0	1	-1	3	0	-1	0	3	2	1
S38	-2	-3	-4	1	-1	-2	-4	-1	-4	-2
S39	3	4	3	1	5	1	5	3	4	4
S40	3	5	0	4	0	2	5	-1	1	-1
S41	0	0	4	-1	4	5	-1	0	0	2
S42	4	4	-3	-1	1	-3	2	5	2	5
S43	2	1	-2	-3	-1	-1	-2	4	1	4
S44	0	2	2	-2	3	3	3	4	5	-1
S45	-2	3	2	2	-2	1	-2	2	3	-1

Continued.

Q Sorts 11 – 20

Participant	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
S1	-2	-3	-4	-2	-1	-2	-2	-2	-2	-2
S2	4	-4	-2	3	3	-1	1	0	0	0
S3	3	3	3	4	5	4	2	3	5	5
S4	-5	-3	-5	-5	-4	-2	-3	-2	4	-4
S5	-2	-3	-2	-2	0	-2	-2	-3	-5	-3
S6	0	3	2	2	2	3	2	1	4	2
S7	2	2	3	3	5	5	3	4	3	2
S8	0	0	-1	2	-3	1	-4	0	0	1
S9	4	3	-3	-2	1	-5	2	2	2	4
S10	-3	-1	0	-3	-3	1	3	1	3	-1
S11	-3	-2	-4	-4	-4	-5	-3	-5	-4	-4
S12	-1	0	2	0	4	3	5	3	2	2
S13	1	2	0	4	-2	0	5	2	0	4
S14	2	-3	-5	-3	-1	-3	-2	-5	-3	-2
S15	1	-2	-3	3	2	0	0	-2	0	-2
S16	-1	-1	0	-2	1	0	1	2	1	-1
S17	2	4	1	0	3	3	4	3	3	3
S18	0	4	0	0	-2	-1	0	-1	-2	0
S19	0	0	2	0	0	-2	-1	0	-1	0
S20	-4	1	-3	-3	-5	-2	-4	-4	-3	-2
S21	-2	-2	-1	0	0	2	-1	-2	-1	-2
S22	-1	-1	1	-1	0	-1	-2	-1	-5	-3
S23	0	-1	0	1	3	0	-1	-1	-2	0
S24	3	-2	3	0	0	1	0	1	-1	0
S25	1	1	1	1	0	-1	-1	0	0	-1
S26	-2	0	-2	-2	-3	-4	-4	-3	-3	1
S27	-5	-2	-1	-5	-4	-4	-5	-1	-4	-5
S28	4	-5	-2	1	1	-1	0	0	1	0
S29	-1	-1	0	1	-3	2	-1	-3	-1	-1
S30	5	1	4	5	4	1	1	2	2	3
S31	3	2	5	3	4	5	2	2	5	4
S32	0	5	0	2	2	0	0	-1	3	-1
S33	-4	4	-1	-1	-2	-3	-2	4	-2	1
S34	-4	2	-4	-4	-5	-3	-3	-4	-2	-3
S35	-3	-5	-3	-3	-2	-3	-5	-2	-3	-5
S36	2	-4	4	1	1	0	4	5	1	1
S37	-1	0	5	-1	-1	0	3	1	1	2
S38	1	-4	-2	-4	-2	-4	-3	-4	-4	-4
S39	3	3	2	4	1	4	3	5	4	3
S40	2	0	3	2	2	4	2	3	0	1
S41	1	1	-1	-1	-1	2	0	-3	-1	0
S42	-3	5	4	5	3	3	4	4	2	5
S43	-2	1	1	0	2	2	1	0	1	-3
S44	5	2	2	-1	0	2	0	1	2	2
S45	0	0	1	2	-1	1	1	0	0	3

Continued.

Q Sorts 21 – 30

Participant	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
S1	-2	-3	-4	-2	-1	-2	-2	-2	-2	-2
S2	4	-4	-2	3	3	-1	1	0	0	0
S3	3	3	3	4	5	4	2	3	5	5
S4	-5	-3	-5	-5	-4	-2	-3	-2	4	-4
S5	-2	-3	-2	-2	0	-2	-2	-3	-5	-3
S6	0	3	2	2	2	3	2	1	4	2
S7	2	2	3	3	5	5	3	4	3	2
S8	0	0	-1	2	-3	1	-4	0	0	1
S9	4	3	-3	-2	1	-5	2	2	2	4
S10	-3	-1	0	-3	-3	1	3	1	3	-1
S11	-3	-2	-4	-4	-4	-5	-3	-5	-4	-4
S12	-1	0	2	0	4	3	5	3	2	2
S13	1	2	0	4	-2	0	5	2	0	4
S14	2	-3	-5	-3	-1	-3	-2	-5	-3	-2
S15	1	-2	-3	3	2	0	0	-2	0	-2
S16	-1	-1	0	-2	1	0	1	2	1	-1
S17	2	4	1	0	3	3	4	3	3	3
S18	0	4	0	0	-2	-1	0	-1	-2	0
S19	0	0	2	0	0	-2	-1	0	-1	0
S20	-4	1	-3	-3	-5	-2	-4	-4	-3	-2
S21	-2	-2	-1	0	0	2	-1	-2	-1	-2
S22	-1	-1	1	-1	0	-1	-2	-1	-5	-3
S23	0	-1	0	1	3	0	-1	-1	-2	0
S24	3	-2	3	0	0	1	0	1	-1	0
S25	1	1	1	1	0	-1	-1	0	0	-1
S26	-2	0	-2	-2	-3	-4	-4	-3	-3	1
S27	-5	-2	-1	-5	-4	-4	-5	-1	-4	-5
S28	4	-5	-2	1	1	-1	0	0	1	0
S29	-1	-1	0	1	-3	2	-1	-3	-1	-1
S30	5	1	4	5	4	1	1	2	2	3
S31	3	2	5	3	4	5	2	2	5	4
S32	0	5	0	2	2	0	0	-1	3	-1
S33	-4	4	-1	-1	-2	-3	-2	4	-2	1
S34	-4	2	-4	-4	-5	-3	-3	-4	-2	-3
S35	-3	-5	-3	-3	-2	-3	-5	-2	-3	-5
S36	2	-4	4	1	1	0	4	5	1	1
S37	-1	0	5	-1	-1	0	3	1	1	2
S38	1	-4	-2	-4	-2	-4	-3	-4	-4	-4
S39	3	3	2	4	1	4	3	5	4	3
S40	2	0	3	2	2	4	2	3	0	1
S41	1	1	-1	-1	-1	2	0	-3	-1	0
S42	-3	5	4	5	3	3	4	4	2	5
S43	-2	1	1	0	2	2	1	0	1	-3
S44	5	2	2	-1	0	2	0	1	2	2
S45	0	0	1	2	-1	1	1	0	0	3

