PRACTICES OF TECHNOLOGY USE IN ENGLISH LANGUAGE CLASSROOMS: AN ETHNOGRAPHIC STUDY OF SECONDARY ENGLISH TEACHERS IN NEPAL

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A Dissertation

Submitted to
School of Education

in Partial Fulfilment of the Requirement for the Degree of
Master of Philosophy in English Language Education

Kathmandu University
Dhulikhel, Nepal

July 2026

AN ABSTRACT

of the dissertation of *Eka Dev Adhikari* for the degree of *Master of Philosophy in English Language Education* presented on 22 July 2026 entitled *Practices of Technology Use in English Language Classrooms: An Ethnographic Study of Secondary English Teachers in Nepal*.

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This research is an ethnographic inquiry examining the practices of technology the teachers use in Nepalese private schools. The study focuses on how teachers use digital resources in classrooms with a lack of visible digital infrastructure. These days, educational technology has become a part of language education. However, existing discussions of technology integration emphasize the availability of technological resources in the classrooms, the use of frontend hardware such as projectors, smartboards, and student-facing digital devices. These studies give less attention to seemingly less visible digital practices through which teachers prepare materials and adapt them into their face-to-face classroom instruction. This study addresses this gap by examining the everyday technological practices of secondary English teachers in a classroom with almost no digital resources.

The primary purpose of this study is to examine how secondary English teachers use technological resources in their teaching and to examine the practical obstacles and educational value they encounter in the process. The study adopts a qualitative ethnographic research design within an interpretive paradigm. The research was conducted in two private secondary English language classrooms in Ratnanagar, Chitwan. Two secondary English teachers were purposively selected as participants. Data were generated through classroom observations, semi-structured

interviews, and field notes, enabling the study to examine both teachers' reported practices and their actual classroom activities.

The findings indicate that technology integration in the observed classrooms went far beyond the visible presence of digital hardware. Although projectors and other display technologies were not routinely used during classroom instruction, both teachers regularly employed generative artificial intelligence and other digital resources during lesson preparation. The teachers used these digital resources on their personal devices – their laptop and smartphones. Rather than presenting AI-generated materials directly to students, the teachers evaluated, selected, reorganized, simplified, and adapted digital information to align with their lesson objectives, students' levels, and curricular requirements. The adapted materials were then used in their face-to-face classroom interaction through whiteboard work, teaching diaries, questioning, discussion, and storytelling.

The study further shows that this form of technology integration offered practical benefits, particularly in lesson preparation, content verification, example generation, and the flexible adaptation of instructional materials. The teachers also encountered challenges related to the absence of classroom projection facilities, differences in access to personal devices, additional time required for transferring digital information into analogue classroom materials and then need to sustain student engagement without direct digital presentation. The challenge of over-reliance over Artificial Intelligence was another problem the teachers faced in their classrooms. The findings suggest that teachers' professional judgement and pedagogical agency were more significant to technology integration than the mere availability of classroom hardware. Technology integration with human intervention in selecting, curating and adapting digital materials helps the classroom instruction to meet its local and global standards.

The study therefore proposes "*backend digital curation*" and "*the analogue bridge*" as novel conceptual frameworks for understanding technology integration in resource-constrained English language classrooms. These two conceptual frameworks help understand technology integration effective in the classroom and maintains the ethical standards in teaching learning activities. The frameworks discussed in this dissertation suggest that digital integration should not be assessed solely through visible classroom hardware but must also recognize the invisible preparatory work through which teachers critically evaluate, adapt, and translate digital resources into

meaningful classroom practice. The study also links Bandura's Social Learning Theory to interpret how teachers' interaction with generative AI during preparation may contribute to cognitive modelling, observational learning, and teacher self-efficacy. Overall, the study contributes to a more teacher-centred and context-sensitive understanding of educational technology integration in Nepalese English language education.

……. 22 July 2026

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शोधसार

अङ्ग्रेजी भाषा शिक्षामा दर्शनशास्त्रको स्नातकोत्तर उपाधिको लागि एकदेव अधिकारीको शोधप्रबन्धको शीर्षक “अङ्ग्रेजी भाषाका कक्षाकोठामा प्रविधि प्रयोगका अभ्यासहरू: नेपालका माध्यमिक तहका अङ्ग्रेजी शिक्षकहरूको एक नृवंशशास्त्रीय अध्ययन” ६ श्रावण २०८३ मा प्रस्तुत गरिएको थियो।

.....

प्रा. हेमराज काफ्ले, पीएचडी

शोध निर्देशक

यो अनुसन्धान नेपालका निजी विद्यालयहरूमा शिक्षकहरूले प्रयोग गर्ने प्रविधिका अभ्यासहरूको परीक्षण गर्ने एक नृवंशशास्त्रीय (ethnographic) खोज हो। यस अध्ययनले प्रत्यक्ष डिजिटल पूर्वाधारको अभाव रहेका कक्षाकोठाहरूमा शिक्षकहरूले डिजिटल स्रोतहरूको प्रयोग कसरी गर्छन् भन्ने कुरामा ध्यान केन्द्रित गरेको छ। आजभोलि शैक्षिक प्रविधि भाषा शिक्षाको एक अभिन्न अङ्ग बनेको छ। यद्यपि, प्रविधि प्रयोग सम्बन्धि विद्यमान छलफलहरूले कक्षाकोठामा प्राविधिक स्रोतहरूको उपलब्धता तथा प्रोजेक्टर, स्मार्टबोर्ड र विद्यार्थी-लक्षित डिजिटल उपकरणहरू जस्ता प्रत्यक्ष हार्डवेयर (frontend hardware) को प्रयोगलाई मात्र बढी जोड दिने गरेका छन्। यस्ता अध्ययनहरूले शिक्षकहरूले शिक्षण सामग्री तयार पार्ने र तिनलाई आफ्नो प्रत्यक्ष (face-to-face) कक्षाकोठा शिक्षणमा रूपान्तरण गर्ने कम देखिने डिजिटल अभ्यासहरूमा कम ध्यान दिएका छन्। यस अध्ययनले लगभग डिजिटल स्रोतविहीन कक्षाकोठामा माध्यमिक तहका अङ्ग्रेजी शिक्षकहरूले गर्ने दैनिक प्राविधिक अभ्यासहरूको परीक्षण गरी उक्त अभावलाई सम्बोधन गरेको छ।

यस अध्ययनको मुख्य उद्देश्य माध्यमिक तहका अङ्ग्रेजी शिक्षकहरूले आफ्नो शिक्षणमा प्राविधिक स्रोतहरूको प्रयोग कसरी गर्छन् भन्ने कुराको जाँच गर्नु र यस प्रक्रियामा उनीहरूले सामना गर्ने व्यावहारिक अवरोध तथा प्राप्त गर्ने शैक्षिक मूल्यको विश्लेषण गर्नु हो। यस अध्ययनले व्याख्यात्मक ढाँचा (interpretive paradigm) भित्र रही गुणात्मक नृवंशशास्त्रीय अनुसन्धान ढाँचा अपनाएको छ। यो अनुसन्धान रत्ननगर, चितवनका दुई निजी माध्यमिक विद्यालयका अङ्ग्रेजी भाषाका कक्षाकोठाहरूमा गरिएको थियो। सहभागीका रूपमा दुई जना माध्यमिक तहका अङ्ग्रेजी शिक्षकहरूलाई उद्देश्यमूलक ढङ्गले छनोट गरिएको थियो। कक्षाकोठा अवलोकन, अर्ध-संरचित अन्तर्वार्ता र फिल्ड नोटहरूमार्फत तथ्याङ्क सङ्कलन गरिएको थियो, जसले शिक्षकहरूले वर्णन गरेका अभ्यास र उनीहरूका वास्तविक कक्षाकोठाका गतिविधि दुवैको परीक्षण गर्न सक्षम बनायो।

अध्ययनका निष्कर्षहरूले अवलोकन गरिएका कक्षाकोठाहरूमा प्रविधि प्रयोग डिजिटल हार्डवेयरको प्रत्यक्ष उपस्थितिभन्दा निकै पर रहेको देखाउँछ। कक्षाकोठा शिक्षणका क्रममा प्रोजेक्टर र अन्य डिस्प्ले प्रविधिहरूको नियमित प्रयोग नभए तापनि दुवै शिक्षकहरूले पाठ तयारीका क्रममा जेनेरेटिभ आर्टिफिसियल इन्टेलिजेन्स (generative AI) र अन्य डिजिटल स्रोतहरूको नियमित प्रयोग गरेका थिए। शिक्षकहरूले यी डिजिटल स्रोतहरू आफ्ना व्यक्तिगत उपकरणहरू— ल्यापटप र स्मार्टफोनमा प्रयोग गरेका थिए। एआई (AI) बाट सिर्जित सामग्रीहरू सीधै विद्यार्थीमाझ प्रस्तुत गर्नुको सट्टा शिक्षकहरूले आफ्नो पाठको उद्देश्य, विद्यार्थीको स्तर र पाठ्यक्रमको आवश्यकताअनुरूप डिजिटल जानकारीको मूल्याङ्कन, छनोट, पुनर्संरचना, सरलीकरण र अनुकूलन (adaptation) गरेका थिए। यसरी अनुकूलन गरिएका सामग्रीहरूलाई पछि सेतोपाटी, शिक्षण डायरी, प्रश्नोत्तर, छलफल र कथावाचनमार्फत प्रत्यक्ष कक्षाकोठाको अन्तरक्रियामा प्रयोग गरिएको थियो।

यस अध्ययनले प्रविधि एकीकरणको यस स्वरूपले विशेष गरी पाठ तयारी, विषयवस्तु प्रमाणीकरण, उदाहरण निर्माण र शिक्षण सामग्रीहरूको लचिलो अनुकूलनमा व्यावहारिक लाभ प्रदान गरेको देखाएको छ। शिक्षकहरूले कक्षाकोठामा प्रोजेक्सन सुविधाको अभाव, व्यक्तिगत उपकरणमा पहुँचको भिन्नता, डिजिटल जानकारीलाई परम्परागत (analogue) कक्षाकोठा सामग्रीमा रूपान्तरण गर्न लाग्ने अतिरिक्त समय र प्रत्यक्ष डिजिटल प्रस्तुतिबिना विद्यार्थीको संलग्नता कायम राख्नुपर्ने आवश्यकतासँग सम्बन्धित चुनौतीहरू पनि सामना गरेका थिए। आर्टिफिसियल इन्टेलिजेन्समाथिको अत्यधिक निर्भरताको चुनौती शिक्षकहरूले आफ्ना कक्षाकोठामा भोगेको अर्को समस्या थियो। अध्ययनका निष्कर्षहरूले कक्षाकोठामा हार्डवेयरको केवल उपलब्धताभन्दा शिक्षकहरूको पेशागत निर्णय क्षमता (professional judgement) र शैक्षणिक सक्रियता (pedagogical agency) प्रविधि एकीकरणका लागि बढी महत्त्वपूर्ण रहेको सङ्केत गर्दछ। डिजिटल सामग्रीहरूको छनोट, समायोजन (curating) र अनुकूलनमा मानवीय हस्तक्षेपसहितको प्रविधि एकीकरणले कक्षाकोठा शिक्षणलाई स्थानीय र विश्वव्यापी मापदण्डहरू पूरा गर्न मद्दत गर्दछ।

तसर्थ, यस अध्ययनले स्रोतसाधन सीमित भएका अङ्ग्रेजी भाषाका कक्षाकोठाहरूमा प्रविधि एकीकरणलाई बुझ्नका लागि नवीन अवधारणात्मक ढाँचाका रूपमा 'ब्याकएन्ड डिजिटल क्युरेसन' (backend digital curation) र 'द एनालग ब्रिज' (the analogue bridge) प्रस्ताव गरेको छ। यी दुई अवधारणात्मक ढाँचाहरूले कक्षाकोठामा प्रविधि एकीकरणलाई प्रभावकारी रूपमा बुझ्न मद्दत गर्छन् र शिक्षण सिकाइ क्रियाकलापमा नैतिक मापदण्डहरू कायम राख्छन्। यस शोधप्रबन्धमा छलफल गरिएका ढाँचाहरूले डिजिटल एकीकरणलाई कक्षाकोठामा देखिने हार्डवेयरका माध्यमबाट मात्र मूल्याङ्कन गरिनु हुँदैन, बरु शिक्षकहरूले डिजिटल स्रोतहरूको आलोचनात्मक मूल्याङ्कन, अनुकूलन र अर्थपूर्ण कक्षाकोठा अभ्यासमा रूपान्तरण गर्ने अदृश्य पूर्वतयारी कार्यलाई पनि मान्यता दिनुपर्छ भन्ने सुझाव दिन्छन्। यस अध्ययनले तयारीका क्रममा जेनेरेटिभ एआईसँग शिक्षकहरूको अन्तरक्रियाले संज्ञानात्मक मोडलिङ (cognitive modelling), अवलोकनात्मक सिकाइ (observational learning) र शिक्षकको आत्म-

प्रभावकारिता (teacher self-efficacy) मा कसरी योगदान पुऱ्याउन सक्छ भन्ने व्याख्या गर्न बान्डुराको सामाजिक सिकाइ सिद्धान्त (Bandura's Social Learning Theory) लाई पनि जोडेको छ। समग्रमा, यस अध्ययनले नेपाली अङ्ग्रेजी भाषा शिक्षामा शैक्षिक प्रविधि एकीकरणको अझ बढी शिक्षक-केन्द्रित र सन्दर्भ-संवेदनशील बुझाइमा योगदान पुऱ्याउँछ।

..... ६ श्रावण २०२६

एकदेव अधिकारी

उपाधि उम्मेदवार

This dissertation entitled *Practices of Technology Use in English Language Classrooms: An Ethnographic Study of Secondary English Teachers in Nepal* was presented by Eka Dev Adhikari on 22 July 2026.

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

……. 22 July 2026
Eka Dev Adhikari
Degree Candidate

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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.

……. 22 July 2026

Eka Dev Adhikari

Degree Candidate

DEDICATION

To the teachers who continue to teach,
even when technology does not always reach the classroom.

To those who turn limitations into possibilities,
screens into notes,
digital knowledge into human understanding,
and technology into purposeful pedagogy.

To the English language teachers
who quietly explore, question, curate, adapt,
and bring the wider digital world,
into the walls of their classrooms.

To my teachers, colleagues, and friends,
whose motivation, patience, and faith
have helped me throughout this journey.

And to every teacher
who believes that meaningful educational transformation,
does not begin with a device,
but with a thoughtful mind, a willing heart,
and the courage to have an influence.

And finally, to my family –
my better half, my son, and my daughter –
whose continued support made this achievement possible.
This research is dedicated to you.

ACKNOWLEDGEMENTS

The completion of this dissertation has been a collective journey an academic growth resulted from learning, reflection, and perseverance. This dissertation is under my name; however, its completion would not have been possible without the support of many individuals and well-wishers. I would therefore like to express my sincere gratitude to everyone who contributed me to reach this academic progress.

First, I would like to express my sincere gratitude to Kathmandu University and to all the professors and faculty members I met during the three semesters of my MPhil programme. Their teaching that led to thoughtful discussions and intellectual depth supported my understanding of English language educational research and helped me to shape my academic perspective.

I am grateful to Lava Deo Awasthi, PhD, Prof. Jai Raj Awasthi, PhD, Assoc. Prof. Khagendra Acharya, PhD Prof. Laxman Gnawali, PhD, Assoc. Prof. Tikaram Poudel, PhD, Asst. Prof. Siddhartha Dhungana, PhD, and Surendra Prasad Bhatta for their continuous support throughout the programme. They encouraged my academic journey and laid foundation on which this research stands.

My special gratitude goes to Assoc. Prof. Khagendra Acharya, PhD. His class in research methodology helped me to develop a deeper understanding of the research process. I supported me to identify research problems and research gaps to design and conduct systematic inquiry. The methodological insight that I gained during his course proved particularly valuable for me to move from the initial idea of this research towards its implementation.

My sincere gratitude goes to my Research Supervisor, Prof. Hem Raj Kafle, PhD, for his constructive feedback. His supervision helped me refine my ideas and stay focused on the objective of my research. His guidance helped me to prepare this dissertation into its present form. His practical and clear academic advice and his willingness to engage with my questions was obviously valuable to me.

I would also like to express my vote of thank to Madan Puri, Principal of my school. He constantly motivated and encouraged me to pursue my academic development and to update my academic portfolio. It was his encouragement that played a key role in my decision to undertake the MPhil journey and complete it. His support has been a key source of motivation in my academic career.

My vote of thanks also goes to my colleagues and fellow researchers, Min Raj Bastakoti and Gokul Silwal for their continuous support during this journey. The exchanges of ideas that we shared together enriched my work. Similarly, I would like to thank the school leaders and teachers who supported my fieldwork.

At the end, I want to thank my family members for their and constant support. Their continued support and understanding made it possible for me to stay committed to this research. This achievement does not belong to me alone; it belongs to them as well.

I also express my sincere thanks to everyone who contributed to this research in one way or another. This dissertation is not only the result of my own effort but also of the encouragement, guidance, and goodwill of many people.

To all of you, I offer my sincere gratitude.

Eka Dev Adhikari
Degree Candidate

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ABBREVIATIONS

AI	Artificial Intelligence
CALL	Computer-Assisted Language Learning
CDC	Curriculum Development Centre
EFL	English as a Foreign Language
ELE	English Language Education
ELT	English Language Teaching
ESL	English as a Second Language
HITL	Human-in-the-Loop
ICT	Information and Communication Technology
LLM / LLMs	Large Language Model / Large Language Models
LMS	Learning Management System
MPhil	Master of Philosophy
NEB	National Examinations Board
PhD	Doctor of Philosophy
RQ1	Research Question 1
RQ2	Research Question 2
SLC	School Leaving Certificate
SLT	Social Learning Theory
TPD	Teacher Professional Development

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CHAPTER I
INTRODUCTION

The integration of digital technology has undoubtedly altered English language teaching (ELT), shifting how educators design materials and how learners engage with the curriculum. Within ELT, technology enables teachers to create digital materials and allows learners to access a multitude of engaging resources. Technology also helps learners to study more effectively, stay motivated, and develop 21st-century skills and abilities required to compete in a globalized world. This dissertation looks at how secondary English teachers use digital tools in their classrooms. It uses an ethnographic approach that focuses on private schools. This first chapter of the dissertation starts with a small moment that changed how I view technology in the English classroom and led me to this study. It then presents the rationale, problem statement, research purpose, research questions, and delimitations.

A Tiny Spark that Initiated this Research

In 2012, a six-week teacher training scholarship in the United States introduced me to the pedagogical potential of cloud technology. The teacher training class also had a class on technology. I learned to use tools such as Dropbox in writing classes. Despite having technical knowledge, I faced limitation of resources for my classroom after I returned to Nepal. For more than five years, technology integration in my teaching had been very limited. I therefore relied mainly on traditional materials, including the government-issued Teacher Guide.