Annex Nine

The Correlation Matrix

Correlations between Q sorts 1 - 15

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	100	51	24	46	52	51	46	23	17	52	31	23	47	61	43
2	51	100	55	46	53	46	54	37	53	58	53	47	74	76	72
3	24	55	100	38	53	54	47	27	47	59	51	61	50	45	45
4	46	46	38	100	50	55	47	4	14	48	33	16	61	45	33
5	52	53	53	50	100	58	50	32	27	51	25	42	56	37	39
6	51	46	54	55	58	100	37	11	33	44	50	25	35	37	44
7	46	54	47	47	50	37	100	33	43	55	54	41	64	58	43
8	23	37	27	4	32	11	33	100	41	33	22	49	45	48	36
9	17	53	47	14	27	33	43	41	100	53	43	59	43	40	44
10	52	58	59	48	51	44	55	33	53	100	35	65	60	53	45
11	31	53	51	33	25	50	54	22	43	35	100	9	40	57	62
12	23	47	61	16	42	25	41	49	59	65	9	100	41	41	25
13	47	74	50	61	56	35	64	45	43	60	40	41	100	63	60
14	61	76	45	45	37	37	58	48	40	53	57	41	63	100	70
15	43	72	45	33	39	44	43	36	44	45	62	25	60	70	100
16	59	79	40	45	59	47	56	43	46	47	38	40	72	70	64
17	36	81	49	35	47	44	46	46	56	58	47	40	66	62	65
18	43	80	52	42	52	31	53	29	48	61	39	44	73	60	61
19	35	70	46	20	42	43	31	35	49	42	41	46	51	53	57
20	39	79	58	36	35	37	57	42	66	65	56	61	64	72	57
21	49	84	50	27	44	42	51	41	52	49	50	43	62	70	66
22	51	77	55	53	50	58	44	24	57	61	53	46	58	66	63
23	18	51	35	17	19	26	48	43	41	34	48	32	44	56	45
24	28	64	41	39	36	18	62	13	41	57	40	49	59	48	46
25	39	75	46	33	52	38	49	41	52	62	48	47	58	57	52
26	53	80	51	49	63	40	56	63	47	57	46	44	82	76	62
27	43	46	25	35	41	44	31	14	29	35	28	16	36	38	28
28	41	70	44	47	45	31	55	35	37	54	42	36	65	66	57
29	44	75	55	36	54	30	54	30	51	54	42	45	64	61	61

Continued.

30	39	81	62	36	49	42	72	35	57	63	62	50	68	71	58

Correlations between Q sorts 16 – 30

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	59	36	43	35	39	49	51	18	28	39	53	43	41	44	39
2	79	81	80	70	79	84	77	51	64	75	80	46	70	75	81
3	40	49	52	46	58	50	55	35	41	46	51	25	44	55	62
4	45	35	42	20	36	27	53	17	39	33	49	35	47	36	36
5	59	47	52	42	35	44	50	19	36	52	63	41	45	54	49
6	47	44	31	43	37	42	58	26	18	38	40	44	31	30	42
7	56	46	53	31	57	51	44	48	62	49	56	31	55	54	72
8	43	46	29	35	42	41	24	43	13	41	63	14	35	30	35
9	46	56	48	49	66	52	57	41	41	52	47	29	37	51	57
10	47	58	61	42	65	49	61	34	57	62	57	35	54	54	63
11	38	47	39	41	56	50	53	48	40	48	46	28	42	42	62
12	40	40	44	46	61	43	46	32	49	47	44	16	36	45	50
13	72	66	73	51	64	62	58	44	59	58	82	36	65	64	68
14	70	62	60	53	72	70	66	56	48	57	76	38	66	61	71
15	64	65	61	57	57	66	63	45	46	52	62	28	57	61	58
16	100	67	59	68	58	72	61	42	47	58	78	42	56	59	66
17	67	100	75	69	74	81	76	58	55	78	81	37	73	67	79
18	59	75	100	66	73	81	74	50	70	75	73	16	62	73	75
19	68	69	66	100	65	86	63	52	48	73	65	33	43	56	68
20	58	74	73	65	100	75	79	67	66	75	70	34	69	70	83
21	72	81	81	86	75	100	74	60	53	77	75	37	60	65	77
22	61	76	74	63	79	74	100	53	59	72	68	34	69	67	70
23	42	58	50	52	67	60	53	100	43	58	53	10	68	47	59
24	47	55	70	48	66	53	59	43	100	59	55	24	53	66	72
25	58	78	75	73	75	77	72	58	59	100	71	41	61	67	78
26	78	81	73	65	70	75	68	53	55	71	100	43	75	69	78
27	42	37	16	33	34	37	34	10	24	41	43	100	35	36	39
28	56	73	62	43	69	60	69	68	53	61	75	35	100	67	67
29	59	67	73	56	70	65	67	47	66	67	69	36	67	100	73
30	66	79	75	68	83	77	70	59	72	78	78	39	67	73	100

Annex Ten
Extracts From the KADE Output File

This appendix presents key extracts from the KADE output file, including project overview, factor score correlations, factor characteristics, factor scores, Q-sort weights, descending arrays of factor differences, distinguishing statements, and consensus statements. *(Note: To ensure brevity and avoid redundancy, all statements listed in the tables throughout this appendix are shortened with ellipses (...). These represent the same Q-set statements detailed in full in Annex Three.)*

Project Overview

Analysis results downloaded on: 2024-10-17 @ 16:18

Total Number of Statements: 45, Total Number of Q sorts: 30

Q sort Design: -5, -5, -4, -4, -4, -3, -3, -3, -3, -2, -2, -2, -2, -2, -1, -1, -1, -1, -

1,0,0,0,0,0,0,0,1,1,1,1,1,2,2,2,2,2,3,3,3,3,4,4,4,5,5

Distinguishing statements threshold 1: $p<0.01$

Distinguishing statements threshold 2: $p<0.05$

Auto-Flag: $P < 0.05$ and a majority of common variance was required

Project Log

1. ICT Affordances data loaded from XLSX Type 1 file
2. Horst Centroid Factors Extracted: 3
3. Number of factors selected for rotation: 3
4. Varimax rotation applied
5. Factor 1 and Factor 2 rotation: 5 degrees
6. Factor 1 and Factor 3 rotation: -3 degrees
7. Factor 1 and Factor 2 rotation: 1 degree
8. Factor 2 and Factor 3 rotation: -6 degrees

9. Factor 1 and Factor 2 rotation: -6 degrees

Factor Score Correlations

		F1	F2	F3
1.	Factor 1	1	0.4914	0. 6004
2.	Factor 2	0.4914	1	0.4757
3.	Factor 3	0. 6004	0.4757	1

Factor Characteristics

	Factors		
	F1	**F2**	**F3**
No. of Defining Variables	5	3	3
Avg. Rel. Coef.	0.8	0.8	0.8
Composite Reliability	0.952	0.923	0.923
S.E. of Factor Z-scores	0.219	0.277	0.277

Standard Errors for Differences in Factor Z scores

(Diagonal Entries are Standard Errors within Factors)

	F1	F2	F3
Factor 1	0. 310	0.353	0.353
Factor 2	0.353	0.392	0.392
Factor 3	0.353	0.392	0.392

Factor Scores for Factor 1

Contributing Q Sorts - Relative Weights

Q-Sort	Weight
P21	10.00
P17	8.87
P19	4.82
P15	4.62
P23	4.51

Contributing Q Sorts - Correlation Matrix

Q-Sort	P21	P17	P19	P15	P23
P21	**100**	81	86	66	60
P17	81	**100**	69	65	58
P19	86	69	**100**	57	52
P15	66	65	57	**100**	45
P23	60	58	52	45	**100**

Factor Z-scores, Q sort values, and contributors' raw sort values

Num	Statement	Z-score	Q Sort Value	P21	P17	P19	P15	P23
3	Mobile apps with audio recording and playback features might be…	1.678	5	5	2	5	5	3
31	Multimedia aids like PowerPoint presentations displayed in the…	1.546	5	4	2	5	4	4
42	Offline functionality in mobile apps can be beneficial in areas…	1.529	4	4	4	2	3	4
39	Mobile dictionary with offline pronunciation is a useful resource…	1.431	4	5	3	4	1	2
17	The initial set up of online communication platforms for teaching …	1.213	4	2	4	3	3	2
12	Integrating ICT into existing teaching methods may impact…	1.208	3	2	5	2	4	0
30	Online communication tools may vary in suitability depending on…	1.111	3	3	1	2	4	4
40	Educational games can make grammar practice more engaging…	1.052	3	4	2	0	2	3
6	Authentic materials (e.g., native speakers' speech, text, video, etc.) …	1.03	3	1	2	4	2	5
13	Self-paced online courses and blogs might be an effective way…	1.015	2	2	5	0	-2	5
7	Students can improve their English vocabulary repertoire by…	0.994	2	3	3	3	5	-4
36	Authentic materials (e.g., interview, podcast, documentary) can…	0.966	2	2	4	1	1	2
9	The variety of features on mobile devices distracts and hinders…	0.928	2	3	2	2	1	2
10	Chat platforms like Meta's WhatsApp and Messenger provide…	0.571	2	3	3	3	-3	-3
37	Engaging students with offline versions of news articles and…	0.54	1	1	3	1	-1	1
2	Mobile apps offer students a high degree of autonomy and…	0.486	1	1	1	0	3	1
15	Online teacher support groups may provide resources for designing…	0.382	1	2	0	0	2	0
44	Adjustable audio/video playback features on YouTube and other…	0.374	1	1	0	2	0	2
32	Exposing students with authentic texts like news articles blog posts…	0.251	1	0	0	3	2	-1
16	Sharing and working on documents through collaborative ICT tools…	0.239	0	0	1	1	1	0
43	Online communication tools like email and chat platforms are…	0.182	0	0	1	1	2	-2
28	Integrating email and internet tools is a great way for sharing…	0.123	0	0	0	1	1	0
45	YouTube channel's videos such as NCED Virtual might offer…	0.115	0	0	1	0	-1	1
24	Accessibility of captioned writing tutorials (e.g., online/offline…)	-0.017	0	-1	0	-1	0	3

Num	Statement	Z-score	Q Sort Value	P21	P17	P19	P15	P23
4	It is better to use other means of communication tools in rural…	-0.207	0	1	-3	4	-4	0
25	Collaborative writing activities can improve editing and revision…	-0.247	0	-1	-1	0	0	0
41	Real-time feedback features in online collaborative tools may…	-0.313	-1	-1	0	-1	-1	-1
19	Collaborative online forums and chat functions offer a platform…	-0.368	-1	-1	-1	-1	0	-1
18	Software like EPaath and Google Classroom might be useful for…	-0.423	-1	0	0	-2	-2	-3
21	Integrating synchronous and asynchronous instruction via web…	-0.427	-1	-1	-1	-1	0	-2
23	Online collaborative tools support students to develop project-based…	-0.44	-1	-2	-1	-2	3	-2
29	Collaborative online activities can enhance students' English…	-0.68	-2	-2	-1	-1	-3	-1
8	Online discussions and presentations could stimulate critical…	-0.704	-2	0	-4	0	-3	-1
33	Participating in authentic social media discussions could be…	-0.74	-2	-2	-2	-2	-2	0
5	Evaluating online resources for accuracy and appropriateness poses…	-0.762	-2	-3	-2	-5	0	3
1	I am confident in handling technical difficulties during online…	-0.797	-2	-2	-2	-2	-1	-2
14	Government support for ICT resources and authentic materials…	-0.945	-3	-4	-2	-3	-1	1
22	The effectiveness of online interactive tools like polls and breakout…	-0.985	-3	-2	-2	-5	0	-3
34	Limited access to technology and the internet presents only…	-1.108	-3	-3	-3	-2	-5	1
26	Collaborating and exchanging ideas with peers on online platforms…	-1.343	-3	-3	-4	-3	-3	-2
35	Online communication tools are complex and unsuitable for my…	-1.458	-4	-3	-5	-3	-2	-3
11	Students with limited access to ICT can still apply and enhance…	-1.599	-4	-4	-3	-4	-4	-4
38	I am comfortable with assessing students' online collaborative…	-1.668	-4	-5	-3	-4	-2	-5
20	School administration and parents should start restricting mobile…	-1.843	-5	-5	-4	-3	-5	-4
27	Unequal access to e-devices and the internet poses minimal…	-1.89	-5	-4	-5	-4	-4	-5