The COVID-19 pandemic brought a major change. Emergency remote teaching made my earlier training relevant to my teaching. Google Classroom and Google Meet became useful for me to conduct emergency remote classes. When schools returned to physical classrooms, a new question emerged. How would teachers continue using technology under normal classroom conditions?

During my MPhil studies, I reviewed the literature on technology integration. The literature showed a gap in empirical research on teachers' everyday use of technology. Both Global studies (Rizal et al., 2022) and Nepali research (Dhakal, 2025) show very limited information on teachers' use and sustenance of technology in their classrooms. This led me to study how English language teachers use technology and generative artificial intelligence in their teaching.

Background of the Study

Technology in education usually refers to using scientific tools to support classrooms and make them more engaging (Encyclopaedia Britannica, 2026). In the post pandemic era, the meaning of technology integration changed. Digital platforms stopped being optional resources. They became essential for teaching and learning.

When many schools stopped using physical classroom for teaching learning activities during the COVID-19 pandemic, teachers' lessons moved to digital platforms for both online and offline activities. They used synchronous and asynchronous activities for their teaching learning activities. Platforms such as Zoom and Google Meet made live classes possible. Google Classroom and Moodle supported tasks like sharing homework and assessing student work.

This transition from physical classroom to online classroom increased workload of teachers. The emergency classrooms required them to learn new technologies and take their classes from their device screens at home. New technology arrived increasing the teachers' workload. They had to learn new technologies and prepare their lessons using them. Teachers prepared presentation slides, designed online tests, set assessment criteria, and adapted existing assessments for online delivery.

Researchers have studied technology in language classrooms for a considerable time (Warschauer & Healey, 1998). Early research showed that digital tools can help students learn English. Still, how well these tools work depends on the tools teachers pick. It also depends on the quality of the materials, and how they use them in class (Golonka et al., 2012). Now that students are back in physical classrooms, educators face new questions about how to keep using these tools. Schools slowly moved past emergency remote teaching into "*sustainable digital shifting*" (Aldhafeeri & Alotaibi, 2023). The focus is now on how teachers use technology in their classrooms, not just whether a school owns the technological resources or not.

Presence of devices or software in a school does not mean that they will be used well in their classrooms. Teachers still need to choose, adjust, and apply digital tools to fit their specific lessons. That is why we need to look closely at how teachers keep using and adapting technology back in the physical classroom, especially in schools with limited resources.

Rationale for the Study

Education now goes beyond the physical classroom. Students these days find information from online databases, e-books and digital archives (Sulaiman et al., 2017). These digital platforms allow the teachers and students to narrow down the geographical boundaries (Chen & Yen, 2019). The digital platforms have widened the range of resources available for learners and instructors to facilitate them in their classrooms.

Computer programmes and internet have a large collection of digital tools and applications. These tools provide different ways to facilitate learning materials. Educational games and simulations help the students to understand abstract concept by simplifying it (Kosmas, 2021). Virtual reality can provide exposure to foreign cultural environments that may not be able to experience directly (Andiappan et al., 2022). Digital media also supports problem-solving and engagement with learning cntent (Lim & Zhong, 2006).

Looking at empirical literature in recent educational trend, we can see the presence a wide range of tools and applications in language teaching. They include audio-visual delivery (Ammar, 2016), CALL-supported reading instruction (Chen & Yeh, 2019), game-based learning environments (Andiappan et al., 2022), and reflective blogfolios (Sulaiman et al., 2017; Zakaria & Hashim, 2020). Some of these studies also show positive learner responses to technology-assisted instruction (Andiappan et al., 2022; Zakaria & Hashim, 2020). These tools have been supported the teachers in making their classroom more engaging and their teaching learning environment useful and sustainable.

The tools are, however, only the means not the ends. Their effective use depends on how teachers choose and apply these resources. The schools these days are investing too much in digital resources. They simply seem as if they are collecting digital resources for their schools. Aldhafeeri and Alotaibi (2023) suggest that schools should move beyond collecting the digital tools in classrooms. They should call for "*sustainable digital shifting*", a pedagogically driven approach to technology integration. Teachers cannot take a random tool and expect to get their success. They need to select such tools and resources that fit their lesson goals. This process of selecting the right tool can be difficult in different socio-educational contexts. According to Dhakal (2025) there is a gap in understanding how Nepalese teachers

use their digital literacy to integrate technology in varied educational settings in their low-resource technological environments.

All the research above is common as they seek out information from the perception of achievement in language learning, emphasising student perspective. This study, however, focuses on teachers' daily practices rather than students' use of technology. It looks at how secondary English teachers in Nepalese private schools use digital resources in their classrooms dealing with the strategies they adopt and the challenges they face. It also examines how teachers choose, improvise, and make use of available digital resources for classroom use. The findings provide practical insights into the kinds of technological and pedagogical support that teachers may need in local contexts.

Statement of Problem

The Problem

Classroom technology has moved from a supplementary resource to an important part of teaching. It creates new possibilities for instructional design and student engagement. At the same time, educational technology has expanded beyond visible frontend display hardware, such as projectors and smartboards. It now also includes digital resources such as generative artificial intelligence and Large Language Models (LLMs). However, the availability of these tools does not guarantee effective classroom use. In some schools, investment in hardware is not matched by sufficient pedagogical support. Teachers may therefore rely on personal devices and informal strategies to use technology in their teaching.

The Gap

Digital tools are increasingly common, previous research has failed to explain how English language teachers use them in their everyday classroom practice. The current studies in technology integration show that the public schools experience low integration because of infrastructure problems in these schools (Adhikari 2021; Teo et al., 2019). Private schools have been given less attention in contemporary research for various reason. In these schools. Access to digital resources may be greater but effective use can still be difficult. Teachers sometimes fear the digital resources because they doubt their competence in the use of technology. They also fear because the use of technology might impact their daily routine and curriculum weightage as they need to complete the assigned course within the allotted time of the academic

year (Adhikari, 2023). There is still a limited understanding of the preparation and adaptation work teachers carry out before digital resources reach the classroom, particularly when direct display infrastructure is unavailable.

The Consequence

This gap makes it difficult to understand how teachers turn available digital resources into usable classroom materials and activities. It also leaves less visible aspects of technology integration, including backend digital curation, digital-to-analogue mediation, and human-in-the-loop decision-making, insufficiently understood. Without attention to these processes, technology integration may focus too much on hardware while overlooking the teachers' work of selecting, adapting, verifying, and mediating digital resources. This study therefore examines how secondary English language teachers in Nepal manage these processes in classrooms with limited direct display infrastructure. It considers both established digital tools and newer resources such as generative artificial intelligence.

Purpose of the Study

The main purpose of this research is to explore how secondary English teachers in Nepal use technological resources in their classroom practice. More specifically, the study examines the strategies teachers use to integrate technology, the challenges they encounter, and how they select, evaluate, adapt, and mediate digital resources for classroom use. It also examines the role or teachers' judgement in this process, including their use of emerging technologies such as generative artificial intelligence.

Research Questions

To address the gap, this study is guided by two central research questions:

RQ1 How do secondary English teachers use technological resources in their teaching activities?

RQ2 What challenges and educational value do teachers experience when using technology in their classroom?

Delimitation of Study

This research focuses on secondary-level English teachers in Nepalese private schools. By looking at private institutions – where digital resources are typically more accessible than they are in public schools – the study shifts the analytical focus away from infrastructural shortages and toward actual teaching practice. Geographically,

the fieldwork is limited to Ratnanagar to allow sustained, in-depth ethnographic observation.

Methodologically, this study depends on a qualitative ethnographic framework. Without aiming for broader generalization across Nepal, the study seeks to capture the everyday realities of the selected classrooms. Finally, participants were chosen through purposive sampling. Educators with established experience in technology integration were selected to ensure that the data reflected meaningful classroom application. Data collection was limited to participant observations, semi-structured interviews, and field notes to support triangulation and to increase the trustworthiness of the findings.

Structure of the Research

This dissertation is organized into seven chapters, each opening with an introduction and ending with a summary that connects to the next section.

Chapter I: Introduction begins with the foundation of the study with an autobiographical impetus followed by background and rationale. It explains the problem statement using a compact problem-gap-consequence structure, followed by the research purpose. Finally, the chapter closes with two guiding questions, delimitations, and the contextual scope.

Chapter II: The second chapter synthesizes four pillars of literature review, theoretical, thematic, policy, and empirical literature. Grounded in Albert Bandura's Social Learning Theory (1977), it formalizes the conceptual boundaries of *backend digital curation*, identifies core research gaps, and introduces the study's three-layer *Digital-to-Analogue Mediation Framework.*

Chapter III: The third chapter on concerns with the interpretivist ethnographic design under its research methodology. It continues with the philosophical foundations and purposive participant selection from two private schools. It then, follows data collection strategies and qualitative content analysis concluding with trustworthiness standards and AI data governance.

Chapter IV: The fourth chapter describes Ethnographic Context and Case Profiles of the field setting in Ratnanagar Municipality. It presents the unprojected classroom environments of two schools under the pseudonym of Grandee Secondary School and Northern Star Secondary School, including their anonymised English language educators.

Chapter V: The fifth chapter answers Research Question 1 (RQ1) by looking at teachers' daily classroom routines. It uses a three-part model to break down this work into backend teacher preparation, analogue classroom delivery, and direct student technology use.

Chapter VI: The sixth chapter answers Research Question 2 (RQ2) by looking at the material constraints and. It highlights *human-in-the-loop* teaching as a teacher-led cognitive filter based on SLT. The chapter concludes with a matrix comparing the findings across both the schools.

Chapter VII: The final chapter synthesizes the core findings to the research questions. It explains what these findings mean for theory, notes the limitation of the study, and offers the researcher's reflection based on the findings.

Chapter Summary

This opening chapter builds the background for the use of technology in English Language Teaching (ELT). It begins with a personal narrative tracing the shift from traditional teaching to post-pandemic digital habits. It also highlights the move towards "*backend digital curation*" and practical classroom value. Then, the chapter addresses the practical hurdles educators face in everyday practice. Following this, the chapter outlines the rationale and problem statement. Then, it identifies a clear gap in the "*digital curation practices*" of secondary English teachers in Nepalese private schools. It then sets out the study's central purpose, presents its two guiding research questions, and concludes with a structural overview of the dissertation. This foundation leads directly into Chapter II, which synthesizes the theoretical, policy, and empirical literature underpinning the inquiry.

CHAPTER II
LITERATURE REVIEW

The word *technology* comes from the Greek term *tekhnologia*. In Greek language *tekhnē* means art or craft and *logia* refers to systematic treatment. Looking at this etymology, we can conclude that *technology* is an art or craft that helps a human to undergo a systematic treatment of his activities. In other words, it makes the teachers' task easier by making a classroom engaging and fruitful. However, in modern times, technology is defined as the practical application of scientific knowledge to human life to shape the human environment (Encyclopaedia Britannica, 2026). In education today, technology is understood as a collection of digital tools, resources, and teaching methods designed to support learning and engage students (Todino, 2025). Rather than just a collection of devices, classroom technology is a deliberate instructional craft. To situate this study, this chapter reviews the existing literature across four key dimensions – theoretical, thematic, policy, and empirical. It starts with the theoretical lens guiding this research. Then, it outlines thematic practices and national policies. Finally, a review of empirical studies relates to current research gaps, and the chapter presents the conceptual framework of this inquiry.

Theoretical Review

When we look at the post-pandemic era, it is evident that digital tools have distinctly changed modern education, bringing forth both opportunities and hurdles. Technology has been a boon for educators and a problem when the teachers use it without care owing to the lack in the educators' digital literacy. We know that technology can bring in a vast pool of resources to support education. However, it also creates challenges for educators who lack sufficient digital literacy, confidence to use them, and support of the institutions they are tied with. Hence, it is necessary to understand how teachers develop the skills to overcome these obstacles for effective digital integration. To frame this process, I use Albert Bandura's SLT to see how English language teachers learn to integrate classroom technology. This section begins with a discussion of the basic principles of SLT proposed by Bandura (1977). The chapter then looks at how these ideas apply to technology adoption and language learning. Finally, it concludes by discussing what a social-behavioural approach means for modern ELT, particularly during periods of digital transition.

Social Learning Theory

Bandura's SLT shifts the focus of learning away from isolated internal processing and onto social interaction. Central to this view is observational learning (Bandura, 1977). Watching a peer or mentor is only the first step; learners actively process behaviours, weigh consequences, and internalize those insights to direct future actions (Bandura, 1986). Beyond observation, SLT relies heavily on self-efficacy – the personal belief in one's ability to achieve a goal (Bandura, 1977) – as well as cooperative frameworks that foster mutual responsibility (Johnson & Johnson, 1999). When teachers tackle professional hurdles together, this collaborative momentum builds the self-efficacy needed to sustain long-term change.

Bandura's framework, traditionally confined to human-to-human dynamics, requires a broader application in contemporary educational settings. For English language teachers functioning as "digital-to-analogue mediators," generative artificial intelligence enters this framework not as a human social model but as a mediational and cognitive resource within the teacher's social learning environment. When educators engage in continuous AI prompting and the curation of digital materials, they are essentially practising a modern form of observational learning. The AI's output serves as a cognitive template that the teacher internalizes, refines, and translates into teaching and learning practice. Viewing this human-AI interaction through the lens of SLT (Bandura, 1977) helps explain how teachers build professional self-efficacy, even when facing several infrastructural challenges.

Social Learning Theory and Technology Integration

Social Learning Theory explains how educators learn and improve digital skills in the classroom. Teachers learn to integrate technology through a process that requires three stages -- peer observation, shared problem-solving, and engagement with digital platforms (Ertmer, 2005). For instance, when a teacher watches a friend successfully handle a Learning Management System (LMS) or a digital assessment tool, they internalise not just the technical steps but also the teaching-learning strategy and its positive outcomes. This shared experience influences the teacher's cognitive level and builds the observing teacher's self-efficacy (Wang et al., 2004).

This dynamic of SLT also works inside the classroom through constant feedback loop between the teacher, the students, and the digital environment, that Bandura identifies as reciprocal determinism (1977). When teachers use technology

effectively, students observe and respond. This shapes the teacher's next instructional move. Educators learn through direct engagement. They learn by testing digital tools and tracking outcomes. Sometimes they even modify instruction in response to immediate classroom dynamics (Koehler & Mishra, 2009). These social factors change the focus from individual trial and error. It illustrates how schools can build collaborative environments that genuinely support "digital shifting."

Social Learning Theory Implication for Modern ELT Practice

Social Learning Theory offers valuable insights for modern English Language Teaching (ELT), particularly when the instruction is supported by digital technology. Pedagogical frameworks suggest that language acquisition thrives on contextual observation and imitation. Teachers transcend the role of a mere linguistic model in the classroom when they utilize multimedia resources, podcasts, and video conferencing – or curate generative AI-mediated content – to provide students with diverse, authentic models of global English (Chapelle, 2003). The teachers' practice thus moves towards "curating," designing prompts, and using these digital observational experiences to build self-efficacy.

The emphasis on cooperative learning within SLT (Bandura, 1977) can be traced to digital ELT practices. Warschauer (1997) explores the foundational models of computer-mediated communication. These models demonstrate how teachers use collaborative technologies to facilitate peer-to-peer interaction. These digital cooperative spaces allow students to practise language skills by lowering the affective filter (Krashen, 1982). It also enables them to learn from each other's linguistic experimentation.

Social Learning Theory serves as a dual-purpose framework for this ethnographic study. It shows how educators can use digital technology to promote social language learning among their students. It also demonstrates that teachers themselves rely on peer observation, social learning, and each other's support to learn these digital tools and apply them effectively. From these dynamics, educational leaders and policymakers can look beyond supplying only classroom hardware. Instead, they can focus on creating learning systems in which both language proficiency improves, and the teachers' pedagogical practice is sustained efficiently.

Thematic Review

The COVID-19 pandemic brought unprecedented changes across all sectors of human life. The educational section was no exception. Today's school children are digitally fluent, a result of the technology they used during COVID. This requires a profound shift in pedagogical strategies. The educators also need to transform their traditional chalkboard-based responsibilities into those of managers of digital and hybrid learning environments. To navigate this paradigm shift and effectively scaffold the teaching-learning process, teachers and students are increasingly adopting a diverse array of educational technologies. To understand this transition, the following review thematically categorizes current literature into two distinct domains: the established discourse on '*frontend display technology*' and the emergent reality of '*backend digital curation*.'

Practices of Technology in Language Teaching

In recent years, a substantial body of empirical research has investigated the integration of technology within English Language Teaching (ELT). The reviewed literature consistently suggests that technology plays a highly positive role in language acquisition, though its efficacy is heavily contingent upon the teacher's pedagogical choices. They constantly discuss about the use of technology in learner engagement, motivation and achievement.

A primary factor determining success is the specific type of technology deployed and the instructional intent behind it. Research on this indicates that students who used video-based materials for language assessment achieved better outcomes than those relying on traditional audio-only assessments (Sulaiman et al., 2017). Technology's tru value lies in it capacity to generate innovative learning experiences, rather than serving as a mere delivery mechanism. Ammar (2016) showed that teachers' use of reflective e-blogfolios helped the students to get significant improvements in EFL argumentative writing skills. Together, these studies underscore that technology is a powerful asset only when teachers strategically apply their chosen digital tools to specific linguistic tasks, rather than adopting technology for its own sake.

Practices of Technology for an Interactive Classroom

The deliberate incorporation of technology can change the language classroom from a space of passive reception into an interactive learning environment. The

adoption of digital learning system can help the teachers to provide learners with access to authentic materials. They can also facilitate peer-to-peer collaboration, and digital tools can help them track student progress in real-time.

A range of studies show that interactive practices are more effective when teachers use them strategically in their classrooms. Lim and Zhong (2006) identified the benefits of integrating digital tools into English reading classrooms to support the learners. They provide increased exposure as they interact with multimodal texts. Similarly, teachers sometimes use gamification in learning to encourage active participation. Zakaria and Hashim (2020) identified the effectiveness of game-based learning. He found it an effective approach to enhancing motivation in language education. He concluded from his research that game-based assessments are particularly effective at elevating both learner interest and academic achievement in writing courses.

Practices of Technology in Personalizing Learning

Technology supports teachers to personalize the learning experience. It also offers them differentiated language practice that moves beyond basic interaction. Kosmas (2021) found that students memorized terminology more effectively when teachers encouraged them to link unfamiliar vocabulary with physical movements.

The applications and tools from digital environment also allow educators to use the personalised practice outside the physical classroom. Andiappan et al. (2022) found that the classroom instruction became much more effective when the teachers used vlogs in creating a low-anxiety atmosphere for the learners. This approach with the help of digital tools allowed learners to practise speaking more comfortably and identify areas for improvement. Chen and Yeh (2019) showed how flipped classroom models free up in-class time for targeted communicative activities in which teachers assign video lectures for independent study.