Factor Scores for Factor 2

Contributing Q Sorts - Relative Weights

Q-Sort	Weight
P4	5.08
P1	4.76
P6	3.77

Contributing Q Sorts - Correlation Matrix

Q-Sort	P4	P1	P6
P4	**100**	46	55
P1	46	**100**	51
P6	55	51	**100**

Factor Z-scores, Q sort values, and contributors' raw sort values

Num	Statement	Z-score	Q Sort Value	P4	P1	P6
29	Collaborative online activities can enhance students' English-speaking skills…	2.145	5	5	5	4
31	Multimedia aids like PowerPoint presentations displayed in the classroom can…	1.511	5	2	5	3
40	Educational games can make grammar practice more engaging, potentially…	1.406	4	4	3	2
25	Collaborative writing activities can improve editing and revision skills…	1.248	4	4	2	2
23	Online collaborative tools support students to develop project-based skills…	1.182	4	1	4	3
36	Authentic materials (e.g., interview, podcast, documentary) can offer diverse…	1.056	3	4	0	3
19	Collaborative online forums and chat functions offer a platform for peer-to-peer…	0.908	3	2	2	2

Num	Statement	Z-score	Q Sort Value	P4	P1	P6
24	Accessibility of captioned writing tutorials (e.g., online/offline video) …	0.848	3	5	0	0
17	The initial set up of online communication platforms for teaching may require…	0.809	3	2	-1	5
21	Integrating synchronous and asynchronous instruction via web and LMS platforms…	0.783	2	2	2	1
39	Mobile dictionary with offline pronunciation is a useful resource for students…	0.772	2	1	3	1
15	Online teacher support groups may provide resources for designing rubrics…	0.728	2	0	3	2
7	Students can improve their English vocabulary repertoire by watching and…	0.668	2	3	1	0
8	Online discussions and presentations could stimulate critical thinking by…	0.635	2	0	4	0
32	Exposing students with authentic texts like news articles, blog posts, or…	0.514	1	1	-1	4
3	Mobile apps with audio recording and playback features might be a useful tool…	0.476	1	0	3	0
41	Real-time feedback features in online collaborative tools may enable students…	0.459	1	-1	0	5
6	Authentic materials (e.g., native speakers' speech, text, video, etc.) might be…	0.443	1	3	-2	2
37	Engaging students with offline versions of news articles and educational videos…	0.383	1	3	0	-1
18	Software like EPaath and Google Classroom might be useful for assessing…	0.35	0	3	-1	0
22	The effectiveness of online interactive tools like polls and breakout rooms…	0.318	0	0	2	0
9	The variety of features on mobile devices distracts and hinders focus…	0.164	0	-2	0	4
45	YouTube channel's videos such as NCED Virtual might offer instructional ideas…	0.147	0	2	-2	1
42	Offline functionality in mobile apps can be beneficial in areas with poor…	0.088	0	-1	4	-3
44	Adjustable audio/video playback features on YouTube and other apps may be…	0.038	0	-2	0	3
28	Integrating email and internet tools is a great way for introverted students…	0.033	0	0	1	-1
33	Participating in authentic social media discussions could be a valuable way…	-0.049	-1	1	1	-3
12	Integrating ICT into existing teaching methods may impact instructional…	-0.159	-1	0	-1	0
2	Mobile apps offer students a high degree of autonomy and control over…	-0.224	-1	-3	1	1
13	Self-paced online courses and blogs might be an effective way to improve…	-0.295	-1	-1	0	-1
43	Online communication tools like email and chat platforms are helpful for…	-0.317	-1	-3	2	-1
16	Sharing and working on documents through collaborative ICT tools may…	-0.361	-2	-1	-2	1
38	I am comfortable with assessing students' online collaborative works despite…	-0.399	-2	1	-2	-2
10	Chat platforms like Meta's WhatsApp and Messenger provide opportunities…	-0.476	-2	-3	1	-1
35	Online communication tools are complex and unsuitable for my English…	-0.75	-2	-2	-1	-2
1	I am confident in handling technical difficulties during online collaborative…	-1.023	-2	-1	-3	-3
26	Collaborating and exchanging ideas with peers on online platforms can…	-1.045	-3	0	-5	-2
30	Online communication tools may vary in suitability depending on students'…	-1.319	-3	-2	-3	-4
5	Evaluating online resources for accuracy and appropriateness poses minimal…	-1.396	-3	-3	-4	-2
4	It is better to use other means of communication tools in rural ELT contexts…	-1.565	-3	-4	-4	-2
27	Unequal access to e-devices and the internet poses minimal challenges…	-1.603	-4	-2	-4	-5
14	Government support for ICT resources and authentic materials has minimal…	-1.658	-4	-4	-3	-4
34	Limited access to technology and the internet presents only minor issues…	-1.702	-4	-5	-3	-3
20	School administration and parents should start restricting mobile apps…	-1.794	-5	-5	-2	-5
11	Students with limited access to ICT can still apply and enhance the digital…	-1.975	-5	-4	-5	-4

Factor Scores for Factor 3

Contributing Q Sorts - Relative Weights

Q-Sort	Weight
P12	6.09
P7	4.04
P3	3.76

Contributing Q Sorts - Correlation Matrix

Q-Sort	P12	P7	P3
P12	**100**	41	61
P7	41	**100**	47
P3	61	47	**100**

Factor Z-scores, Q sort values, and contributors' raw sort values

Num	Statement	Z-score	Q Sort Value	P12	P7	P3
32	Exposing students with authentic texts like news articles, blog posts, or…	1.748	5	5	2	4
39	Mobile dictionary with offline pronunciation is a useful resource for students…	1.624	5	3	5	3
9	The variety of features on mobile devices distracts and hinders focus…	1.341	4	3	1	5
18	Software like EPaath and Google Classroom might be useful for assessing…	1.304	4	4	2	2
30	Online communication tools may vary in suitability depending on students'…	1.217	4	1	4	4
17	The initial set up of online communication platforms for teaching may require…	1.172	3	4	1	2
31	Multimedia aids like PowerPoint presentations displayed in the classroom can…	1.142	3	2	1	5
3	Mobile apps with audio recording and playback features might be a useful tool…	1.115	3	3	3	1
44	Adjustable audio/video playback features on YouTube and other apps may be…	1.039	3	2	3	2
33	Participating in authentic social media discussions could be a valuable way…	1.031	2	4	-1	3
7	Students can improve their English vocabulary repertoire by watching and…	0.897	2	2	1	3
42	Offline functionality in mobile apps can be beneficial in areas with poor…	0.89	2	5	2	-3
6	Authentic materials (e.g., native speakers' speech, text, video, etc.) might be…	0.719	2	3	0	1
40	Educational games can make grammar practice more engaging, potentially…	0.66	2	0	5	0
13	Self-paced online courses and blogs might be an effective way to improve…	0.652	1	2	1	1
25	Collaborative writing activities can improve editing and revision skills…	0.566	1	1	0	3
41	Real-time feedback features in online collaborative tools may enable students…	0.557	1	1	-1	4
24	Accessibility of captioned writing tutorials (e.g., online/offline video) …	0.376	1	-2	4	2
8	Online discussions and presentations could stimulate critical thinking by…	0.273	1	0	3	-1
22	The effectiveness of online interactive tools like polls and breakout rooms…	0.207	0	-1	4	-1
12	Integrating ICT into existing teaching methods may impact instructional…	0.123	0	0	0	1
19	Collaborative online forums and chat functions offer a platform for peer-to-peer…	0	0	0	0	0
45	YouTube channel's videos such as NCED Virtual might offer instructional ideas…	-0.019	0	0	-2	2
37	Engaging students with offline versions of news articles and educational videos…	-0.123	0	0	0	-1
29	Collaborative online activities can enhance students' English-speaking skills…	-0.18	0	-1	2	-2
16	Sharing and working on documents through collaborative ICT tools may…	-0.208	0	-1	-1	1
43	Online communication tools like email and chat platforms are helpful for…	-0.311	-1	1	-2	-2
10	Chat platforms like Meta's WhatsApp and Messenger provide opportunities…	-0.331	-1	-1	-1	0
23	Online collaborative tools support students to develop project-based skills…	-0.331	-1	-1	-1	0
34	Limited access to technology and the internet presents only minor issues…	-0.376	-1	2	-4	-2

Num	Statement	Z-score	Q Sort Value	P12	P7	P3
36	Authentic materials (e.g., interview, podcast, documentary) can offer diverse…	-0.399	-1	-4	3	0
21	Integrating synchronous and asynchronous instruction via web and LMS platforms…	-0.52	-2	-2	0	-1
20	School administration and parents should start restricting mobile apps…	-0.556	-2	1	-2	-4
26	Collaborating and exchanging ideas with peers on online platforms can…	-0.632	-2	0	-2	-3
14	Government support for ICT resources and authentic materials has minimal…	-0.7	-2	-3	2	-3
15	Online teacher support groups may provide resources for designing rubrics…	-0.793	-2	-2	-3	0
5	Evaluating online resources for accuracy and appropriateness poses minimal…	-0.841	-3	-3	0	-2
11	Students with limited access to ICT can still apply and enhance the digital…	-0.925	-3	-2	-4	0
27	Unequal access to e-devices and the internet poses minimal challenges…	-1.18	-3	-2	-5	-1
2	Mobile apps offer students a high degree of autonomy and control over…	-1.436	-3	-4	-3	-2
1	I am confident in handling technical difficulties during online collaborative…	-1.482	-4	-3	-3	-4
28	Integrating email and internet tools is a great way for introverted students…	-1.757	-4	-5	-3	-3
38	I am comfortable with assessing students' online collaborative works despite…	-1.813	-4	-4	-4	-4
4	It is better to use other means of communication tools in rural ELT contexts…	-1.869	-5	-3	-5	-5
35	Online communication tools are complex and unsuitable for my English…	-1.87	-5	-5	-2	-5

Descending Array of Differences Between Fac. 1 and Fac. 2

Statement Number	Statement	Fac. 1	Fac. 2	Difference
30	Online communication tools may vary in suitability…	1.111	-1.319	2.43
42	Offline functionality in mobile apps can be beneficial …	1.529	0.088	1.441
12	Integrating ICT into existing teaching methods may…	1.208	-0.159	1.367
4	It is better to use other means of communication tools…	-0.207	-1.565	1.358
13	Self-paced online courses and blogs might be an effective…	1.015	-0.295	1.31
3	Mobile apps with audio recording and playback features…	1.678	0.476	1.202
10	Chat platforms like Meta's WhatsApp and Messenger…	0.571	-0.476	1.047
9	The variety of features on mobile devices distracts and…	0.928	0.164	0.764
14	Government support for ICT resources and authentic…	-0.945	-1.658	0.713
2	Mobile apps offer students a high degree of autonomy…	0.486	-0.224	0.71
39	Mobile dictionary with offline pronunciation is a useful…	1.431	0.772	0.659
5	Evaluating online resources for accuracy and…	-0.762	-1.396	0.634
16	Sharing and working on documents through collaborative…	0.239	-0.361	0.6
34	Limited access to technology and the internet presents…	-1.108	-1.702	0.594
6	Authentic materials (e.g., native speakers' speech, text…)	1.03	0.443	0.587
43	Online communication tools like email and chat platforms…	0.182	-0.317	0.499
17	The initial set up of online communication platforms for…	1.213	0.809	0.404
11	Students with limited access to ICT can still apply and…	-1.599	-1.975	0.376
44	Adjustable audio/video playback features on YouTube and…	0.374	0.038	0.336
7	Students can improve their English vocabulary repertoire…	0.994	0.668	0.326
1	I am confident in handling technical difficulties during…	-0.797	-1.023	0.226
37	Engaging students with offline versions of news articles…	0.54	0.383	0.157
28	Integrating email and internet tools is a great way for…	0.123	0.033	0.09
31	Multimedia aids like PowerPoint presentations displayed…	1.546	1.511	0.035