While these studies show that personalizing instruction through technology gives learners the targeted practice needed to master complex language skills, they primarily focus on the student experience. Crucially, they offer limited insight into the complex, often invisible ‘backend’ labour that teachers perform to curate these digital-to-analogue experiences.

The Shift Toward Backend Digital Curation

While the preceding literature highlights the transformative potential of technology in the classroom, a sizeable proportion of this research adopts a *"frontend bias."* This discourse prioritizes visible, classroom-based technologies – such as interactive smartboards, multimedia projectors, and computer laboratories – as the primary indicators of digital integration (Teo et al., 2019). Consequently, educational environments lacking this hardware are frequently mischaracterized as "low-tech" or analogue, overlooking the complex digital labour occurring behind the scenes.

In the contemporary post-pandemic era, a paradigm shift is occurring toward *"backend digital curation."* This term refers to the invisible, preparatory labour educators perform outside of classroom contact hours to bridge the gap between digital resources and physical pedagogical delivery. Rather than relying on frontend displays, teachers are increasingly utilizing personal mobile devices and Large Language Models (LLMs) to parse, filter, and adapt global digital content into localized, analogue formats such as whiteboard diagrams, printed handouts, or teaching diaries.

Generative artificial intelligence has become a primary engine for this backend curation. Teachers no longer simply "consume" digital content; they employ prompt-engineering to curate and customize pedagogical materials that fit their students' specific needs. This process of translation – from a digital interface to a physical classroom reality – constitutes a vital, yet under-researched, form of "digital-to-analogue mediation." In resource-constrained settings, this backend curation is not merely a supplementary activity but a critical survival strategy that allows teachers to maintain pedagogical agency despite infrastructural deficits. By recognizing this hidden labour, the field of ELT can better appreciate how teachers sustain technology integration not through the accumulation of hardware, but through the deliberate, strategic curation of digital intelligence.

Conceptual Boundaries of Backend Digital Curation

To establish the theoretical contribution of this study, it is necessary to distinguish "*backend digital curation*" from existing constructs in educational technology. The teachers' invisible work is far more important to overlook in teaching-learning activities. *Backend digital curation* here refers to the invisible behind-the-scenes work of a teacher in preparing a lesson for classroom presentation.

In this process the teacher selects digital resources from the vast pool of internet and generative AI (Godwin-Jones, 2024; Koraishi, 2023). After a careful selection, the teacher adapts and organizes those resources before they ever reach the students (Hanifa et al., 2024).

Distinction from traditional Digital Resource Curation. Traditional digital resource curation typically involves searching, organizing, and archiving digital assets (such as web links, videos, or e-books) for direct access by students or within learning management systems. In contrast, *backend digital curation* refers strictly to the behind-the-scenes cognitive and practical labour teachers perform in non-projected environments, where digital inputs – including generative AI outputs – are evaluated, verified, deconstructed, and transformed into non-digital instructional materials before entering the classroom.

Distinction from Digital Competence. Digital competence assesses a teacher's general technical literacy, tool knowledge, and operational skills. *Backend digital curation* moves beyond static competence; it is a context-bound, lived practice in which technical literacy is operationalized through pedagogical judgement under material constraints.

Distinction from Teacher Agency. While teacher agency refers to an educator's socio-culturally mediated capacity to act and make their personal pedagogical choices, *backend digital curation* is the procedural mechanism by which that agency is exercised in mediating between digital abundance and physical classroom limitations.

Distinction from Instructional Design. Instructional design is a broad framework covering overall unit planning, learning objectives, and assessment strategies. *Backend digital curation* focuses narrowly on the real-time or lesson-bound filtering, prompt negotiation, accuracy verification, and cultural adaptation of digital/AI content prior to classroom delivery.

Policy Review

To understand the policy context of the practices of secondary English teachers in Ratnanagar, it requires an understanding of Nepal's broader policy environment. While these policies aim to modernize the nation's digital infrastructure, they simultaneously place heavy expectations on the education sector to develop digitally fluent citizens. However, these policies often operate under the assumption

of uniform access to infrastructure, frequently overlooking the improvisational, '*backend'* work teachers must perform to realize these digital ambitions.

Teacher's Mandated Role in Technological Practice

Within these evolving policy landscapes, the expected role of the English Language Teaching (ELT) practitioner has shifted significantly. In an English as a Secondary Language (ESL) or English as a Foreign Language (EFL) classroom, national and institutional policies dictate that technology must not be integrated simply for the sake of Information and Communication Technology (ICT) compliance; rather, it must directly serve the development of English language proficiency. A critical dimension of this mandated role involves assessment and evaluation. Teachers are required to systematically evaluate learners across the four core language skills as well as vocabulary and linguistic functions.

Because assigning numerical values and rendering value judgements on complex language production can be highly challenging, modern educational frameworks expect teachers to utilize technology to mediate this process. In the ELT classroom, student assessment works on two distinct levels. Digital tools support teachers to track student progress enabling them to gather real-time performance metrics. These tools also help them maintain overall records that meet curriculum expectations.

Technology and Evaluation in National Policy Documents

The national policy framework directly shapes the parameters of technology integration in classrooms in Nepal. The *National Curriculum Framework for School Education 2019* (Curriculum Development Centre [CDC], 2019) acknowledges the systemic gap between high-level digital goals and daily classroom realities. The framework outlines five primary hurdles facing schools – first, the pedagogical dilemma of whether to teach ICT as a standalone subject or embed it across disciplines, second, the challenge of sequentially adapting technological materials from basic to secondary levels, third, the widespread tendency to conflate basic hardware provision with comprehensive technology integration, fourth, the scale of digitising learning materials across all grades, and finally, a widespread deficit in physical infrastructure and trained personnel (CDC, 2019).

Despite these acknowledged challenges, subsequent policies place a firm pedagogical responsibility on the educator. The *Secondary Curriculum 2021* (CDC,

2021) discusses the use of technology in line with the principles of learning facilitation. The curriculum declares that ICT makes language learning more accessible and autonomous. By using mobile phones and other digital media, learners can deepen their learning in the physical classroom and access materials at any time. The curriculum states that ICT tools should grant learners greater agency over their educational discovery. It also suggests that language teaching becomes profoundly more engaging when digitally connected to the learners' authentic interests and experiences (CDC, 2021).

Critical Synthesis: Policy Intent vs. Pedagogical Reality

While these policy documents provide a vision for a digitally connected educational system, they remain largely silent on the "how" – the day-to-day mechanisms by which teachers, operating in environments with limited resources, achieve these mandates. The policies tend to focus on the frontend (hardware and infrastructure), yet the *Secondary Curriculum 2021* implicitly delegates the responsibility for "learning facilitation" to the teacher. This gap between the state's digital mandate and the limited physical infrastructure for teachers is precisely where the '*backend digital curation*' and generative AI strategies observed in this study emerge. Consequently, these policies inadvertently create a space where the teachers' personal agency and digital resourcefulness become the primary drivers of sustainable integration, rather than state-provided infrastructure.

Empirical Review

The empirical investigation of technology in English Language Teaching (ELT) has evolved rapidly, mirroring the broader digitalization of the educational sector. Over the past two decades, researchers have sought to quantify the impact of digital tools on linguistic acquisition, learner engagement, and academic performance. However, this shift underscores the immense importance of the teacher's role in curating materials from digital media and internet-based resources – a process often overlooked in traditional assessments.

The Frontend Bias: The Dominance of Learner-Centred Metrics

A substantial portion of the empirical literature regarding educational technology focuses primarily on student performance outcomes. Studies have shown how specific digital tools enhance discrete language skills, sometimes by comparing audio and video assessments (Sulaiman et al., 2017).

A range of research studies student perceptions and their engagement with digital tools. Studies in this area evaluate how technology shapes learner motivation and attitudes. They also explore participant feedback and learner engagement within classroom instruction. Ammar (2016) explored how students' underlying "ways of knowing" intersect with their writing development.

The empirical evidence points to the positive contribution of technology in English language classrooms. The benefits vary depending on how teachers incorporate it into their instruction. Lim and Zhong (2006) found that technology increased learners' exposure to engaging materials. Ammar (2016) reported that digital blogfolios were associated with stronger writing performance. Similar patterns emerge in studies of flipped learning. Other studies also suggest that technology can strengthen learners' motivation and encourage greater self-evaluation. It may come through game-based learning (Zakaria & Hashim, 2020), movement-linked digital environments (Kosmas, 2021), or vlog-based activities (Andiappan et al., 2022).

Most of these studies report positive outcomes, but all findings do not point in the same direction. Lim and Zhong (2006) found no statistically significant difference in learning effectiveness between traditional English classes and those supported by Computer-Assisted Language Learning (CALL). A more noticeable limitation emerges from the broader body of literature. Much of the existing research focuses on student participation and achievement, leaving comparatively little attention to the teachers themselves. This is the reason we still know little about teachers. There is an emergency need to explore their lived experiences, pedagogical decisions, and the integration of technology into their everyday classroom practice.

The Missing Perspective: Teacher Practices in Unprojected Classrooms

Teacher-centric research is absent in the context of 'unprojected' or resource-constrained classrooms. Much of the international literature examines technology integration in well-resourced educational settings. However, studies from developing contexts paint a less straightforward picture. Teo et al. (2019) argue that the main obstacle is often not teachers' willingness to use technology but the way it is introduced into schools. In many cases, implementation follows a top-down approach that prioritizes visible hardware, such as smartboards and projectors, while giving comparatively less attention to pedagogical training and ongoing support. This

"hardware myth" shows that digital equipment exists, but it lacks the institutional support to use it effectively (Adhikari, 2021).

Teachers rarely abandon technology altogether even though they must do so in the absence of frontend digital tools. Instead, they adapt it through what this study calls '*backend curation'*. In practice, this often involves teachers using their own mobile devices and Large Language Models (LLMs) to adapt digital resources for face-to-face classroom teaching. Current research largely fails to account for this invisible digital labour, often mislabelling these classrooms as "low-tech" simply because the students are not interacting with a smartboard.

Recent studies focus on the sustainable use of digital resources. Schools need to move away from the emergency teaching methods used during the COVID-19 pandemic (Aldhafeeri & Alotaibi, 2023). It is not easy to achieve this change in Nepal. Dhakal (2025) notes that we still do not fully understand how these teachers use technology in their daily lessons.

This study focuses on this gap by shifting the focus from student achievement to teachers' practices and decision-making. It examines the strategies teachers use to prepare, adapt, and present digital resources in classrooms with limited technological infrastructure. It explores the shift from visible classroom technology to the less visible digital work that occurs before teaching – a process described in this study as '*backend digital curation'*. Through this perspective, secondary English teachers in Ratnanagar emerge not simply as implementers of technology policy but as professional who continually adapt digital resources to the realities of their classrooms.

Gap Analysis

Recent systematic reviews collectively point to an important gap in the current ELT literature. They often study important aspects of education, such as assessment, learning materials, syllabus development, and teaching methods. This suggests that the field remains fragmented. This widespread absence of detailed, practice-level research extends to the specific realities of technology integration in the Global South.

The empirical studies in local context, such as that of Adhikari (2021), show that a gap persists between digital policy and classroom practice. Current research in the Nepalese context frequently finds the limited use of technology to be the result of structural deficits. They could be listed as a lack of teacher training, school

administrators' misunderstanding of digital benefits, and persistent underfunding for hardware maintenance. While these studies accurately describe the "why" behind the lack of frontend infrastructure, they often fail to explore the "how" the teachers can bypass these barriers to achieve their pedagogical goals.

This creates an ever present "*frontend bias*" in the existing literature. Most studies conceptualize the teacher as a passive actor in a hardware-deficient environment, overlooking the educator's cognitive agency. The current body of research largely fails to address how, in the absence of institutional "smart" infrastructure, teachers utilize personal mobile devices and Generative AI to curate, restructure, and adapt digital content into analogue classroom materials.

As a result, there is a profound disconnect between the pervasiveness of digital intelligence in society and its use in English-language classrooms. English language learners in developing countries are currently viewed through a deficit lens, missing the potential of technology simply because the research has not yet accounted for the 'backend' digital labour of their teachers. Consequently, this research needs to pivot away from hardware-centric metrics and investigate technology practice from the language teachers' perspective: specifically, how teachers engage in AI-mediated curation to navigate and overcome infrastructural deficits in modern classrooms.

Conceptual Framework

To guide this study, I have developed a conceptual framework that maps the intersection between policy mandates, institutional constraints, and individual teacher agency. As illustrated in the theoretical and empirical review, technology integration in the Nepalese context is often hindered by a *frontend bias* – the assumption that success is defined by hardware availability. This framework proposes a three-stage model of digital integration and explicitly defines the explanatory relationships, represented by the directional arrows in the diagram, while clarifying the research's empirical boundaries.

Layer 1: Macro-Context (The Environment) covers national policy ambitions, such as the *Digital Nepal Framework,* alongside tangible infrastructural deficits faced by secondary teachers, including unprojected classrooms. The downward arrow represents the Drivers for Adaptation. It shows how the systemic friction between digital mandates and hardware limitations actively compels teachers to adapt their pedagogical routines rather than abandon technology.

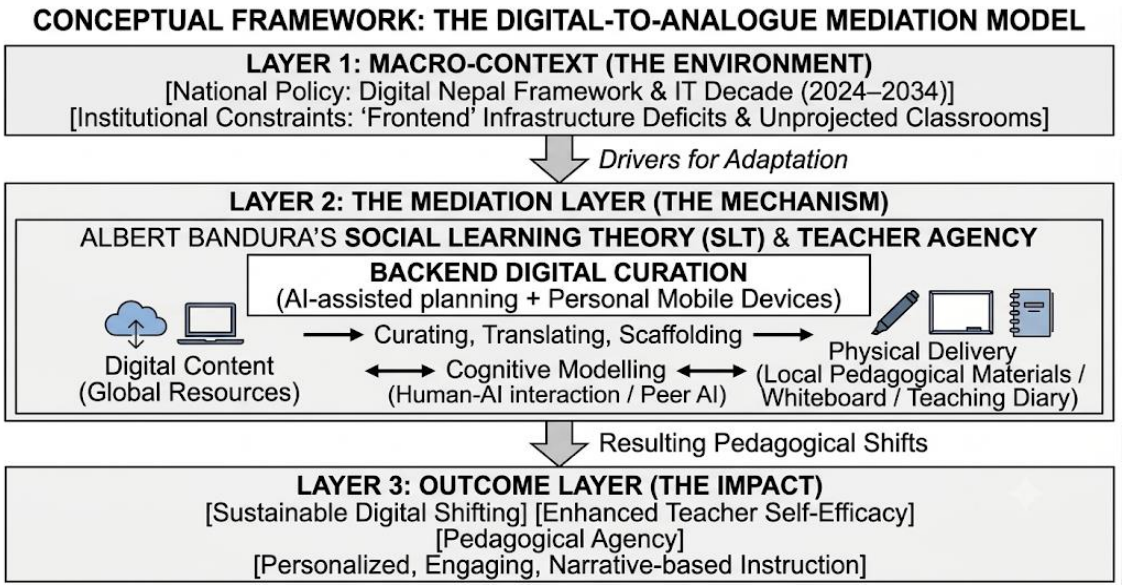
Second, Layer 2: The Mediation Layer (The Mechanism) identifies the teachers' critical role as active curators. Through the lens of Albert Bandura's SLT (Bandura, 1977), the framework posits that teachers engage in '*backend digital curation*'. Crucially, Generative AI is treated here not as a direct 'social' actor, but strictly as a mediational and cognitive resource within the teacher's social-learning environment. The internal horizontal arrows in this layer map the curation workflow: teachers ingest *Global Digital Content* via personal devices, engage in *Cognitive Modelling* with AI to verify and scaffold information, and move through *Curating, Translating, and Scaffolding* to achieve *Physical Delivery,* thereby transforming digital inputs into localized pedagogical materials for analogue tools. The downward arrow connecting Layer 2 to Layer 3 represents the Resulting Pedagogical Shifts, demonstrating how behind-the-scenes cognitive filtering directly shapes the analogue instructional methods observed in the physical classroom.

Finally, Layer 3: Outcome Layer (The Impact) shifts the focus from simple student performance metrics to the teachers' developing self-efficacy and pedagogical agency. Through the SLT principle of reciprocal interaction (Bandura, 1977), the mastery experience of successfully mediating the digital-to-analogue divide directly reinforces teachers' professional confidence. This framework suggests that sustainable digital shifts in resource-constrained settings are driven not by state-provided hardware but by the teachers' ability to mediate this divide socially and intellectually.

To maintain analytical rigour, the elements in Layer 1 and Layer 2 are examined empirically through policy document analysis, classroom observations, semi-structured interviews, and artifact collection. Conversely, the outcomes in Layer 3 are empirically bounded to the teachers' reported perceptions of self-efficacy and educational value, explicitly acknowledging direct student learning outcomes are not measured in this study.

Figure 1

The Digital-to-Analogue Mediation Framework



Chapter Summary

This chapter provides a comprehensive review of the theoretical, thematic, policy, and empirical literature surrounding technology integration in English Language Teaching (ELT). It first establishes the framework for investigating teachers as digital-to-analogue mediators. Theoretical inquiry grounds the study in SLT (Bandura, 1977), qualifying Generative AI as a cognitive and mediational resource – rather than a direct human social model – that fosters teacher self-efficacy through reciprocal determinism and cognitive rehearsal. Thematically, the review contrasts the fields' prevailing '*frontend bias*,' which measures technology integration through visible classroom hardware like projectors and smartboards against the emergent reality of '*backend digital curation*,' in which educators perform invisible, preparatory digital labour on personal devices to adapt content into physical classroom materials. Similarly, the policy review highlights systemic friction within Nepal's educational landscape. Existing research remains dominated by student-centred performance metrics and hardware availability, leaving a critical gap in resource-constrained, 'unprojected' classrooms. This establishes the '*Digital-to-Analogue Mediation Framework*' and maps how backend curation transforms digital intelligence into analogue instruction, for teacher self-efficacy and pedagogical agency in resource-constrained ELT environments.

CHAPTER III
RESEARCH METHODOLOGY

This first lays down the philosophical foundations shaping the research. It discusses its ontological, epistemological, and axiological positions. Then, it describes the interpretivist paradigm, the ethnographic research method, and the research design used to investigate the phenomenon. The chapter also presents the information collection strategies, the procedures for data analysis, and interpretation. It concludes with the measures taken to ensure trustworthiness and ethical conduct throughout the study.

Philosophical Consideration

Philosophical assumptions actively shape how ethnographic researchers understand and investigate a community. Ethnographic inquiry depends on two schools of thought – idealist and materialist, each offering different frameworks for interpreting social life. An idealist perspective treats culture as a coherent system of shared meanings, whereas the materialist perspective prioritizes observable practices and their underlying material conditions. Within this study, these material conditions specifically include the limitations of unprojected classrooms, and the digital strategies teachers develop in response to them. Recognizing these different perspectives also requires the researcher to consider both emic and etic viewpoints when interpreting participant experiences (Fetterman, 2010)

The emic perspective, also known as the insider's or native's perspective of reality, is central to most ethnographic research. While the native perception may not perfectly reflect objective reality, it allows the researcher to understand why community members behave as they do, facilitating the recognition of multiple local realities (Fetterman, 2010). In contrast, the etic perspective reflects the researcher's analytical viewpoint rather than the participants'. Although some phenomenological ethnographers focus primarily on participant interpretations, a materialist approach demands that these interpretations be firmly linked to broader, observable social conditions (Fetterman, 2010). The following sections detail how these specific philosophical positions are adopted within the current research design.

Ontology

This study adopts a relativist ontological position, asserting that individuals experience reality differently based on their social and material contexts (Fetterman, 2010). In the context of this research, teachers' experiences of technology are treated as uniform. Each participant constructs meaning through everyday classroom practice, actively working within the opportunities and constraints of their school environment. These constructed realities extend across both the less visible digital work of '*backend digital curation*' and the observable practices of face-to-face classroom teaching.

Epistemology

This study adopts a constructivist epistemological stance in which knowledge develops through active interaction between the researcher and the participants. Teachers' own accounts of their classroom experiences, combined with ongoing fieldwork observations, generate this understanding. While participants provide emic perspectives on their everyday practice, the researcher interprets these accounts through an etic analytical lens to build a broader understanding of technology integration (Fetterman, 2010).

Axiology

Qualitative inquiry inherently reflects the researcher's own values and experiences. This study does not pretend to be completely neutral. The researcher constantly reflects on his own views. This helps to determine whether personal beliefs affect how data is collected or understood. The research does not judge the technological tools the teachers choose. It remains neutral on how the teachers organize digital materials behind the scenes or use artificial intelligence. The study does not label these choices as simply 'good' or 'bad.' Instead, it tries to understand how teachers use these tools in their own specific schools and classrooms. This ongoing reflexive process strengthens the credibility and trustworthiness of the study.

Research Paradigm

Interpretivism

This research operates within an interpretivist paradigm, establishing a distinct materialist orientation toward ethnographic fieldwork. This material context encompasses both the physical conditions of the classroom and the less visible spaces of '*backend*' lesson preparation. These combined environments actively shape teachers' experiences. A deep understanding of these realities therefore demands

close engagement with the participants and careful interpretation of their everyday practices.

Ethnography: A Research Method

Ethnography places the researcher at the centre of the inquiry as the primary instrument for both data collection and analysis. The ethnographer bypasses distant observations and directly enters the social setting to understand everyday practices within their natural context. Ethnographic research generally follows either a materialistic or an ideational perspective (Fetterman, 2010). Ethnography relies heavily on participant observation, with the primary aim being to obtain as insider view of aspects of people's everyday lives (Willig, 2013). The materialistic perspective – advanced by scholars such as Harris (1968), Murphy and Margolis (1995), O'Reilly (2008), and Ross (1980) – views culture as the sum of a social group's observable patterns of behaviours, customs, and daily routines operating under real-world constraints. Ethnographic researchers focus on specific cultural practices and the meanings these hold for the participants involved (Willig, 2013). An ideational perspective, represented by Strauss and Quinn (1997), instead defines culture through the shared ideas, beliefs, and knowledge that typify a group. This study adopts a materialistic approach to examine how teachers actively translate their largely unseen digital preparation – including AI-assisted content generation – into the analogue practices of everyday classroom teaching in unprojected learning environments.

Research Design

The focal community for this ethnographic research is the community of secondary-level English teachers. I conducted the fieldwork in the natural setting of the schools, treating the environment as a blend of the physical classroom and the backend spaces used for lesson planning. This approach enabled direct observation of the participants and their behaviours, explicitly considering "all the real-world incentives and constraints" they face (Fetterman, 2010, p. 33). I purposefully selected the community of English teachers within my own local vicinity of Ratnanagar municipality. This familiar local context allowed me to efficiently establish rapport, earn the participant trust, and study the phenomenon in a truly native environment.

Participant selection combined systematic elimination with purposeful inclusion (Fetterman, 2010). The initial broader population consisted of twenty-five

secondary schools (16 private and nine public) within the Ratnanagar municipality. An initial screening criterion required schools to offer Grades 11 and 12. This requirement reduced the initial pool to nine schools (six private and three public). The study was limited to locations within a 2 – 4 kilometer radius of the researcher's home. This selection process made regular observation practical throughout the fieldwork. This process narrowed the sample area to five schools (three private and two public). Then public schools were eliminated to maintain a strict focus on the private-sector environments. Although my own school met the geographical criterion as a private institution, I excluded it from the study to minimize potential bias and avoid conflicts of interest. These screening steps resulted in two eligible private schools. One English teacher from each of these two schools was selected. This resulted in a primary participant pool of two educators for in-depth ethnographic immersion.

Information Collection Strategies and Tools

Fieldwork begins with entering the target community. Introduction by an existing member often provides the most effective access (Fetterman, 2010). While intermediaries sometimes facilitate initial entry, the researcher bears the sole responsibility for building and maintaining the trust necessary for authentic data collection. To establish this foundational trust, the entry and immersion phase took place well before the observations and interviews. During this period, I regularly visited both participating schools during lunch breaks and teachers' leisure periods to immerse myself in the daily rhythms of the students and teachers. Chatting with the students during lunch break gave them confidence in sharing what they learned and what they felt during the classroom hours.

There are several complementary strategies in ethnographic information collection. Participant observation is the primary tool that requires an ethnographer to immerse themselves in the target culture over an extended period (Fetterman, 2010). Interviews provide another important source of information. Interviews can take various forms – structured, semi-structured, informal, and retrospective – though in practice, these forms frequently overlap. These dialogues enable the ethnographer to adapt quickly and understand the subcultural connotations of the language perceived by the participants (Fetterman, 2010).

This research primarily employed participant observation, semi-structured interviews, and the collection of digital and physical artifacts, including AI-generated texts and modified lesson plans. Building on the rapport established during the immersion phase, the formal observations remained overt – with respondents fully aware of my role – and I systematically recorded this observational data in field notes. To maintain ethnographic rigour, these notes were separated into substantive descriptions of classroom events, methodological reflections on my presence in the field, and emerging analytical patterns (Willig, 2013).

Immediately following each classroom observation, I conducted semi-structured interviews with the respective teachers. In these sessions I explored their professional backgrounds, teaching strategies, hardware constraints, and specific uses of Large Language Models (LLMs) for structuring thematic content. I used a digital audio device to capture the interviews, which I subsequently transcribed using a denaturalized transcription technique to prioritize and preserve the pure informational content of the dialogue.

Table 1

Summary of Ethnographic Fieldwork

Phase	Date	Participant	Activity / Purpose
Entry and Immersion	August – October 2025	Teachers and Students of both the participating schools	Regular Visits during lunch breaks and teachers' leisure period for immersion with students and developing trust from participants.
Observation	October 13, 2025	Ramesh Sharma	Observed Grade 12 lesson on "Relative Clauses" to capture technology integration in classroom.
	October 15, 2025	Dinesh Ghimire	Observed Grade 11 lesson "The Wish" to see the use of a teaching diary as an analogue bridge.
Interview	October 13, 2025	Ramesh Sharma	Semi-structured interview was taken for professional background, and use of LLM for lesson preparation
	October 15, 2025	Dinesh Ghimire	Semi-structured interview was taken to find out preparation strategies,

	hardware constraints, and the use of Generative AI for structuring thematic content.

Analysis and Interpretation

According to Fetterman (2010), ethnographic research is a continuous, rigorous process requiring the researcher to remain reflexive about their own assumptions. Analysis of the collected data begins with triangulation, which Fetterman identifies as "at the heart of ethnographic validity" (p. 94). By comparing data from different sources and levels, such as field observations, interview transcripts, and collected artifacts, the ethnographer enhances the accuracy of the findings; any conflicting results prompt further data collection to reconcile discrepancies (Fetterman, 2010). However, recent methodological frameworks emphasize that triangulation alone can sometimes be overly tethered to post-positivist attempts to find a single "objective" truth. Triangulation checked the data across different sources. Crystallization built a rich and layered view of the teachers' experiences. Together, these methods made the study more credible, rigorous and trustworthy (Morgan, 2024).

After the validation, I analysed the field notes and interview transcripts using qualitative content analysis. Hsieh and Shannon (2005) divide content analysis into three main types: conventional, directed, and summative. This study used the summative approach. It looks past simple word counts to uncover deeper meanings and hidden context. The analysis began by identifying keywords or themes – such as '*frontend bias*,' '*backend digital curation*,' and '*the analogue bridge*' to prepare the data analysis process. To systematically condense this raw data into valid inferences, the study followed established qualitative content analysis protocols (Komor & Grzyb, 2023), processing the information through five specific steps: data preparation, coding, data reduction, data display, and interpretation.

Illustration of the Data Analysis Process

To ensure analytical transparency and establish a clear qualitative "audit trail" (Nowell et al., 2017), the following example illustrates the coding chain used to transform raw ethnographic data into a central interpretive theme. Providing this step-by-step progression – from initial descriptive codes to analytical categories, and ultimately to a theoretical interpretation – demonstrates how latent meanings are

systematically and rigorously constructed from the participants lived experiences (Willig, 2013). For illustrative purposes, an extract from the semi-structured interview with Mr. Dinesh Ghimire is presented below.

Raw Data (Interview Extract)

> *"I use my mobile phone for ChatGPT. It helps me to verify my prior knowledge and look up emerging trends in teaching… I generate the plot summaries, grammar rules, and sample writings and then copy relevant materials from those materials into my physical diary." (Mr. Dinesh Ghimire)*

Initial Codes

- Use a mobile phone for ChatGPT
- Using ChatGPT for plot summaries, grammar rules, and sample writings
- Transcribing digital output into a physical diary

Categories

- Hardware adaptation: *use of a personal mobile phone for lesson preparation.*
- Digital Curation: *Observation of all the information but selection of only appropriate instructional material.*
- Analogue Translation: *Move data from digital medium to physical diary.*

Theme

- Backend Digital Curation and Analogue Bridging:
    - *Backend Digital Curation is the process in which teachers prepare, verify, and structure content using digital tools behind the scenes, before they deliver it to students through traditional analogue methods.*
    - *Analogue Bridging is the process in which the teachers translate the digital resources into their analogue medium that they can access in classrooms.*

Interpretation (Linking to Theory)

This process illustrates teacher agency and "human-in-the-loop" pedagogy, in which the AI serves as a preparatory scaffold while the teacher retains total control over the final instructional design and classroom delivery.

Quality Standards

To ensure the trustworthiness of the research, the ethnographer's presence must be justifiable and transparent. The goal is to accurately describe the culture without imposing external values, remaining as unobtrusive as possible (Fetterman,

2010). As Willig (2013) emphasizes, qualitative inquiries conducted in naturalistic environments carry high ecological validity, as they examine phenomena within open, dynamic systems without reducing or abstracting context at the point of data collection. This research adhered to established ethnographic principles to meet Lincoln and Guba's established criteria of trustworthiness – credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

Credibility

The study was conducted in the participants' natural school environment. It allowed the findings to reflect their everyday experiences and classroom practices. I explicitly acknowledged my presence as a factor in the educational environment and openly described my relationship with the participants. Credibility was further fortified through data triangulation, member checking – verifying interpretations with the participants, particularly regarding the intent behind their unseen digital preparation strategies (Willig, 2013) – and rigorous epistemological reflexivity about my own biases.

Transferability

Transferability allows readers to determine whether the study's findings are applicable to their own contexts (Lincoln & Guba, 1985). To achieve this, I utilized "thick description," providing rich, detailed narratives of the study's setting, participants, and methods to capture the complexity of the Ratnanagar educational context, specifically its material and technological constraints, to illustrate how the findings are deeply grounded in the data.

Dependability

To ensure dependability, I maintained a comprehensive audit trail (Nowell et al., 2017) of all research activities, including field notes, interview guidelines, transcripts, digital artifacts (such as AI-generated lesson texts). This systematic documentation allows external readers to logically follow how data was collected, analysed, and interpreted over time.

Confirmability

Confirmability ensures that the findings are shaped by the data rather than personal preferences. This was achieved by using systematic summative coding methods, providing direct evidentiary quotes, and demonstrating clear, traceable links between the teachers' backend digital artifacts and their observable classroom

practices to support my claims, and continuously addressing any potential sources of distortion through reflexivity.

Ethical Consideration

Informed consent was obtained from all participants before any data were collected. As Willig (2013) points out, qualitative ethics extend beyond a simple rule-following checklist; they require the researcher to remain "ethically attuned throughout" the entire research process. Throughout the fieldwork, I worked to build professional relationships with the participants while maintaining clear boundaries, recorded observations as accurately as possible, and protected their identities by using pseudonyms in all records and reports. Because this study also examined teachers' use of generative AI, I took additional precautions to safeguard student privacy and maintained transparency by clearly noting whenever AI-assisted tools were used during transcription or data organization. I adhered strictly to the ethical standards required for ethnographic inquiry (Fetterman, 2010). I ensured that I avoided "guilty knowledge," meaning I did not remain silent about any illegal activities. I also avoided "dirty hands." This means I did not take part in any unethical behaviour during my fieldwork. I visited the school repeatedly with clear professional boundaries. This ensured that the research was ethical and trustworthy.

AI-Related Data Governance and Privacy

Avoiding the use of AI completely is sometimes not possible. In this dissertation also I used digital tools to transcribe and organize my data. When sharing the information, I shared only the bare minimum. Sending personal information to Cloud-based AI platforms might create significant risks around privacy, confidentiality, and data storage. Protecting participant data is a major ethical duty in modern qualitative research. For this purpose, I anonymised personal details and sensitive facts before entering them into AI tools. I removed all identifying details from field notes, interview transcripts, and prompts before processing them. Taking these steps kept my use of AI aligned with the basic rules of data protection and research ethics required in qualitative work.

Chapter Summary

This Chapter explores the study's methodological framework. It details the philosophical foundations, research design, and practical strategies employed to investigate the teachers' use of technology. The research falls under the interpretivist

paradigm. It outlines an explicit examination of ontology, epistemology, and axiology, under a materialist ethnographic orientation. The research design shows the systematic selection process of private secondary schools and English teacher participants within the Ratnanagar municipality. The framework concludes by establishing the quality standards – credibility, transferability, dependability, and confirmability – alongside the ethical principles that governed the fieldwork.

CHAPTER IV
ETHNOGRAPHIC CONTEXT AND CASE PROFILES

This chapter details the research settings and participant profiles for this ethnographic inquiry. The chapter links methodological framework in Chapter III to the fieldwork in Ratnanagar Municipality. This section provides the qualitative context necessary to understand how secondary English language teachers integrate technology in their classrooms. In the process it examines the physical classroom environments under the available technological infrastructure to understand the individual pedagogical workflows of two teachers across two private secondary schools. This chapter aims to capture an authentic "insider view" of their daily professional lives. Ultimately, the contextual details establish the empirical foundation for the thematic analysis in subsequent chapters, ensuring that the conceptual insights remain firmly grounded in the data and the participants' actual, everyday experiences.

The Ethnographic Context: Research Sites and Participants

Two participating private institutions in Ratnanagar Municipality are anonymized as Grandee Secondary School and Northern Star Secondary School for ethical standards of confidentiality and anonymity (Subedi, 2025). I gave their Grade 11 and 12 English teachers the pseudonyms Ramesh Sharma and Dinesh Ghimire in the same way. Hiding the real names of both people and schools is a basic ethical rule in qualitative fieldwork. It protects participants from any harm if their identities become known (Subedi & Khanal, 2025). Furthermore, anonymization serves an essential analytical and ontological function beyond mere privacy. It transforms highly personal narratives into empirical data and allows the researcher to analyse participants as exemplars of specific theoretical categories (Vainio, 2012). However, beyond their pseudonyms, these sites are distinct and living ecosystems with differing levels of digital infrastructure and spatial arrangement to immerse into as a researcher to collect thick description and ethnographical data.

The Environment of Grandee Secondary School

Grandee Secondary School is a private secondary school with a three-storey concrete building enclosed by a boundary wall with a gated entrance. The school assembly ground is at the centre with the front-facing building at its end. Adjacent to

the school compound is a playground with basketball and volleyball courts. During their breaks, students gather in the assembly area. During ongoing lessons, it remains quiet.

The observed classroom was in the same front-facing academic block. There was a door at the front of the class. The door opened directly to the whiteboard. There were four windows along the rear wall. These windows allowed ample natural light and ventilation. During the observation, there were only thirty-five students. They sat on wooden benches arranged in three columns. There was enough space for the teacher to move between the benches and reach every student when required.

The school had a high-speed internet access via fibre-optic cables. There were other digital teaching facilities, including a projector and a smartboard. These, however, were located mainly in the computer laboratory and were not part of the observed classroom. Classroom lessons relied largely on a whiteboard and marker, while the digital equipment was used more often for teacher training sessions and formal presentations than for routine teaching.

English Teacher at Grandee Secondary English School

With his 30 years' experience in classroom, Mr. Ramesh Sharma is a senior English teacher in Ratnanagar. He began his teaching career long before digital tools became common in schools. This led him to witness profound changes in classroom practice over the years. I noticed that he carried a personal laptop and a mobile phone. Both supported him in his lesson preparation. However, he used neither of them directly during classroom instruction.

Ramesh Sharma explained during the interview that he uses freely available generative AI tools such as Gemini and ChatGPT to prepare lessons. Generative AI helps him in several areas from checking grammar points to exploring alternative ways to explaining difficult topics before class. According to him, these tools have gradually become part of his normal preparation routine.

The classroom itself, however, offered little opportunity to display digital materials. The lack of digital projection media prevented that resources prepared on his laptop from being presented directly to students. Mr. Sharma was frequently referring to his laptop and writing selected explanations, examples, and exercises on the whiteboard during instruction. This indicated that he collected the digital materials

in his laptop screen first, and then he reorganized and simplified them to suit the lesson and the students' level.

Mr. Sharma does not simply transfer digital materials into the classroom. He adapts and reshapes digital materials for his classroom, where conventional classroom tools become the primary means of instruction. His practice illustrates how digital resources can support teaching even when students themselves have little direct access to educational technology during the lessons.

The Environment of Northern Star Secondary School

Northern Star Secondary School is located within a walled compound dominated by a three-storey concrete building. There is a central courtyard surrounded by blocks for academic lessons. The buildings and central courtyard created an enclosed layout. This enclosed layout forms the main activity area of the school. Near the entrance, a small bicycle stand provides parking space for students' bicycles. Compared with Grandee Secondary School, however, this area is noticeably smaller.

The courtyard serves several purposes throughout the school day. It is used for the morning and afternoon assemblies and functions as the main recreational space. During my visits, I noticed two metal posts at the centre of the courtyard. These metal posts were possibly used as the supports for basketball and volleyball nets during sporting activities. Those two metal posts at the centre of the courtyard in Northern Star Secondary School served dual purpose for both the games basketball and volleyball. Northern Stars Secondary School relies on this shared space for both formal school gatherings and sports activities as it does not have a separate playground as it was found in Grandee Secondary School.