Statement Number	Statement	Fac. 1	Fac. 2	Difference
45	YouTube channel's videos such as NCED Virtual might…	0.115	0.147	-0.032
20	School administration and parents should start restricting…	-1.843	-1.794	-0.049
36	Authentic materials (e.g., interview, podcast, documentary) …	0.966	1.056	-0.09
32	Exposing students with authentic texts like news articles…	0.251	0.514	-0.263
27	Unequal access to e-devices and the internet poses minimal…	-1.89	-1.603	-0.287
26	Collaborating and exchanging ideas with peers on online…	-1.343	-1.045	-0.298
15	Online teacher support groups may provide resources for…	0.382	0.728	-0.346
40	Educational games can make grammar practice more…	1.052	1.406	-0.354
33	Participating in authentic social media discussions could be…	-0.74	-0.049	-0.691
35	Online communication tools are complex and unsuitable for…	-1.458	-0.75	-0.708
41	Real-time feedback features in online collaborative tools…	-0.313	0.459	-0.772
18	Software like EPaath and Google Classroom might be…	-0.423	0.35	-0.773
24	Accessibility of captioned writing tutorials (e.g., online…)	-0.017	0.848	-0.865
21	Integrating synchronous and asynchronous instruction via…	-0.427	0.783	-1.21
38	I am comfortable with assessing students' online…	-1.668	-0.399	-1.269
19	Collaborative online forums and chat functions offer a…	-0.368	0.908	-1.276
22	The effectiveness of online interactive tools like polls and…	-0.985	0.318	-1.303
8	Online discussions and presentations could stimulate…	-0.704	0.635	-1.339
25	Collaborative writing activities can improve editing and…	-0.247	1.248	-1.495
23	Online collaborative tools support students to develop…	-0.44	1.182	-1.622
29	Collaborative online activities can enhance students'…	-0.68	2.145	-2.825

Descending Array of Differences Between Fac. 1 and Fac. 3

Statement Number	Statement	Fac. 1	Fac. 3	Difference
2	Mobile apps offer students a high degree of autonomy…	0.486	-1.436	1.922
28	Integrating email and internet tools is a great way for…	0.123	-1.757	1.88
4	It is better to use other means of communication tools…	-0.207	-1.869	1.662
36	Authentic materials (e.g., interview, podcast, …)	0.966	-0.399	1.365
15	Online teacher support groups may provide resources for…	0.382	-0.793	1.175
12	Integrating ICT into existing teaching methods may…	1.208	0.123	1.085
10	Chat platforms like Meta's WhatsApp and Messenger…	0.571	-0.331	0.902
1	I am confident in handling technical difficulties during…	-0.797	-1.482	0.685
37	Engaging students with offline versions of news articles…	0.54	-0.123	0.663
42	Offline functionality in mobile apps can be beneficial …	1.529	0.89	0.639
3	Mobile apps with audio recording and playback features…	1.678	1.115	0.563
43	Online communication tools like email and chat platforms…	0.182	-0.311	0.493
16	Sharing and working on documents through collaborative…	0.239	-0.208	0.447
35	Online communication tools are complex and unsuitable…	-1.458	-1.87	0.412
31	Multimedia aids like PowerPoint presentations displayed…	1.546	1.142	0.404
40	Educational games can make grammar practice more…	1.052	0.66	0.392

Statement Number	Statement	Fac. 1	Fac. 3	Difference
13	Self-paced online courses and blogs might be an effective…	1.015	0.652	0.363
6	Authentic materials (e.g., native speakers' speech, text…)	1.03	0.719	0.311
38	I am comfortable with assessing students' online…	-1.668	-1.813	0.145
45	YouTube channel's videos such as NCED Virtual might…	0.115	-0.019	0.134
7	Students can improve their English vocabulary repertoire…	0.994	0.897	0.097
21	Integrating synchronous and asynchronous instruction via…	-0.427	-0.52	0.093
5	Evaluating online resources for accuracy and…	-0.762	-0.841	0.079
17	The initial set up of online communication platforms for…	1.213	1.172	0.041
30	Online communication tools may vary in suitability…	1.111	1.217	-0.106
23	Online collaborative tools support students to develop…	-0.44	-0.331	-0.109
39	Mobile dictionary with offline pronunciation is a useful…	1.431	1.624	-0.193
14	Government support for ICT resources and authentic…	-0.945	-0.7	-0.245
19	Collaborative online forums and chat functions offer a…	-0.368	0	-0.368
24	Accessibility of captioned writing tutorials (e.g., online…)	-0.017	0.376	-0.393
9	The variety of features on mobile devices distracts and…	0.928	1.341	-0.413
29	Collaborative online activities can enhance students'…	-0.68	-0.18	-0.5
44	Adjustable audio/video playback features on YouTube and…	0.374	1.039	-0.665
11	Students with limited access to ICT can still apply and…	-1.599	-0.925	-0.674
27	Unequal access to e-devices and the internet poses minimal…	-1.89	-1.18	-0.71
26	Collaborating and exchanging ideas with peers on online…	-1.343	-0.632	-0.711
34	Limited access to technology and the internet presents…	-1.108	-0.376	-0.732
25	Collaborative writing activities can improve editing and…	-0.247	0.566	-0.813
41	Real-time feedback features in online collaborative tools…	-0.313	0.557	-0.87
8	Online discussions and presentations could stimulate…	-0.704	0.273	-0.977
22	The effectiveness of online interactive tools like polls and…	-0.985	0.207	-1.192
20	School administration and parents should start restricting…	-1.843	-0.556	-1.287
32	Exposing students with authentic texts like news articles…	0.251	1.748	-1.497
18	Software like EPaath and Google Classroom might be…	-0.423	1.304	-1.727
33	Participating in authentic social media discussions could be…	-0.74	1.031	-1.771

Descending Array of Differences Between Fac. 2 and Fac. 3

Statement Number	Statement	Fac. 2	Fac. 3	Difference
29	Collaborative online activities can enhance students'…	2.145	-0.18	2.325
28	Integrating email and internet tools is a great way for…	0.033	-1.757	1.79
15	Online teacher support groups may provide resources for…	0.728	-0.793	1.521
23	Online collaborative tools support students to develop…	1.182	-0.331	1.513
36	Authentic materials (e.g., interview, podcast…)	1.056	-0.399	1.455
38	I am comfortable with assessing students' online…	-0.399	-1.813	1.414
21	Integrating synchronous and asynchronous instruction via…	0.783	-0.52	1.303
2	Mobile apps offer students a high degree of autonomy…	-0.224	-1.436	1.212