The classrooms are housed in the main concrete building and are slightly smaller than those observed at Grandee Secondary School. Their layout varies by floor level. Classrooms on the ground floor have a single entrance beside the whiteboard and four windows along the rear wall, whereas those on the upper floors include additional front-facing windows that allow more natural light and ventilation.

The observed Grade 11 classroom was on an upper floor of the building. There were twenty-nine students in the classroom. This was smaller than the classroom in Grandee Secondary School. The classroom was spacious for the students on their

benches and enough space for the teacher to move around. The class was also well-ventilated for daily teaching learning activities.

This school also had good internet access across the school compound. I could not see the digital resources such as a projector or a smartboard. During the interview, the teacher informed that the school does not have these display devices. Personally, he had a smartphone that supported him during lesson preparation. The observed lessons were presented using conventional classroom resources, with the whiteboard remaining the principal display mechanism.

English Teacher at Northern Star Secondary School

Mr. Dinesh Ghimire has an experience of 19 years of teaching English in secondary level. Like Mr. Sharma, Mr Ghimire also began his career before the widespread use of digital technology following the COVID-19 pandemic. In the classroom, he did not use a laptop. During the class, he was and frequently referring to his teaching diary in which he seemed to have collected some notes which he gradually transferred to the whiteboard. During the interview, he informed me that his smartphone was his primary digital resource for lesson preparation.

During his interview, Mr. Ghimire explained that he uses the free version of ChatGPT to prepare lessons. He described using it to verify subject content, keep himself up to date on educational developments, prepare writing activities, and produce summaries of literary texts. According to him, these activities are completed before entering the classroom and form part of his normal lesson preparation.

The classroom itself offered no facilities for displaying digital materials. With simply the whiteboard as instructional material, Mr. Ghimire used his personal handwritten diary in which he recorded selected ideas, examples, summaries, and teaching notes after carefully reviewing them from his smartphone. This diary was the only resource that he used during his class activities while explaining concepts and thematic ideas on the literature he was teaching.

His practice illustrates a unique way of integrating technology into everyday teaching. Instead of bringing digital devices into classroom instruction, he transformed digital information into handwritten teaching materials that suited the realities of his classroom. In this sense, technology supported his planning and decision-making even though students interacted almost entirely with conventional classroom resources.

Reflection from the Perspective of Social Learning Theory on Material Setting and Teacher Agency

Stepping into the classrooms of Grandee Secondary School and Northern Star Secondary School, my most immediate ethnographic realization was the profound ways in which traditional material infrastructure dictates the rhythm of teaching and learning. As Willig (2013) emphasizes, immersing oneself in "naturally occurring settings" allows the qualitative researcher to understand how environmental realities actively construct human behaviour, rather than merely limiting it. In these low-resourced spaces, the absence of technological tools is not a lack of resources. Instead, it is the defining architectural feature that shapes the entire pedagogical ecosystem, proving that digital integration is always bound by the structural realities of the school (Gorghiu et al., 2025).

Looking at these settings through the lens of SLT (Bandura, 1977), this boundary has significant implications for how students process and internalize knowledge. In highly digitized and affluent educational contexts a learner's attention could often split between the human instructor and a multimedia display. This can sometimes fragment their cognitive focus (Alruwaili & Alasmari, 2025). In the rooms where Mr. Sharma and Mr. Ghimire teach, the physical limitations of the space—the concrete walls, the natural light from the rear windows, and the tight rows of wooden benches—force the locus of attention entirely onto the educator. Without automated visual aids, the teacher becomes the absolute, sole proximal model in the room. Every action Mr. Sharma takes at the whiteboard and every movement Mr. Ghimire makes down the rows of benches becomes a highly visible, embodied behaviour for the students to observe and internalize (Anggreni et al., 2025; Bandura, 1977).

Observing the participants, I realized that understanding their technology integration requires first accepting this physical baseline. Before analysing exactly how they use digital tools, it became clear that any digital intervention here must ultimately pass through the strict physical constraints of the room and the teachers' own physical presence. This ethnographic immersion established that in Ratnanagar's resource-constrained schools, the physical environment does not prevent technology use, but it strictly dictates the terms of its entry, requiring educators to heavily adapt their pedagogical scaffolding to fit the analogue space (Hussein et al., 2025).

Chapter Summary

This chapter details the physical, technological, and procedural contexts of Grandee Secondary School and Northern Star Secondary School. Both schools differ in their institutional infrastructure, ranging from Grandee Secondary School's centralized computer laboratory to Northern Star Secondary School's complete absence of display hardware. Both teachers operate in their unprojected classroom environments. Rather than abandoning digital tools, both teachers gather, adapt and use digital materials mediating them through analogue mechanism. Mr. Ramesh Sharma from Grandee Secondary School utilizes a real-time Laptop-to-Whiteboard mediation model, while Mr. Dinesh Ghimire from Northern Star Secondary School employs an asynchronous Smartphone-to-diary analogue bridge. These distinct qualitative contexts provide concrete empirical grounding for the cross-case analyses of teacher agency, digital curation, and pedagogical value presented in subsequent chapters.

CHAPTER V

TECHNOLOGY INTEGRATION IN ENGLISH LANGUAGE CLASSROOMS

This chapter explains the integration of technology by English Teachers at two private Secondary Schools in Ratnanagar: Grandee Secondary School and Northern Star Secondary School. The chapter addresses the first research question of the study. The observations show that, although classroom technology is limited, both teachers make regular use of digital resources during lesson preparation. Rather than presenting these resources directly to students, they adapt them into teaching materials that fit the realities of their classrooms.

In both classrooms, digital technology is largely absent from the instructional space itself because projectors and other display technologies are not used during everyday lessons. Technology is primarily employed during lesson preparation. In their preparation, teachers interact with generative artificial intelligence using their personal laptops and smartphones. The observations indicate that teachers evaluate and adapt these digital resources before using them into classroom instruction through the whiteboard and other physical teaching materials.

Technology Integration for Pedagogical Scaffolding and Interaction

Technology integration, in contemporary education, means more than simply bringing digital tools into the classroom. Effective technology use goes beyond having new digital tools. It requires rethinking traditional teaching methods to improve how students learn (Gorghiu et al., 2025). Pedagogical scaffolding is the structured support that teachers or tools give to help students bridge learning gaps (Anggreni et al., 2025). Many recent studies look at digital scaffolding, where students use automated prompts and adaptive tools directly on their own devices (Brailas, 2025). However, my classroom observation show a different pattern. Instead of putting technology directly into students' hands, teachers focus on curating digital materials behind the scenes before class begins. This study observes the pedagogical scaffolding and the nature of interaction from the perspective of the teachers when they prepare lesson plan for classroom interaction.

In the participating classrooms, digital resources were used primarily during lesson preparation rather than during direct classroom instruction. This approach can

be understood through Albert Bandura's SLT. While traditional SLT emphasizes learning through observing human models (Bandura, 1977), these teachers use Large Language Models as a cognitive partner. In this study the generative AI acts as a cognitive model that provides instructional resources for the teachers. The teachers select and curate AI-generated content behind the scenes. In this way, the AI provides a backend preparatory scaffold. The teachers then deliver these adapted materials to students through conventional classroom resources such as the whiteboard and teaching diary. This demonstrates a "human-in-the-loop" approach, in which teachers carefully treat and refine the AI-generated content before bringing it into the classroom. The following sections show this process observed in the practices of Mr. Ramesh Sharma and Mr. Dinesh Ghimire.

Ramesh Sharma: The Digital-to-Analogue Mediator

The observation and interview pointed at the fact that Mr. Sharma from Grandee Secondary School served as the "Digital-to-Analogue Mediator." This describes a teacher who actively translates digital information into physical classroom materials. This practice of selecting and curating materials goes in line with Albert Bandura's Social Learning Theory (Bandura, 1977). However, instead of a human model, Generative AI serves as a cognitive partner for the teacher during lesson preparation (Zhai et al., 2026). Teachers interact with this AI model behind the scenes. They use a "human-in-the-loop" approach to evaluate, filter, and curate the raw content received from the Large Language Model before it ever reaches the students, claiming full epistemic responsibility for the instructional material (Davison et al., 2024; Zhai et al., 2026).

The experience of teaching for 30 years in English Language make Mr. Sharma an adept educator for selecting and adapting the materials for his need in the classroom. His experience even before digital technology became common in schools led him to witness profound changes in classroom practice over the years. He carried a personal laptop and a mobile phone in the classroom. However, he rarely used the mobile device during the presentation activity. He solely relied on his laptop. Using his laptop he referred to the materials in the classroom. It shows that technology adoption in resource-constrained environments relies heavily on personal hardware available to the educator (Gorghiu et al., 2025). However, the laptop was not used in

his classroom for the disposal of the students as it supported him in having the full attention of his students.

Mr. Sharma used freely available generative AI tools such as Gemini and ChatGPT to prepare lessons. These tools helped him in several areas from checking grammar points to exploring alternative ways to explaining difficult topics (Ali et al., 2023). These tools have gradually become part of his normal preparation routine. Using these tools, he has improved his teaching learning activities for better learning achievement.

We can look at his lesson on relative clauses for illustrating the curation process that he undertook. When the AI generated sentence structures, Mr. Sharma did not simply copy them. As he explained, he filters the AI output through his thirty years of teaching experience to make sure the vocabulary and context match the students' level (Hussein et al., 2025). He treats the AI output as raw material. For example, the AI provided a general sentence for a defining relative clause: "People who work hard in life get better results." Mr. Sharma adapted this sentence into his school context writing on the whiteboard: "The students who practise grammar daily tend to perform better in final exams."

Similarly, for a non-defining relative clause, the AI generated a complex foreign example: "Big Ben, which stands at the north end of the Houses of Parliament, undergoes regular maintenance to keep its historical clock running accurately." Recognizing that a local example would connect better with his students and reduce their extraneous cognitive load (Alruwaili & Alasmari, 2025), he changed it to: "Mount Everest, which attracts thousands of climbers annually, is facing severe ecological challenges." This contextual adaptation is a hallmark of responsive pedagogical scaffolding (Anggreni et al., 2025).

The classroom itself offered little opportunity to display digital materials. As noted during the observation, there was no active screen projection system or smartboard available in the room. The resources that he had prepared on his laptop would be inaccessible to the students in the classroom because of the absence of display technology in the classroom. The laptop was available in the classroom, but the small screen of the laptop could not be accessible to all the students in the classroom. For this he chose to manually transcribe the selected grammar rules and examples onto the standard physical whiteboard. The students did not possess

personal devices to distract them from the visible whiteboard content in front of them. This made it possible for zero digital distractions among the students during the lesson. It allowed the teacher to easily manage their attention to the materials that he transferred to the whiteboard and make the classroom more engaging (Alruwaili & Alasmari, 2025). Instead of reproducing the raw digital material exactly as it appeared online, Mr. Sharma reorganized it to suit traditional whiteboard delivery and meet the level of the students in his classroom.

From the perspective of SLT, these observations suggest that Mr. Sharma does not simply transfer raw digital materials into the classroom. Instead, it perfectly illustrates SLT in a modern context. Generative AI acts as his cognitive partner that provides him with initial examples and lesson structures. Acting as the "human-in-the-loop," Mr. Sharma observes, evaluates, and reshapes this digital knowledge for his traditional "transcribe-and-talk" delivery (Zhai et al., 2026). His practice shows that the lack of classroom projection hardware does not stop technology integration. Rather, it shifts the use of technology entirely to the teachers' background preparation (Gorghiu et al., 2025). This proves that digital resources can deeply support teaching, even when students have zero direct interaction with digital devices during the lesson.

Dinesh Ghimire: The Analogue Bridge

The "Analogue Bridge" describes a teacher who uses a physical medium to transfer AI-generated knowledge into the classroom. Like Mr. Sharma, Mr. Dinesh Ghimire treats Generative AI as a cognitive partner behind the scenes (Bandura, 1977). He serves as a "human-in-the-loop" model to curate digital information and translate it into a traditional format before delivering it to his students. In doing so, he takes full epistemic responsibility for the instructional content (Davison et al., 2024; Zhai et al., 2026).

In Mr. Ghimire's experience of 19 years of teaching English, he has witnessed the widespread use of digital technology following the COVID-19 pandemic and the subsequent physical classrooms that came afterwards. Unlike Mr. Sharma, he did not bring a laptop in the classroom. Instead, I observed him carrying a diary. His frequent interaction over the contents he recorded in the diary made his discussions and storytelling engaging for the students. The selected points he transferred to the whiteboard led the literary discussions into the thematic contents of the story he was teaching. During the interview, he informed me that his smartphone was his primary

digital resource for lesson preparation that helped his check the thematic points, and literature summary from the generative AI. The resources that he collected from the generative AI was carefully curated into his physically diary before he presented them in the classroom. From the perspective of SLT, it show how educators in resource-constrained environments use their personal mobile devices to bridge institutional infrastructure gaps (Gorghiu et al., 2025).

Mr. Ghimire explained that he uses the free version of ChatGPT to prepare lessons. He uses it to verify subject content and adapt them to meet the context and level of their students curating it to the culture of the students in his classroom (Ali et al., 2023). These activities are completed before entering the classroom and form part of his normal lesson preparation. To illustrate this process, we can look at his literature lesson on Roald Dahl's short story, "The Wish". Besides using the original story from the textbook, he used ChatGPT as a cognitive partner to distil the complex themes of the story into an easily accessible framework, effectively designing appropriate instructional scaffolding for his learners (Anggreni et al., 2025; Hussein et al., 2025).

The classroom was unprojected due to the absence of display technology. In the absence of digital projection technology, Mr. Ghimire relied on a different strategy. He did not present information directly from his phone, a choice that naturally prevented digital distractions and helped manage the students' extraneous cognitive load (Alruwaili & Alasmari, 2025). Instead, he first reviewed the AI-generated resources and then recorded selected ideas, examples, and teaching notes into his physical diary. For example, he transcribed a highly organized breakdown of the symbols from the story. In his classroom discussion, he referred to the "red-hot lumps of coal" and the "poisonous snakes" to represent prevalent challenges and hidden threats into the course of the character. His handwritten diary remained his principal reference while explaining concepts and guiding class activities, serving as his instructional script (Zhai et al., 2026).

Viewed through Social Learning Theory, Mr. Ghimire's practice shows a distinct way of bringing technology into daily teaching. He never brings digital devices into the classroom. Instead, he acts as a human bridge. He reviews digital content and turns it into handwritten notes that fit his classroom's physical setup. Generative AI works behind the scenes to support his lesson planning and choices

(Hussein et al., 2025). His ethnographic case proves that meaningful technology integration relies on human mediation and pedagogical agency, even when the students interact almost entirely with conventional analogue resources (Davison et al., 2024).

The Analogue Bridge: Tripartite Model of Technology Integration

To eliminate ambiguity about how technology integration occurs without direct student-facing screens, this study introduces the concept of the "Analogue Bridge". The Analogue Bridge explains how a teacher acts as a human-in-the-loop in delivering the raw AI-generated content into the physical classroom. While traditional communicative language teaching heavily relies on in-person interactions rather than digital displays (Tiwari, 2021), the modern teacher now works with generative AI as a cognitive partner before class. They then physically mediate the digital information into traditional teaching materials when they bridge the gap between advanced ICT tools and resource-constrained environments (Paudel, 2020). To explain this process clearly, this study categorizes classroom technology use into three distinct operational tiers: teaching-facing digital preparation, mediated analogue delivery (the Analogue Bridge), and direct student-facing technology use. These tiers are discussed below.

Teacher-Facing Digital Preparation

Teacher-Facing Digital Preparation is the first stage of technology integration. It takes place long before the classroom instruction begins. Teachers first interact directly with resources like generative AI, outside of regular instructional time. From this interaction, they connect with the cognitive resources they come across. Using the prompts, first they source and generate the instructional ideas for their respective classes. Then, they adapt and refine these ideas to make them relevant for the context of their specific classrooms. The teachers increasingly rely on generative AI during their private planning hours to efficiently draft lesson components and reduce their cognitive load before they step into the classroom (Hamdan & Kamsin, 2026). When interacting with it, generative AI serves as a private cognitive partner. For example, the field data shows that both Mr. Sharma and Mr. Ghimire used free generative AI tools – specifically Gemini and ChatGPT – on their personal devices well before their lessons began. They used this offline preparation time to verify their prior knowledge, explore teaching trends, and generate specific materials, such as grammar rules and literary plot summaries, long before they interacted with any students.

The Analogue Bridge (Mediated Analogue Delivery)

The Analogue Bridge is the crucial physical and pedagogical turning point at which curated digital data is translated into traditional analogue formats. This can also be identified as "*mediated analogue delivery*." Educational frameworks in the modern context emphasize the necessity of "human-in-the-loop" mediation when teachers actively review and adapt generative AI outputs to ensure pedagogical relevance before the content reaches the students (Zhai et al., 2026). In the observed classrooms the mediated analogue delivery manifests in two distinct forms in Mr. Ramesh Sharma's Laptop-to-Whiteboard Bridge and Mr. Dinesh Ghimire's Smartphone-to-Diary Bridge. In both the contexts, the teachers remain as a crucial 'human-in-the-loop' mediator in selecting and adapting the content making it relevant for their personal classroom presentation.

The laptop-to-Whiteboard Bridge that was used by Mr. Ramesh Sharma enables rapid, real-time extraction and adaptation of digital text. As observed with Mr. Sharma, this bridge allowed him to take AI-curated grammar rules from his laptop – which he kept open on his podium as a digital reference – and transcribe them directly onto the physical whiteboard during his lesson on relative clauses.

Conversely, the Smartphone-to-Diary Bridge supports offline transcription and pedagogical filtering. Mr. Ghimire demonstrated this by using his smartphone outside of class to source digital material – such as the breakdown of thematic symbols in Roald Dahl's "The Wish" – and filtering that content into his handwritten teaching diary. This physical diary then served as his exact script for classroom delivery, effectively keeping the digital hardware entirely out of the students' view.

Direct Student-Facing Technology Use

Direct Student-facing Technology use refers to the interactive student engagement with digital displays, devices, or software during class time. In the observed classrooms, this tier of technology use was completely absent. As noted during the immersion phase of the fieldwork, strict institutional rules ban students from using mobile devices during school hours. Because the students did not interact with technology directly during the lessons, the observations recorded zero digital distractions in both classrooms.

By identifying the *Analogue Bridge*, this study demonstrates that effective technology integration does not require direct student-facing use of technology. In

place of that, digital tools achieve high pedagogical value through teacher-mediated analogue delivery. The technology supports the teachers behind the scenes, and the teachers deliver that curated knowledge to the students using traditional classroom resources.

Shifting Lenses through Social Learning Theory

To understand the pedagogical adaptations both educators at Grandee and Northern Star Secondary School, their classroom practices can be viewed through SLT. In particular, the concepts of cognitive modelling, observational learning, and teacher self-efficacy help explain how these adaptations take shape. Traditional applications of SLT in educational research focus almost exclusively on visible, front-facing hardware and direct student-teacher modelling. In contrast, the integration patterns in these unprojected Ratnanagar classrooms demonstrate a bi-directional dynamic, in which backend digital curation directly shapes real-time instruction.

In this environment, the modelling process begins long before the opening bell rings. Generative AI serves as a cognitive model for educators. It supports them with a practice increasingly recognized for improving teaching performance (Mulyani et al., 2025). Before they venture into their classrooms, the teachers observe, select and curate materials from the structured linguistic frameworks generated on their laptop screens or mobile devices. For example, Mr. Sharma uses his laptop to check complex sentence structures and grammar rules. Mr. Ghimire uses ChatGPT on his phone to explore literary themes and plot summaries. Working with this digital thinking partner behind the scenes builds their confidence as teachers. It allows both the educators to verify their prior knowledge and confidently structure and strengthen their lessons before class begins (Chiu et al., 2025).

Once they cross the threshold into the physical classroom, the dynamic shifts. The educators take centre stage, manually translating that synthesized digital intelligence into highly visible, behavioural modelling for their students. Through Mr Sharma’s intentional whiteboard transcription of curated grammar rules and Mr. Ghimire’s storytelling supported by his diary, the integration filters the AI’s complex digital materials into human-centric actions. Consequently, even in the absolute absence of hardware in the physical classroom, students can observe and internalize these structured lessons through the traditional analogue tools that their teachers confidently model.

Digital Modelling and the Enhancement of Teacher Self-Efficacy

According to Bandura (1977), self-efficacy is fundamentally a person's belief in their ability to succeed. He argues that people build this confidence by watching others succeed and learning from their problem-solving methods – a process known as observational learning. In the context of these Ratnanagar classrooms, this psychological construct ceases to be merely abstract; it takes on a highly material and visible form, reflecting a reconceptualization of the teacher's professional role in the digital era (Gorghiu et al., 2025). It presents the authoritative yet highly supportive practice of Mr. Sharma's commanding voice when he breaks down complex grammar rules. It also appears when Mr. Ghimire confidently paces through the rows of benches as he commands the room's attention with his storytelling.

The ethnographic observations reveal a compelling shift in how this confidence is built among the instructors. Studies on adoption of digital technology suggest that teachers' pedagogical self-efficacy is enhanced when they actively collaborate with generative AI to verify and curate lesson components before they enter the classroom practice (Chiu et al., 2025). It shows that the teachers use the technology to support their ongoing professional learning and adaptability (Gorghiu et al., 2025). In this study, the primary 'model' reinforcing the educators' efficacy is not a human peer in a staff room. Instead, the model is the silent and glowing interface of generative AI teachers use during their pre-class preparation. This is the time when the teachers act as a tireless conversational partner with generative AI and scaffold the contents that they bring in their classrooms (Ali et al., 2023; Zhai et al., 2026). These teachers engage in a private and digital mentorship in the quiet moments before the assembly bell rings. They observe and curate the highly structured syntactical frameworks and thematic breakdowns generated on their screens.

Mr. Sharma's confidence in delivering real-time whiteboard notes comes directly from his prior preparation of defining and non-defining relative clauses using his cognitive partner. Mr. Ghimire's confident narrative delivery relies on the AI-scaffolded thematic breakdowns that he transcribed into his physical diary when he prepared the lessons with the help of his cognitive partner. This cognitive rehearsal process demonstrably strengthened the teachers' confidence before entering the physical classroom, allowing them to manage their own instructional cognitive load effectively and preserve their mental bandwidth for student engagement (Alruwaili &

Alasmari, 2025). Both teachers began their lessons with greater certainty about the content they intended to teach and how they planned to present it supported by the content they had created and improvised in their classroom. This confirms that when teachers act as the central agents in a "human-in-the-loop" dynamic, generative AI significantly amplifies their professional judgement and pedagogical self-efficacy (Zhai et al., 2026).

Ramesh Sharma and Professional Development

In context of this study, professional development extends beyond formal, state-sponsored workshops. In the context of SLT in relation to this research, professional development is self-directed process of cognitive modelling in which educators actively refine their pedagogical knowledge through daily interaction with digital resources (Bandura, 1977). The educator engages with AI for their routine preparation and constantly interacts with the AI to scaffold their teaching materials. Contemporary studies on EFL educators confirm this shift that demonstrates increasing use of generative AI as a tool for them to support self-directed professional development and lesson planning (Kerr & Kim, 2025).

Mr. Sharma explained that he uses Gemini and ChatGPT as part of his lesson preparation. While he relies on the foundational knowledge gained from formal professional development programmes during his 30-year tenure, his learning does not stop there. He explicitly described generative AI as acting as a "personal professional development tool." He uses these digital platforms to review grammar, verify language-related information, generate text summaries, and compare alternative explanations before teaching. Because these tools provide immediate and reliable assistance, he explained that they have gradually become part of his normal preparation routine.

These preparatory activities directly supported his professional confidence developing his self-efficacy. When he reviewed the materials on his laptop, he could decide on the most appropriate explanations and examples for his Grade 12 students. This cognitive rehearsal allowed him to become intimately familiar with the content before the lesson began. As observed during his class on relative clauses, this digital preparation informed exactly what he wanted to present, allowing him to deliver the selected material confidently and adapt it further during real-time classroom question-and-answer sessions.

This process confirms a form of cognitive modelling in line with Bandura's concept of self-efficacy. The digital material provided a structured initial source for his lesson preparation. However, the teacher remained the central agent. Acting as the human-in-the-loop, Mr. Sharma took complete responsibility for carefully evaluating the AI's information, filtering it through his extensive experience, and adapting it for traditional whiteboard instruction in a localized setting.

Dinesh Ghimire and Knowledge Validation

The process of verifying, updating, and scaffolding subject content, known as knowledge validation, is a critical component of professional practice. Validating the knowledge from the pool of internet resources and Generative AI has become increasingly crucial. Recent studies in English Language Education show that teachers actively use AI tools like ChatGPT as a helpful partner to check language rules, summarize texts, and organize classroom activities (Ali et al., 2023).

Mr. Ghimire explained that he uses the free version of ChatGPT on his smartphone to prepare his lessons. Although he has 19 years of teaching experience, he does not rely solely on his previous background or formal professional development activities. It is not that he does not trust his old methods, but the use of generative AI gives him flexibility in time and prevents him from having to read several books and get information from them. He simply uses the digital platform to verify subject content and explore find what he values best for his classroom context. When teaching literature, he also uses it to develop summaries of literary texts and thematic analyses, making these activities a regular part of his lesson preparation. He can find abundant information from the generative AI, which he needs to confirm and verify for his classroom context.

His classroom activities provided concrete evidence for this instructional planning. Before teaching his Grade 11 class, he reviewed information on his smartphone and recorded selected points – such as the thematic contrast between the "red-hot lumps of coal" and "poisonous snakes" in Roald Dahl's "The Wish" – into his physical teaching diary. During the lesson, he frequently referred to his handwritten notes in his diary to support his discussion on thematic contents and plot summaries. He put down the points on the board and led the discussion into those themes, inviting input from the students and then supporting them with modifications and clarification.

Viewed through Bandura's concept of self-efficacy, this process represents another form of cognitive modelling. The AI-generated responses provided an additional, highly structured source of information during lesson preparation. Acting as the analogue bridge, Mr Ghimire remained entirely responsible for evaluating, selecting, and adapting that information for classroom instruction.

Although Mr. Sharma and Mr. Ghimire used different digital devices during lesson preparation, their underlying practice was remarkably similar. In both cases, generative AI supported lesson planning and content verification before class, whereas the teachers themselves determined how the information would be adapted and presented during instruction. Rather than replacing professional judgement, the digital tools functioned as collaborative cognitive resources that supported the teachers' ongoing professional learning and classroom practice.

Proximal Modelling and Scaffolding in Unprojected Spaces

To understand how digitally curated content is delivered to students without the use of digital screens, it is essential to define the physical and pedagogical dynamics of these classrooms. Proximal modelling, grounded in SLT, occurs when the teacher acts as the immediate, physical behavioural model for their students. The educators demonstrate language rules and cognitive processes face-to-face in the shared physical space and avoid automated digital delivery to take the full accountability of the contents they share with their students (Chen et al., 2022). Scaffolding requires the teacher to take complex digital information and break it down into simple, step-by-step physical materials like handwritten notes, board diagrams, or printed worksheets. By organizing these analogue tools in a clear sequence, the teacher helps students understand difficult topics bit by bit without the use of digital display technology (Rigopouli et al., 2025). Unprojected spaces in this study refer to resource-constrained environments characterized by the complete absence of frontend display hardware, such as projectors, smartboards, or student-facing screens. Within these physical boundaries, the focus of social learning shifts away from the teacher's solitary digital preparation and toward active, face-to-face interaction with the students. This shift requires the teachers to critically reconfigure traditional pedagogical paradigms and create relevant learning contexts to meet the needs of their learners without relying on frontend technology (Gorghiu et al., 2025).

Because the digital tools remain hidden, the teacher relies heavily on proximal modelling – a concept grounded in Social Learning Theory in which learners observe and internalize behaviours from a physically present, immediate human model rather than a distant or digital interface. In these unprojected environments, the educators themselves become the primary and sole medium through which digitally prepared materials are presented. The teachers serve as the critical pedagogical interface in this educational context of human-in-the-loop frameworks when he provides agency between the invisible generative AI backend and the physical classroom and scaffold reasoning and reflection for the learners in the classroom (Zhai et al., 2026).

The teachers employ pedagogical scaffolding and the structured support to bridge the gap between complex digital concepts and student comprehension to curate AI-generated knowledge. Recent Study emphasizes that scaffolding is not merely a supportive instructional technique. It acts as a vital bridge in the classroom to close learning gaps (Anggreni et al., 2025). When teachers use this approach they serve as an active human link who break the dense information down into clear, interactive steps that students can easily follow (Alruwaili & Alasmari, 2025; Hussein et al., 2025).

When Mr. Sharma explains the rules and conducts a question answer session for finding out what the students have learnt and Mr. Ghimire manually translates the resources curated on their personal devices into highly observable classroom practices. By doing so, the complex digital intelligence generated before class is systematically scaffolded into human-centric action that their students can easily observe, follow, and internalize.

Behavioural Modelling via the Whiteboard

Mr. Ramesh Sharma from Grandee displays Bandura's concept of proximal and behavioural modelling in his classroom by physically translating digitally curated materials into live classroom activities. Looking from the perspective of SLT (Bandura, 1977), the whiteboard work that he presents in the classroom provides his students with a clear and observable model for them to follow. Explanation of grammar rules, example sentences and reproducing the sentences from the examples help the students learn and internalize the grammatical structure, aligning perfectly with foundational scaffolding principles that simplify complex tasks into manageable steps to bridge cognitive gaps (Hussein et al., 2025).

Empirical studies on cognitive load highlights that teachers can effectively manage both their own and their students' cognitive burdens by transforming dense pedagogical materials into accessible parts. When the educators simplify the presentation of complex content and control the speed of delivery, they ensure that rapid instructional pacing does not overwhelm students' working memory to sustain high levels of classroom engagement (Alruwaili & Alasmari, 2025). In his Grade 12 lesson on relative clauses, I observed Mr. Sharma using his laptop as a backend digital reference that he frequently referred to the screen before writing grammar rules, sentence structures, and examples directly onto the physical whiteboard.

Mr Sharma did not reproduce the AI-generated material directly. The material, the sentences that he used on the whiteboard were adapted to local context with the names of local celebrities and local places. When he did this, he enacted his pedagogical agency and operated as the essential "human-in-the-loop" model in engaging with the digital content. He selected and curated the digital information to suit the specific lesson objectives and his students' cognitive level (Zhai et al., 2026). This practice echoes recent findings emphasizing that generative AI outputs. It says that the material available on the internet and generative AI must always be critically curated and contextualized by human educators rather than taken at face value (Ali et al., 2023). For instance, he adapted a generic, foreign AI-generated sentence into a highly contextualized, local example – "Mount Everest, which attracts thousands of climbers annually, is facing severe ecological challenges" – to effectively demonstrate non-defining relative clauses.

Because these grammar explanations were developed gradually on the whiteboard rather than projected instantly as a finished digital slide, the students observed the actual process of organizing grammar rules and sentence structures as Mr. Sharma presented them on the whiteboard. Viewed through Social Learning Theory, writing notes live on the board step by step gave students a clear, human model to follow. This approach kept classroom discussion going, prevented digital distractions, and guided their language learning. It also confirms that visual scaffolding strongly builds deep understanding and student independence (Anggreni et al., 2025).

Artifact-Driven Modelling via the Teaching Diary

Mr. Dinesh Ghimire demonstrates proximal modelling through an artifact-driven approach. For this he uses his handwritten teaching diary as the primary instructional scaffold during classroom delivery. In unprojected spaces, physical artifacts like a teaching diary serve as critical cognitive anchors. Contemporary empirical studies show that structured and regulated learning scaffolding significantly enhances students' cognitive regulation and overall academic performance when the educators break down complex materials into observable, sequential steps (Shao et al., 2023). Combining physical tools with digital teaching materials gives students multiple ways to understand a lesson. When teachers use tangible items in their classrooms, they bridge the gaps caused by the absence of digital content or limited devices. This scaffolding helps students with different learning styles and reduces communication barriers in classrooms with limited resources (Anggreni et al., 2025).

When observing his literature lesson on Roald Dahl's short story "The Wish," the diary became Mr. Ghimire's central pedagogical tool. Mr. Ghimire walked across the rows of benches with his storytelling supported by the notes that he handpicked in his teaching diary. Now and then he wrote some thematic notes on the whiteboard inviting his Grade 11 students into discussion. His teaching diary provided a highly curated, offline reference that supported his dynamic narrative explanations and helped systematically organize the sequence of classroom activities. When he relied on this structured offline artifact, he effectively managed the extraneous cognitive load that unstructured digital shifts often impose and sustained high student engagement (Alruwaili & Alasmari, 2025).

From the perspective of SLT (Bandura, 1977), this practice provided students with a clear, observable model for organizing and discussing complex textual information. When he explicitly dictated the thematic contrasts – such as mapping the "red-hot lumps of coal" to physical hazards and "poisonous snakes" to hidden threats – directly from his notes, the teaching diary functioned as much more than a private memory aid for the teacher. The diary served as a physical example of how AI-generated literary ideas can be logically structured and explained during real-time classroom activities. This successfully highlights the teacher's necessary role as a dynamic 'human-in-the-loop' model for mediating digital intelligence into the classroom (Hussein et al., 2025).

When we look back at it from the lens of SLT, these observations suggest that '*sustainable digital shifting*' is profoundly more than a practical response to limited classroom technology. It represents a highly deliberate pedagogical approach in which teachers remain the indispensable central agents of technology integration (Gorghiu et al., 2025). By evaluating, adapting, and physically transcribing digitally curated materials into analogue artifacts, they successfully bridge the digital divide. The digital preparation occurs entirely before class, but is ultimate educational value depends entirely on the teacher's human-in-the-loop ability to translate those resources into engaging classroom explanations, demonstrations, and discussions that fit the material realities of their classrooms (Zhai et al., 2026).

Comparative Analysis of Teacher Practices

This section provides a comparative analysis of how Mr. Ramesh Sharma and Mr. Dinesh Ghimire integrate technology in their classroom environments to extend their individual case descriptions. Both educators rely on generative AI as a cognitive partner when preparing lessons behind the scenes. By working with AI, they actively reshape traditional teaching methods and turn raw digital information into clear, relatable examples that match their students' learning context (Gorghiu et al., 2025).

Mr. Sharma and Mr. Ghimire act as critical human mediator between raw digital data and analogue classroom delivery. However, their day-to-day methods differ depending on the equipment they have available and the specific lesson they teach in their classrooms. Mr. Sharma uses his personal laptop and mediate digital content into whiteboard transcriptions, whereas Mr. Ghimire employs a personal smartphone to curate literary themes into a permanent physical teaching diary. The cross-case analysis below examines these similarities and differences and highlights how this teacher-mediated "human-in-the-loop" agency transforms digital curation into effective classroom delivery (Zhai et al., 2026). Table 2 shows the core dimensions of variation and synthesis across both research sites.

Table 2
Cross-Case Synthesis Matrix

Dimension	Ramesh Sharma (Grandee)	Dinesh Ghimire (Northern Star)	Cross-Case Analytical Insight
Hardware and Interface	Personal Laptop	Personal Smartphone	Screen size and device portability impact the level and speed of backend preparation
Analogue Medium	Whiteboard Transcription	Physical Teaching Diary	Real-time board work Vs a portable, permanent physical archive prior to class.
Primary Instructional Focus	Grammar Rules and Sentence Structures	Literary Analysis, Plot Summaries and Themes	AI is adapted flexibly across distinct language domains (structural vs. interpretive)
Teaching Experience and Agency	30 years of experience	19 years of experience	Extensive pedagogical background allows both teachers to function as critical human filters for AI outputs
Classroom Interaction Pattern	General reference with whole-class questioning	Gangway navigation with guided text reading and dictation	Physical classroom layout and analogue mediums dictate distinct teacher mobility patterns.

Contrasting Approaches to Human Bridge

Comparison between Mr. Ramesh Sharma and Mr. Dinesh Ghimire above reveals fundamental similarities in their reliance on generative AI for backend curation. Both the educators use generative AI in their personal devices before their classroom presentation. They consult AI as their cognitive partner helping them to sort out and contextualize what they are going to teach in their respective classrooms. The comparison, however, also highlights crucial procedural differences in how digital knowledge is translated into analogue instruction. Mr. Sharma mediates it with the help of his laptop that he carries to his classroom, and Mr. Ghimire mediates it with the help of his physical teaching diary. Viewed through the lens of SLT (Bandura, 1977), both educators act as the essential “human-in-the-loop” framework,

ensuring that AI systems remain under sustained human interpretive control before any content reaches the learners (Zhai et al., 2026).

Mr. Sharma's reliance on a personal laptop provides a multi-window workspace to facilitate rapid evaluation and side-by-side comparison of AI outputs during his lesson preparation. He can run multiple windows with multiple prompts until he satisfies with the one that he can successfully contextualize into the setting of his classroom. He bridges the digital-analogue divide in real time by referring directly to his laptop on the podium to write rules on the whiteboard. From the perspective of SLT, this real-time transcription serves as his behavioural modelling. He actively synthesizes structured syntactic rules and sentence structures for grammar instruction that demonstrates the cognitive process of organizing language right before the students' eyes.