Statement Number	Statement	Fac. 2	Fac. 3	Difference
35	Online communication tools are complex and unsuitable…	-0.75	-1.87	1.12
19	Collaborative online forums and chat functions offer a…	0.908	0	0.908
40	Educational games can make grammar practice more…	1.406	0.66	0.746
25	Collaborative writing activities can improve editing and…	1.248	0.566	0.682
37	Engaging students with offline versions of news articles…	0.383	-0.123	0.506
24	Accessibility of captioned writing tutorials (e.g., online…)	0.848	0.376	0.472
1	I am confident in handling technical difficulties during…	-1.023	-1.482	0.459
31	Multimedia aids like PowerPoint presentations displayed…	1.511	1.142	0.369
8	Online discussions and presentations could stimulate…	0.635	0.273	0.362
4	It is better to use other means of communication tools…	-1.565	-1.869	0.304
45	YouTube channel's videos such as NCED Virtual might…	0.147	-0.019	0.166
22	The effectiveness of online interactive tools like polls and…	0.318	0.207	0.111
43	Online communication tools like email and chat platforms…	-0.317	-0.311	-0.006
41	Real-time feedback features in online collaborative tools…	0.459	0.557	-0.098
10	Chat platforms like Meta's WhatsApp and Messenger…	-0.476	-0.331	-0.145
16	Sharing and working on documents through collaborative…	-0.361	-0.208	-0.153
7	Students can improve their English vocabulary repertoire…	0.668	0.897	-0.229
6	Authentic materials (e.g., native speakers' speech, text…)	0.443	0.719	-0.276
12	Integrating ICT into existing teaching methods may…	-0.159	0.123	-0.282
17	The initial set up of online communication platforms for…	0.809	1.172	-0.363
26	Collaborating and exchanging ideas with peers on online…	-1.045	-0.632	-0.413
27	Unequal access to e-devices and the internet poses minimal…	-1.603	-1.18	-0.423
5	Evaluating online resources for accuracy and…	-1.396	-0.841	-0.555
3	Mobile apps with audio recording and playback features…	0.476	1.115	-0.639
42	Offline functionality in mobile apps can be beneficial …	0.088	0.89	-0.802
39	Mobile dictionary with offline pronunciation is a useful…	0.772	1.624	-0.852
13	Self-paced online courses and blogs might be an effective…	-0.295	0.652	-0.947
18	Software like EPaath and Google Classroom might be…	0.35	1.304	-0.954
14	Government support for ICT resources and authentic…	-1.658	-0.7	-0.958
44	Adjustable audio/video playback features on YouTube and…	0.038	1.039	-1.001
11	Students with limited access to ICT can still apply and…	-1.975	-0.925	-1.05
33	Participating in authentic social media discussions could be…	-0.049	1.031	-1.08
9	The variety of features on mobile devices distracts and…	0.164	1.341	-1.177
32	Exposing students with authentic texts like news articles…	0.514	1.748	-1.234
20	School administration and parents should start restricting…	-1.794	-0.556	-1.238
34	Limited access to technology and the internet presents…	-1.702	-0.376	-1.326
30	Online communication tools may vary in suitability…	-1.319	1.217	-2.536

Factor Q-sort Values for Statements sorted by Consensus vs. Disagreement

Nm	Statement	Factor 1	Factor 2	Factor 3	Ranking var.
45	YouTube channel's videos such as NCED Virtual might…	0	0	0	0.005
7	Students can improve their English vocabulary repertoire…	2	2	2	0.019
17	The initial set up of online communication platforms for…	4	3	3	0.033
31	Multimedia aids like PowerPoint presentations displayed…	5	5	3	0.033
43	Online communication tools like email and chat platforms…	0	-1	-1	0.055
6	Authentic materials (e.g., native speakers' speech, text…)	3	1	2	0.057
16	Sharing and working on documents through collaborative…	0	-2	0	0.065
5	Evaluating online resources for accuracy and…	-2	-3	-3	0.08
37	Engaging students with offline versions of news articles…	1	1	0	0.08
1	I am confident in handling technical difficulties during…	-2	-2	-4	0.081
26	Collaborating and exchanging ideas with peers on online…	-3	-3	-2	0.085
27	Unequal access to e-devices and the internet poses minimal…	-5	-4	-3	0.085
40	Educational games can make grammar practice more…	3	4	2	0.093
24	Accessibility of captioned writing tutorials (e.g., online…)	0	3	1	0.125
39	Mobile dictionary with offline pronunciation is a useful…	4	2	5	0.133
41	Real-time feedback features in online collaborative tools…	-1	1	1	0.151
14	Government support for ICT resources and authentic…	-3	-4	-2	0.165
44	Adjustable audio/video playback features on YouTube and…	1	0	3	0.173
11	Students with limited access to ICT can still apply and…	-4	-5	-3	0.189
35	Online communication tools are complex and unsuitable for…	-4	-2	-5	0.214
10	Chat platforms like Meta's WhatsApp and Messenger…	2	-2	-1	0.215
9	The variety of features on mobile devices distracts and…	2	0	4	0.238
3	Mobile apps with audio recording and playback features…	5	1	3	0.241
19	Collaborative online forums and chat functions offer a…	-1	3	0	0.288
34	Limited access to technology and the internet presents…	-3	-4	-1	0.294
13	Self-paced online courses and blogs might be an effective…	2	-1	1	0.305
8	Online discussions and presentations could stimulate…	-2	2	1	0.32
12	Integrating ICT into existing teaching methods may…	3	-1	0	0.347
22	The effectiveness of online interactive tools like polls and…	-3	0	0	0.348
42	Offline functionality in mobile apps can be beneficial …	4	0	2	0.348
21	Integrating synchronous and asynchronous instruction via…	-1	2	-2	0.352
20	School administration and parents should start restricting…	-5	-5	-2	0.355
25	Collaborative writing activities can improve editing and…	0	4	1	0.373
38	I am comfortable with assessing students' online…	-4	-2	-4	0.403
15	Online teacher support groups may provide resources for…	1	2	-2	0.424
32	Exposing students with authentic texts like news articles…	1	1	5	0.426
36	Authentic materials (e.g., interview, podcast, documentary) …	2	3	-1	0.443