In contrast, Mr. Ghimire operates within the interface constraints of a smartphone screen. This requires sequential navigation and leads to a more reflective and compressed transcription process. To compare between raw digital outputs, he needs to go back and forth in his small screen to enable him to select and contextualize what he needs for his students. This enables him to curate ChatGPT outputs into a physical teaching diary before entering the classroom. When he transfers the raw digital data into his teaching diary, he inserts an intermediate physical step into the analogue bridge. This offline preparation establishes a portable reference tool that frees him from dependence on a podium, allowing him to move effectively among the student benches to guide interactive text reading and dictation. The nature of his curated content reflects the distinct demands of his sub-discipline. He uses LLMs to clarify abstract thematic ambiguity and complex literature narratives into structured, accessible points that function as an artifact driven model for his students.

The comparative mechanics of these analogue bridges demonstrate that teacher agency does not diminish with the introduction of generative AI. It shows that the cognitive load of meaningful oversight scales up when the interact with AI (Zhai et al., 2026). Whether through Mr. Sharma's dynamic whiteboard synthesis or Mr. Ghimire's asynchronous diary archiving, both educators successfully negotiate their specific hardware limitations to provide observable, human-centric models for language learning.

Chapter Summary

This chapter examines how secondary English teachers integrated digital resources into their pedagogical practices within unprojected classroom environments in response to the first research question (RQ1). The findings indicate that technology integration occurred during lesson preparation not in classroom delivery. Both Teachers used generative artificial intelligence to support lesson planning. They used digital tools available to verify content and prepare instructional materials. They adapted these materials for face-to-face teaching through the whiteboard and teaching diary. From the perspective of SLT, teachers' interactions with digital sources contributed to their confidence. Their classroom explanations, demonstrations, and use of instructional artifacts provided observable models for student learning. Digital technologies did not replace the teacher. It functioned as the tools that supported professional preparation in unprojected classrooms.

CHAPTER VI

CHALLENGES, TEACHER AGENCY, AND EDUCATIONAL VALUES IN ENGLISH LANGUAGE CLASSROOMS

This chapter discusses the second research question (RQ2). It examines the challenges the teachers faced while integrating digital technologies in unprojected classrooms. The chapter describes the infrastructural constraints that shaped their teaching practices, based on observations and interviews. The observation results present the forms of teacher agency they exercised in response to the constraints. The chapter also lists the educational values they associated with their use of digital resources. These findings illustrate the state of technology integration in resource-constrained classroom environments.

Perceived Challenges in Unprojected Spaces

The second research question (RQ2) focuses the challenges English language teachers face when attempting to integrate digital resources into unprojected classrooms. Classroom observations and interview data indicate that both the educators at Grandee Secondary School and Northern Star Secondary School faced similar material boundaries even though they worked in different institutional settings. Both the classrooms did not have digital projection technology in their classroom, so the teachers had to depend on their own traditional methods and tools for classroom instruction. Both educators used generative AI tools such as ChatGPT and Gemini on personal hardware during their lesson preparation. Mr. Sharma's laptop offered him the ease of selecting and comparing available AI outputs, while Mr. Ghimire's small mobile screen could not offer him that convenience. The complete absence of front-facing digital display hardware in the classroom prevented these curated digital materials from being directly projected or shared with students in their respective classrooms.

This kind of infrastructural gap fundamentally alters the nature of the learning environment when looking at it through the lens of SLT (Bandura, 1977). In typical technology-enhanced environments, digital tools provide direct visual modelling and multi-sensory stimulation for learners helping them to watch and observe the readymade material (Hussein et al., 2025). Within these resource-constrained

classrooms, however, digital modelling is completely invisible to students during instructional delivery. The absence of digital displays requires the teacher to act as primary proximal and behavioural model and manually mediate every piece of curated knowledge (Hussein et al., 2025; Zhai et al., 2026).

The gap in infrastructure in these schools led the educators to transform their digital preparation into analogue resources using manual mediation. Mr. Sharma turned the summaries from his laptop screen into marker-written grammar rules on the whiteboard. Mr. Ghimire transcribed synthesized literary analyses into a handwritten teaching diary before navigating the classroom gangways. This constant requirement to convert digital intelligence into analogue media significantly shaped their instructional practices. Rather than experiencing digital tools as delivery instruments, both teachers managed the physical limitations of their spaces by adopting a human-in-the-loop approach, ensuring that technology served the instruction without overloading the students' cognitive processing (Alruwaili & Alasmari, 2025; Gorghiu et al., 2025).

The Digital-Analogue Infrastructure Gap

Classroom observations and interviews revealed that the lack of accessible classroom display technology was the main infrastructural challenge for both teachers. Both the educators actively used digital tools and generative AI to prepare their lessons. Generative AI helped them to sift through the vast resources available on the internet networked to their personal screens with the help of generative AI. The absence of operational projectors and display screens prevented them from presenting these digital materials directly to their classes. Recent literature has looked through this divide between available software and missing classroom hardware and it illustrates how infrastructural disparities shape instructional choices of the educators (Hussein et al., 2025). The result of this infrastructural gap was that both the educators in this research had to rely on manual and analogue methods to transfer their digital preparation into face-to-face instruction (Gorghiu et al., 2025).

Available technological resources at Grandee Secondary School were not at the disposal of the teachers and students for their regular day to day use. The school owned a projector and a smartboard, but these resources were kept locked inside the computer laboratory for specialized computer classes. When Mr Sharma took his Grade 12 lesson on relative clauses, he carried his personal laptop with him to the

teacher's podium in his classroom to support him as a private reference screen, not at the disposal of the students. He looked frequently at his prepared notes before writing selected contents and local examples onto the physical whiteboard. This manual transcription of course required extra instructional time and increased physical and cognitive workload of the teacher before and during the lesson (Alruwaili & Alasmari, 2025). However, from the perspective of SLT, the absence of display technology forced a beneficial shift: instead of students passively reading a projected slide, they watched Mr. Sharma gradually write the sentence structures step by step on the board.

The physical conditions at Northern Star Secondary School presented an even stricter limitation. The school had no classroom projection facilities. Mr. Dinesh Ghimire did not use a laptop for teaching. He relied entirely on his smartphone during his lesson preparation. He used ChatGPT to explore thematic summaries and generate questions, but he had no way to show this digital screen to his Grade 11 students. To solve this problem, he spent extra time copying the digital points into his physical teaching diary before class. During his lesson on Rald Dahl's story "The Wish," these handwritten diary notes became his primary teaching guide. When Mr. Ghimire carried his diary in his hand, it allowed him to move freely among the rows of benches and use the physical notebook as a tangible instructional anchor in the classroom (Anggreni et al., 2025).

Both the schools had different hardware setups. However, the underlying challenge was identical. In both cases, the lack of classroom screens meant that digital materials could not enter the room automatically. Instead, both educators had to act as the indispensable "human-in-the-loop," manually converting digital intelligence into physical, analogue actions (Zhai et al., 2026). This conversion work formed a regular part of their daily routine. Viewed through Social Learning Theory, the digital-analogue infrastructure gap did not stop technology integration; rather, it ensured that the teachers remained the living, visible models of knowledge organization in their classrooms.

Hardware Limitations and Technological Disparity

Classroom observations and interviews highlighted distinct differences in the personal digital hardware available to each teacher. The hardware limitation in this research was not institutional standard. The limitation came out of individual

ownership of digital devices as Mr. Sharma possessed a smartphone and a laptop while Mr. Ghimire possessed only a smartphone. The personal devices each teacher owned shaped how they found and prepared their lesson materials. These differences in hardware show how having easy-to-use personal tools affects how teachers bring digital materials into their classrooms (Gorghiu et al., 2025). When teachers or students lack reliable personal devices even the best educational software goes unused. Practical adoption does not much depend on what tools exist online and more on whether people have convenient access to working hardware.

From the perspective of SLT, the hardware interface directly influences what happens in the teachers' mind before they ever step into the classroom. During this early stage, teachers observe and mentally process how digital tools work before turning those ideas into actual teaching practices (Bandura, 1977). When a device has a clear and responsive screen with simple control mechanism, teachers can easily focus on how to adapt a digital resource for their students. On the other hand, a cramped or confusing interface disrupts this mental rehearsal, making it much harder for teachers to turn what they see online into smooth classroom instruction.

Mr. Ramesh Sharma used both of his devices available during backend preparatory practice. However, in classroom presentation he used neither of them directly. He frequently referred to his laptop that he carried to his classroom to the teacher podium. When he used the laptop in his personal working space of home or the staff room desk, the laptop helped him to use the broader display to manage multiple windows concurrently. Mr. Sharma stated that the larger screen gave him spatial freedom to evaluate and compare alternative AI-generated examples side by side. The larger screen and multi-widows display also helped him to constantly check syntactic structures before deciding what to write on the whiteboard. His smartphone served as a portable reference, but the laptop functioned as an analytical workstation. This helped him structure dense grammatical information effectively and minimize extraneous cognitive load and deliver them confidently in his classroom (Alruwaili & Alasmari, 2025).

Mr. Dinesh Ghimire experienced a more restricted hardware profile. He relied on his personal smartphone because he did not have a personal laptop that he could use in his classroom instruction. He used the free version of ChatGPT entirely through a small mobile screen that required vertical scrolling and sequential reading. Even

though Mr. Ghimire had these physical interface constraints, he demonstrated focused pedagogical agency. He observed the contents of AI-generated text, curated them properly according to the context of his classroom and selected only the valuable information for his classroom. He then performed an intentional manual filtering process when he copied those context-appropriate notes into his physical teaching diary. Recent literature on this technology adoption emphasizes that these personal devices can deliver flexible and in-time instructional support, provided that the educator critically curates the material to avoid superficial adoption (Hussein et al., 2025).

The findings at both the schools show the powerful use of teacher agency. Both the teachers consulted generative AI as a cognitive partner. Their personal hardware shaped their workflow and cognitive pacing. Mr. Sharma's laptop permitted immediate, multi-window analysis, whereas Mr. Ghimire's smartphone required linear reading and selective, handwritten archiving. In both instances, the teachers in these classrooms did not allow hardware limitations to become educational barriers. Instead, acting as the critical "human-in-the-loop," each educator adapted his personal device to filter, select, and structure digital content, ensuring that it could be reliably modelled in a classroom that is resource-constrained and unprojected (Zhai et al. 2026).

The Challenge of Sustained Student Engagement

Both educators identified maintaining student engagement as an ongoing challenge during classroom instruction. Their prolonged experience in the field of teaching supported them in making their classroom engaging by using their own manual strategies like strict English-only environment, guided discussions into the themes and storytelling techniques. In a classroom laden with technological abundance, projected slides and multimedia displays often command learner attention as they require the learners to involve in activities demanded by the content under the guidance of the teachers. However, in unprojected spaces, teachers do not have the luxury of the screens to keep students focused. Teacher presence and dynamic interaction are critical for sustaining student engagement and preventing cognitive fatigue as many contemporary research incline towards this fundamental (Alruwaili & Alasmari, 2025; Hussein et al., 2025). From the perspective of SLT, observational learning begins with attention. In these resource-constrained classrooms, the teachers

themselves become the primary visual and social model as a ‘human-in-the-loop’ for mediating digital resources. They rely on their own physical presence, changes in voice tone, and movement around the room to grab and hold students’ attention.

Mr. Ramesh Sharma handled this challenge with firm classroom control and guided discussion on grammar rules and sentence structures. He enforced a strict English-only rule and used a commanding tone to keep students alert and focused. As he wrote grammar examples on the whiteboard, he regularly asked for student input to keep everyone involved and minimize distraction. He also constantly asked check-in questions and prompted students to complete sentences aloud. As he did not have any pre-designed multimedia slides, he had to actively direct student attention toward the board. He broke down the rules and structures into manageable parts and paced his delivery as required to engage the students and involve them in classroom discussion, rather than side-gossips. He kept his students involved without overloading their cognitive load that aligns perfectly with the findings that suggests when the teachers simplify instructional sequences into manageable pieces, it sustains classroom engagement (Alruwaili & Alasmari, 2025).

The educator at Northern Star Secondary School, Mr. Dinesh Ghimire, managed student engagement through in class movement and his special storytelling skills. During his Grade 11 literature lesson on Roald Dahl’s story “The Wish,” he stepped away from the front podium and walked up and down the narrow walking space between the rows of benches. Holding his handwritten teaching diary in one hand, he changed his pitch and tempo to dramatize the narrative, pausing frequently to ask students interpretive questions about the story’s central conflicts, character traits, and thematic contents. When students hesitated, he used gestures and gentle verbal prompts to draw them into discussion. This approach reflects key elements of pedagogical scaffolding (Anggreni et al., 2025). Without digital graphics on a wall his personal mobility and animated storytelling served as the visual and auditory anchor for the room.

These ethnographic observations show that the absence of classroom display technology shifts the entire responsibility for learner engagement directly onto the teacher. Both educators reconfigure traditional tools to create interactive and responsive learning environments (Gorghiu et al., 2025). The observation of the classrooms in these settings show that effective technology integration in unprojected

spaces does not end with backend digital preparation. It succeeds only when the teacher steps into the classroom as a human mediator who translates digital knowledge into face-to-face engaging instruction (Zhai et al., 2026).

The Challenge of AI Encroachment and Over-Reliance

Another challenge that emerged when immersing with the target culture in Ratnanagar Private School was the challenge of AI encroachment in academic instruction and the potential threat of over reliance to AI prompts and outputs. AI encroachment refers to the gradual intrusion of automated generative systems into cognitive and pedagogical spaces that traditionally belong to teachers and learners. Sometimes the AI outputs could beyond mere an external aid. The risk is that technology could take over authentic human tasks, such as formulating original explanations and interpreting literature. People often grow overly dependent on machine-generated content, accepting automated text at face value rather than carefully adapting and critically evaluating the information. When they accept AI-generated content without questioning, the knowledge becomes counterproductive in the classroom context (Hussein et al., 2025; Zhai et al., 2026). This dependency creates an ethical dilemma as it risks reducing the human learner to a passive consumer of algorithmic drafts while weakening the educators' interpretive agency and pedagogical authority (Davison et al., 2024; Zhai et al., 2026).

When discussing about the use and potential challenges of AI with teachers and students in Ratnanagar, a deeper pedagogical challenge emerged. The slow and gradual entry of artificial intelligence into the learning process and the fear of excessive reliance on digital tools was evident in this setting as well. Both Mr. Ramesh Sharma and Mr. Dinesh Ghimire expressed their concern that the ease of generating digital text could bypass the mental effort required by the students for real language learning. Recent scholarship warns generative AI tools and acknowledges a serious risk of learner and teacher over-reliance. Relying too heavily on AI takes over the mental effort of planning, which gradually weakens independent critical thinking (Hussein et al., 2025; Zhai et al., 2026). When teachers use educational technology, especially generative AI, without careful oversight, it can lead to passive habit in which they accept automated text without questioning it, limiting their own creativity (Hussein et al., 2025).

Mr Sharma noticed that several of his Grade 11 and 12 students had started using AI chatbots in their mobile devices to finish their homework. They often copied entire answers without understanding the grammar rules or the context needed for their assignments. He was concerned that this trend threatened to undo the syntactic structure of the sentences he modelled on the whiteboard. Similarly, Mr. Ghimire observed that his high school students attempted to substitute ready-made, generic AI summaries for actual reading and personal interpretation. They do not even refer to the textbooks that should be their primary resource for their assignments for reference. Both teachers well recognized what this over reliance on AI could bring up as they understood that AI outputs cannot be taken at face value. They must be critically reviewed, filtered, and adapted to preserve learners' creativity and analytical skills (Ali et al., 2023). The teachers worried that if students began to view AI as an effortless shortcut, it would diminish their willingness to engage in difficult language tasks.

When viewing through the lens of SLT, the over-reliance on AI without careful 'human-in-the-loop' mediation, disrupts the core mechanisms of observational learning as it requires a human model for the learners and educators to interact (Bandura, 1977). According to Bandura, learners must actively pay attention, retain information, and practice cognitive reproduction to build true competence. When they copy machine-generated text passively, it short-circuits this internal modelling process. Both the educators in their respective classroom settings discovered that the material limits of their unprojected classrooms functioned as a natural defence against this digital over-reliance. The absence of digital materials and student devices created a protective boundary within the physical space preventing digital distraction among the students. Within these protective walls, digital shortcuts and distraction were impossible, and the teacher remained the sole proximal model (Zhai et al., 2026). Students did not have anything to do but to listen to the explanations and involve themselves in their traditional teaching-learning activity. Here the lack of classroom technology protected teacher agency and preserved the human-in-the-loop dynamic as it ensured artificial intelligence to remain a backend preparation aid in these classrooms rather than an intrusive classroom authority (Zhai et al., 2026).

The Perceived Educational Value: Efficiency, Accuracy, and Curated Pedagogy

A quick overlook into the ethnographic data in Ratnanagar classrooms shows how teachers value the practical usefulness and benefit of a digital tool for supporting teaching and student learning in modern classroom settings (Gorghiu et al., 2025). It lists out three perceived educational value namely efficiency, accuracy and curated pedagogy. When talking about efficiency in educational setting, it describes the saving of time and cognitive load during the instructional preparation, allowing teachers to manage their cognitive load more effectively (Alruwaili & Alasmari, 2025). By accuracy we understand the pedagogical correctness and linguistic precision of the content. This process helps ensure that teaching materials are accurate and free from errors or misunderstandings (Ali et al., 2023; Zhai et al., 2026). Finally, when talking about curated pedagogy, it defines the active teacher practice of selecting and adapting raw digital outputs into human-centred lessons for a specific classroom context (Zhai et al., 2026).

The second dimension of the second research question examines the educational values of the educators in their teaching-learning activities incorporating Large Language Models in their lesson preparation. Both the educators recognized that it would require extra manual effort to bring digital resources into unprojected classrooms. They identified clear pedagogical benefits that encouraged them to make these tools a regular part of their professional work by mediating these resources in their daily lesson preparation. When educators perceive a digital tool as both easy to use and genuinely helpful for lesson planning, they willingly incorporate it into their routines without any hesitation (Gorghiu et al., 2025). When looking through the lens of SLT, the digital platform serves as an external cognitive resource supporting the educators in their lesson preparation. The teachers observe and curate the model's textual outputs during lesson planning, which builds their confidence and strengthens their instructional preparation before class begins.

Both Teachers explained that generative AI helped them prepare lessons with greater speed and clarity. Mr. Sharma's use of laptop and Mr Ghimire's smartphone set the instances of the use of AI in their lesson preparation. They reported using AI tools to verify grammar, generate examples, prepare summaries of literary texts, explore recent developments in English language teaching, and review alternative explanations before deciding what would be appropriate for their students. Both

teachers ensured that the AI-generated responses were not used without careful curation. They acted as critical reviewers, sifting through the raw AI output and shaping it to match both the curriculum and the realities of their classrooms (Ali et al., 2023).

The classroom observations supported these interview statements. Although digital screens remained entirely absent during teaching hours, *backend digital curation* clearly shaped how both teachers organized their lessons, selected their examples, and guided classroom discussions. The digital tools did not replace the teachers' professional knowledge or classroom authority. These tools functioned as an assistive partner to support teacher decision-making keeping the teacher firmly in control as the primary human-in-the-loop (Zhai et al., 2026).