Nm	Statement	Factor 1	Factor 2	Factor 3	Ranking var.
18	Software like EPaath and Google Classroom might be…	-1	0	4	0.499
4	It is better to use other means of communication tools…	0	-3	-5	0.522
33	Participating in authentic social media discussions could be…	-2	-1	2	0.531
23	Online collaborative tools support students to develop…	-1	4	-1	0.548
2	Mobile apps offer students a high degree of autonomy…	1	-1	-3	0.63
28	Integrating email and internet tools is a great way for…	0	0	-4	0.75
30	Online communication tools may vary in suitability…	3	-3	4	1.372
29	Collaborative online activities can enhance students'…	-2	5	0	1.515

Distinguishing Statements for Factor 1

($p<0.05$; Asterisk (*) Indicates Significance at $p<0.01$)

Both the Factor Q-Sort Value and the Z-Score (Z-SCR) are Shown

		Factor 1		Factor 2		Factor 3	
Statement	**Nm**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**
Integrating ICT into existing teaching methods…	12	3	**1.21***	-1	-0.159	0	0.123
Chat platforms like Meta's WhatsApp and…	10	2	0.57	-2	-0.476	-1	-0.331
Mobile apps offer students a high degree of…	2	1	0.49	-1	-0.224	-3	-1.436
It is better to use other means of communication…	4	0	**-0.21***	-3	-1.565	-5	-1.869
Collaborative writing activities can improve…	25	0	-0.25	4	1.248	1	0.566
Real-time feedback features in online …	41	-1	-0.31	1	0.459	1	0.557
Software like EPaath and Google Classroom…	18	-1	-0.42	0	0.35	4	1.304
Online discussions and presentations could…	8	-2	**-0.7***	2	0.635	1	0.273
The effectiveness of online interactive tools…	22	-3	**-0.99***	0	0.318	0	0.207

Distinguishing Statements for Factor 2

($p<0.05$; Asterisk (*) Indicates Significance at $p<0.01$)

Both the Factor Q-Sort Value and the Z-Score (Z-SCR) are Shown

		Factor 1		Factor 2		Factor 3	
Statement	**Nm**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**
Collaborative online activities can enhance…	29	-2	-0.68	5	**2.15***	0	-0.18
Online collaborative tools support students to…	23	-1	-0.44	4	**1.18***	-1	-0.331
Collaborative online forums and chat functions…	19	-1	-0.37	3	0.91	0	0
Integrating synchronous and asynchronous…	21	-1	-0.43	2	**0.78***	-2	-0.52
Software like EPaath and Google Classroom…	18	-1	-0.42	0	0.35	4	1.304
The variety of features on mobile devices…	9	2	0.93	0	0.16	4	1.341
Offline functionality in mobile apps can be…	42	4	1.53	0	0.09	2	0.89
Mobile apps offer students a high degree…	2	1	0.49	-1	-0.22	-3	-1.436
Self-paced online courses and blogs might…	13	2	1.01	-1	-0.3	1	0.652
I am comfortable with assessing students' online…	38	-4	-1.67	-2	**-0.4***	-4	-1.813
Online communication tools are complex and…	35	-4	-1.46	-2	-0.75	-5	-1.87
Online communication tools may vary in…	30	3	1.11	-3	**-1.32***	4	1.217
Government support for ICT resources and…	14	-3	-0.95	-4	-1.66	-2	-0.7

Distinguishing Statements for Factor 3

(p<0.05; Asterisk (*) Indicates Significance at p<0.01)

Both the Factor Q-Sort Value and the Z-Score (Z-SCR) are Shown

		Factor 1		Factor 2		Factor 3	
Statement	**Nm**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**	**Q-SV**	**Z-score**
Exposing students with authentic texts like…	32	1	0.25	1	0.51	5	**1.75***
Software like EPaath and Google Classroom…	18	-1	-0.42	0	0.35	4	1.3
Participating in authentic social media…	33	-2	-0.74	-1	-0.05	2	**1.03***
Limited access to technology and the internet…	34	-3	-1.11	-4	-1.7	-1	-0.38
Authentic materials (e.g., interview, podcast, and…	36	2	0.97	3	1.06	-1	**-0.4***
School administration and parents should start…	20	-5	-1.84	-5	-1.79	-2	**-0.56***
Online teacher support groups may provide…	15	1	0.38	2	0.73	-2	**-0.79***
Mobile apps offer students a high degree…	2	1	0.49	-1	-0.22	-3	**-1.44***
Integrating email and internet tools is a…	28	0	0.12	0	0.03	-4	**-1.76***

Consensus Statements

Those That Do Not Distinguish Between ANY Pair of Factors

All Listed Statements are Non-Significant at p<0.01, and Those Flagged with an * are also Non-Significant at p<0.05)

		Factor 1		Factor 2		Factor 3	
Statement	Nm	Q-SV	Z-score	Q-SV	Z-score	Q-SV	Z-score
*** I am confident in handling technical difficulties…**	1	-2	-0.797	-2	-1.023	-4	-1.482
*** Evaluating online resources for accuracy and…**	5	-2	-0.762	-3	-1.396	-3	-0.841
*** Authentic materials (e.g., native speakers' speech…**	6	3	1.03	1	0.443	2	0.719
*** Students can improve their English vocabulary…**	7	2	0.994	2	0.668	2	0.897
Government support for ICT resources and authentic…	14	-3	-0.95	-4	-1.66	-2	-0.7
*** Sharing and working on documents through…**	16	0	0.239	-2	-0.361	0	-0.208
*** The initial set up of online communication…**	17	4	1.213	3	0.809	3	1.172
Accessibility of captioned writing tutorials…	24	0	-0.02	3	0.85	1	0.376
Collaborating and exchanging ideas with peers…	26	-3	-1.34	-3	-1.045	-2	-0.63
Unequal access to e-devices and the internet…	27	-5	-1.89	-4	-1.603	-3	-1.18
*** Multimedia aids like PowerPoint…**	31	5	1.546	5	1.511	3	1.142
*** Engaging students with offline versions of…**	37	1	0.54	1	0.383	0	-0.123
Mobile dictionary with offline pronunciation is a…	39	4	1.431	2	0.77	5	1.62
*** Educational games can make grammar…**	40	3	1.052	4	1.406	2	0.66
Real-time feedback features in online collaborative…	41	-1	-0.31	1	0.46	1	0.56
*** Online communication tools like email and…**	43	0	0.182	-1	-0.317	-1	-0.311
Adjustable audio/video playback features on…	44	1	0.374	0	0.04	3	1.04
*** YouTube channel's videos such as NCED…**	45	0	0.115	0	0.147	0	-0.019