Taken together, these findings suggest that the perceived educational value of generative artificial intelligence lies primarily in supporting lesson preparation rather than classroom delivery. Within the material constraints of unprojected classrooms, the participants viewed these technologies as tools that improved the efficiency of lesson preparation while allowing them to retain responsibility for evaluating, adapting, and modelling the final instructional content through their own voice, board work, and physical teaching diaries.

The Value of Temporal and Operational Efficiency

To understand how generative AI practically helps these teachers, it is first necessary to clarify what temporal and operational efficiency mean in this context. Temporal efficiency simply refers to saving actual time during the lesson planning process. Operational efficiency reduces the physical and mental effort required to gather and curate teaching materials. Reducing this extraneous cognitive load gives teachers more mental bandwidth to focus on actual instructional design and student engagement (Alruwaili & Alasmari, 2025). The ease and comfort the teachers take in relation with the AI support helps them to model their lessons to suit their context so that the ca redirect their energy toward creating better lessons.

Both educators identified this combined time and effort efficiency as a major advantage of using generative artificial intelligence. While the digital resources still required careful human adaptation before they could be used in the classroom, both participants reported that AI reduced the initial time needed to locate information and draft instructional materials.

Mr. Sharma' use of Gemini and ChatGPT was beneficial for him. It saved him from having to find and consult multiple heavy books and reference guides to prepare preparing a comprehensive grammar lesson. The AI acts as a rapid search and synthesis engine that provides him with multiple options to choose from before he contextualizes it for his required lesson sessions. This operational efficiency does not replace his professional work, but it assists him to prepare better set of lessons and ensure better learning achievement. It simply speeds up the backend preparation, giving him more time to adapt and contextualize the examples to suit his Grade 12 students.

Mr. Dinesh Ghimire found similar value in his own daily routine. The AI platform he used helped him quickly summarize literary texts and review subject matter before class. It also helped him design fresh writing activities and explore recent developments in English language teaching. Because his classroom lacked digital screens, he still had to perform the manual work of transferring the selected information into his physical teaching diary. However, he reported that the initial search and organization of information took significantly less time than relying exclusively on printed reading materials.

From the perspective of SLT (Bandura, 1977), this saved time is highly of pedagogical value. When teachers spend less time searching for raw facts, they have more time to design clear, step-by-step observable models for their students. Generative AI tools assist educators by reducing routine workloads, which allows them greater freedom to focus on higher-order pedagogical design (Zhai et al., 2026). The reduction in preparation time did not eliminate the teachers' professional responsibilities or remove them from the loop. Instead, this efficiency empowered them. It allowed both teachers to devote much more attention to evaluating, adapting, and organizing the final instructional materials before they ever presented them in their unprojected classrooms.

Enhancing Pedagogical Accuracy and Contemporary Relevance

Two key terms: pedagogical accuracy and contemporary relevance are essential to understand how teachers evaluate digital content. Pedagogical accuracy ensures that instructional materials are factually correct and strictly aligned with established disciplinary rules (Zhai et al., 2026). The teaching materials the teachers prepare must be up to date with modern education practices and real-world context to

meet contemporary relevance. Generative AI models work as statistical engines that predict and produce fluent text based on patterns from their training data and the context of the prompt. They can sometimes generate plausible yet factually incorrect information, completely missing the context it requires to fit into (Zhai et al., 2026). This risk is something that the teachers need to be careful about when to trust the raw digital output, and when not to. The educators must take epistemic responsibility for the knowledge they share in the classroom and verify every detail before it reaches to the students (Davison et al., 2024).

Both the educators felt that the use of AI saved their precious time when they prepared the lessons. They found that the use of AI not only saves the time but also helps them to check the accuracy and relevance of their daily lessons. The educators explained that AI platforms helped them to review fresh materials before deciding what to teach. However, the outputs of AI models cannot be taken at face value as they are mostly immersed in the culture different from the culture of their local students. They understood that they require careful and critical review to prevent errors or the inclusion of unrelated claims (Ali et al., 2023). They recognized that AI works best as a drafting assistant when paired with human oversight, ensuring the final material is safe and appropriate for their specific classrooms (Zhai et al., 2026).

Even with his 30 years of teaching experience Mr. Sharma views these digital tools as a helpful second option. They allowed him to confirm complex language rules before he stood in front of his students. During my classroom observations, I noted a clear ethnographic pattern: he never transferred AI-generated responses directly onto the whiteboard. He carefully observed and critically curated the digital information to match the lesson objectives and the specific cognitive level of his students. By carefully adapting the material to fit his students' cognitive architecture, he effectively managed their learning load (Alruwaili & Alasmari, 2025). From the perspective of SLT (Bandura, 1977), this human filter ensures that the behavioural model presented on the board is accurate, trustworthy, and free from algorithmic errors.

Mr. Ghimire used ChatGPT on his smartphone to double-check subject facts and draft summaries of literary texts. He also turned to generative AI to stay current with new trends in English language teaching and brainstorm fresh classroom activities. He found that the raw digital content always required refining from him professional lens to ensure it fit his local context. It indicates that to demonstrate

contextual responsiveness responsible AI integration is required (Zhai et al., 2026). The teachers always need to be the human partner for the generative AI to us the digital content as assistive resources. The handwritten notes in his teaching diary ultimately guided his face-to-face interactions after being curated with the help of 'human-in-the-loop' intervention. His diary only contained information that he had already evaluated curated to bring in step-by-step support for his learners (Hussein et al., 2025).

These findings show that the participants valued generative artificial intelligence because it supported the accuracy and modern currency of their lesson preparation. They did not blindly rely on AI-generated responses. They exercised their professional judgement and mediated the content for an effective delivery according to their context. They observed and contextualized the digital information before presenting it to their learners and took full accountability for what they claimed to know (Davison et al., 2024). This process ensured that technology enhanced their pedagogy for a better and effective use in their respective classroom, beyond simply replacing their instructional authority.

Human-in-the-Loop Pedagogy: The Teacher as Cognitive Filter

In broader computer science and general AI-assisted teaching literature, the concept of "human-in-the-loop" (HITL) typically refers to human intervention in algorithmic training, or to classroom models in which students interact directly with AI tutors under a teacher's supervision (Zhai et al., 2026). In the context of this study, however, human-in-the-loop pedagogy is defined strictly as a *teacher-mediated pedagogical filter*. It describes the invisible process of *backend digital curation* in which the teacher acts as the essential cognitive, cultural, and pedagogical checkpoint between raw generative AI outputs and the analogue classroom (Davison et al., 2024). Because generative AI lacks situated knowledge of the Nepalese ELT context and the learners' specific proficiency levels, the teacher does not deploy digital outputs directly (Hussein et al., 2025). The teacher serves as the critical "loop," evaluating and contextualizing the information to ensure its accuracy and relevance before it ever reaches the students (Ali et al., 2023; Zhai et al., 2026).

From the perspective of SLT, this digital to analogue mediation, using a human partner is crucial. SLT believes that observational learning requires a credible, human-centric model for students to internalize (Bandura, 1977). Students do not

simply absorb abstract digital facts. They watch and imitate the behaviours of a trusted authority figure who understands their specific environment. As generative AI is a faceless machine, it cannot provide the social, emotional, and physical cues that make language learning effective. Therefore, the teacher must step in as the visible, living model. Teachers claim full accountability for the knowledge they share in their classroom when they make effort in filtering the raw AI text through their own pedagogical expertise. They filter and break down complex digital information first so their students do not feel overwhelmed (Hussein et al., 2025). This active human mediation between digital material and analogue delivery prevents the classroom from turning into a space of automated instruction (Davison et al., 2024).

The model of human-in-the-loop in mediating the digital resources to analogue delivery is distinctly demonstrated in both ethnographic cases of this research. Mr. Ramesh Sharma's contribution in this loop is immediate and analytical. Mr Sharma does not present the raw content from generative AI directly to the class when he uses tools like Gemini and ChatGPT on his laptop to generate grammar examples and explore alternative language explanations. He evaluates the AI's suggestions in real-time. He carefully selects only the most culturally sound and linguistically appropriate examples and manually adapts them for the whiteboard. The human-in-the-loop mechanism prevents the dissemination of generic or culturally disconnected AI content and preserves the teachers' pedagogical agency and demonstrates strong contextual responsiveness when he personally functions as a 'human-in-the-loop' in the mediation process (Zhai et al., 2026).

Mr. Dinesh Ghimire's contribution in the human-in-the-loop process is physically embodied in his analogue teaching diary. Mr. Ghimire adapts digital information and filters out irrelevant and out of context material when he operates primarily through a smartphone outside of active teaching hours. Then he transcribes the verified and adapted content into his diary. This diary subsequently serves as the instructional script within the unprojected classroom. The AI functions merely as an informational drafting assistant and cognitive partner. The teacher's professional judgement determines what ultimately crosses the threshold into the physical classroom space (Zhai et al., 2026).

Both these cases illustrate that true educational value is not generated by the AI itself. It comes out through the teacher's active human-in-the-loop mediation.

These educators maintain their interpretive authority and ensure that technology remains accountable to human judgement when they embrace this backend digital curation (Davison et al., 2024; Zhai et al., 2026).

Teacher Agency and the Spectrum of Backend Curation

The two key values brought by the material limitations in their classroom are teacher agency and backend curation strategies. Teacher agency takes place when an educator makes a self-directed choice to control their teaching methods and materials and take full accountability for the knowledge they share with their students (Davison et al., 2024). The backend curation practices involve the different ways in which teachers interact and filter digital tools and mediate between digital material and analogue classroom delivery (Zhai et al., 2026).

Comparing the empirical data from both cases reinforces the theoretical argument that technology integration in resource-constrained environments is not a simple "yes or no" condition. Instead, it exists on a spectrum of teacher-mediated curation. Both participants from Grandee and Northern Star Secondary school actively challenge the traditional "*frontend bias*" which wrongly assumes that meaningful tech integration requires student-facing hardware like smartboards and tablets (Hussein et al., 2025). These educators' daily routines demonstrate how professional context and individual teacher agency shape the "human-in-the-loop" framework in real life when they keep the digital tools entirely behind the scenes limited to lesson preparation (Zhai et al., 2026).

The educator in Grandee school, Mr. Ramesh Sharma uses generative AI as a rapid verification engine. His backend workflow is highly dynamic. He treats the AI output on his laptop as a live reference draft, which he filters and modifies directly on the whiteboard in response to immediate classroom. Looking from the lens of SLT, the educators' ability to adjust language examples on the spot provides a responsive behavioural model for his students. It shows that AI assistance requires continuous human perception and quick decision-making to remain effective (Davison et al., 2024).

The educator from Northern Star Secondary School, Mr. Dinesh Ghimire uses generative AI as a pedagogical editor. His behind-the-scenes workflow is both reflective and deliberate. By handpicking and copying AI-generated ideas into his handwritten teaching diary, the notebook itself becomes a strict mental filter. This

physical step ensures that every AI-generated concept is mentally processed and contextually adapted before he uses it for instructional delivery. This deliberate scaffolding with the help of his artifact helps him to manage the cognitive load of the lesson and ensure that the final material is highly accessible to his learners in his classroom (Alruwaili & Alasmari, 2025; Hussein et al., 2025).

Ultimately, this comparative perspective demonstrates a vital truth for schools in developing contexts. Regardless of whether the physical medium is a live whiteboard or a handwritten teaching diary, the core driver of effective technology integration remains the teacher's evaluative judgement rather than the sophistication of the institution's hardware. By taking ownership of the digital tools, these teachers prove that the human-in-the-loop is the true engine of modern pedagogy (Zhai et al., 2026).

Content Synthesis: Matrix of Challenges, Responses, and Educational Values

The synthesis of the second research question comes with the findings regarding the challenges and educational values. The response from the participants helps us to synthesize the findings and explicitly contrast the distinct workflows of the two observed cases. The following comparative matrix brings together the three primary challenges that we discussed in the findings. They are the digital-analogue infrastructure gap, the struggle to maintain student engagement, and the silent threat of AI over-reliance. Integrating technology in these resource-constrained environments is not simply about plugging in devices. It requires the educators to act as a protective and productive filter acting as human partner between digital materials and analogue mediation to the classroom. Automated use of AI without human agency are pedagogically and ethically unsound (Davison et al., 2024). The educators prevent such passive adoption of technology and ensure that the students engage with the material rather than just copy them out of the resource pool (Hussein et al., 2025).

These *backend curation* strategies in the context of SLT are vital because they shape the final behavioural model the students will observe and internalize in their own classroom. The matrix below summarizes how each teacher responded to the challenges and the educational values they achieved in order to show that human-in-the-loop mediation is essential for turning raw AI text into safe and effective instruction in resource-constrained classrooms (Zhai et al., 2026).

Table 3
Cross-Case Synthesis of Technology Integration Strategies

Case	Primary Contextual Challenge	Teacher Response (Curation Strategy)	Perceived Educational Value
Ramesh Sharma	Absence of Projectors for dynamic display; AI outputs often lack immediate cultural relevance for Nepalese learners.	**Laptop-to-Whiteboard Bridge:** Real-time "human-in-the-loop" filtering on a laptop, adapting and modelling AI-generated examples directly onto the whiteboard.	**Pedagogical Efficiency and Cultural Resonance:** Rapid generation of instructional materials while ensuring examples are instantly linguistically appropriate and culturally contextualised
Dinesh Ghimire	Reliance on a smartphone outside teaching hours; the necessity for a stable, offline instructional script within unprojected classroom.	**Smartphone-to-Diary Bridge:** Asynchronous, off-line pedagogical filtering; transcribing and simplifying vetted digital content into a handwritten teaching diary.	**Accuracy and Contemporary Relevance:** Providing a reliable script integrating knowledge while protecting the classroom as a space for genuine human interpretation.
Both Educators	Over-reliance on AI and digital tools bypassing the mental effort required for deep learning.	**Protective Boundary:** Unprojected classroom becomes a defence. Teachers enforce explanations, manual note taking, and interaction to block digital distraction.	**Independent Reasoning:** Protection of students' critical thinking and analytical skills and ensure active, observational learning rather than passive consumption of text.

Apparent from the detailed matrix above, both educators teach within the strict physical limits of an unprojected classroom. However, their curation strategies

uniquely address both infrastructural limits and the risk of AI over-reliance (Alruwaili & Alasmari, 2025). Mr. Sharma relies on a laptop for live, fast-paced filtering. When he notices students seeping quick, unearned answers through AI outside of class, he counters this by modelling the step-by-step grammatical reasoning live on the whiteboard. This visible, manual process prevents students from passively consuming digital text and forces them to engage with the actual mechanics of the language (Hussein et al., 2025). His real-time mediation effectively manages the students' cognitive load while keeping their attention safely focused on the board (Alruwaili & Alasmari, 2025).

Conversely, Mr. Ghimire uses a smartphone for quiet, offline editing. He acts as a strict pedagogical filter to protect his students from the temptation of reading generic AI literature summaries. He ensures that the classroom discussion remains grounded in authentic textual analysis he handpicks and copies only the most verified and carefully adapted notes into his teaching diary (Anggreni et al., 2025). Both the educators successfully handle their physical limitations and protect their teaching agency although their workflows differ from real-time mediation using the laptop and asynchronous methods recorded in his teaching diary. They confidently cross the analogue bridge, turning the absence of classroom screens into a natural barrier against AI over-reliance. In the end, their ethnographic cases show that human judgement must guide the technology so that it serves the pedagogy and protects the learners, rather than dictating the educational experience.

Chapter Summary

This chapter lists the challenges that English teachers faced when integrating digital technology into their classrooms. The chapter is dedicated to the second research question (RQ2). The findings show that both participants worked within the limitations of projection and digital display technologies. They mediated digitally prepared materials and carefully adapted them for face-to-face instruction using traditional tools like the whiteboard and teaching diary. They largely depended on teachers' classroom interaction and English only rule supported by guided discussions to maintain student engagement. Both the participants identified several educational benefits associated with their use of generative artificial intelligence although they found the hurdles discussed above. Generative AI supported more efficient lesson preparation as it helped them verify instructional content and provided an additional

source of information during planning. The educators did not present AI-generated content directly to students without carefully mediating and curating them. They evaluated the content for its suitability. Then they adapted and organized the information before using it in classroom instruction. The chapter also shows that teacher agency operates across a spectrum of backend curation, ranging from real-time whiteboard synthesis to reflective diary archiving. Technology-supported professional preparation and the teachers themselves remained central to interpreting, adapting, and delivering the final instructional content.

CHAPTER VII

FINDINGS, CONCLUSION, AND REFLECTIONS

This concluding chapter synthesizes the study's findings and discusses their implications for the research questions, the theoretical framework, and the broader context of English language teaching in Nepal. The ethnographic evidence from classroom observations and semi-structured interviews shows how English teachers integrate generative artificial intelligence in their unprojected classroom environments. The chapter first summarizes the study's findings, highlighting how teachers used digital resources during lesson preparation. The chapter ends by offering the researcher's reflections and outlining directions for future research on technology integration in English Language Education.

Summary of Major Findings

This ethnographic inquiry on two private secondary English language classrooms in Ratnanagar shows that technology integration extended far beyond the visible use of classroom hardware. The interviews and ethnographic observation revealed the use of generative AI by both the educators in their respective classrooms to prepare the lessons even though neither of the classrooms used projectors or other digital display technologies during instruction. The educators did not use digital content directly to the students, they observed and curated digital materials and mediated them using 'human-in-the-loop' process before using it in their respective classrooms. When they used the resources in the classroom, they ensured that they claimed full accountability for the knowledge they shared to their students in their respective classrooms (Davison et al., 2024; Zhai et al., 2026).

Viewed through the lens of SLT (Bandura, 1977), these findings indicate that technology integration in unprojected environments depends almost entirely on the teachers' professional judgement to provide a credible, human-centric behavioural model for students to observe and internalize. During lesson preparation, the participants used personal digital devices to verify content, generate examples, and organize instructional materials (Ali et al, 2023). During classroom teaching, these digitally prepared resources were translated into face-to-face instruction through the whiteboard, teaching diary, explanation, and dynamic classroom questioning. These

embodied analogue practices ensured that the teachers appropriately managed their students' cognitive load while providing clear, culturally relevant pedagogical scaffolding (Alruwaili & Alasmari, 2025; Hussein et al., 2025). Ultimately, these observations prove that technology integration in Ratnanagar's resource-constrained classrooms occurs primarily through active, human-in-the-loop teacher mediation rather than direct student interaction with digital interfaces (Zhai et al., 2026).

Findings from Research Question 1: Practices of Technology Use

This section relates with the first research question RQ1. It explains how the two teachers used digital resources in their daily routines. Neither teacher had access to digital projectors or smartboards in their classrooms. They both found practical ways to bring digital knowledge to their students. They relied on their personal devices and their own hard work behind the scenes to observe and curate digital materials before they mediated them to their students in the classrooms.

Both teachers followed a very similar routine. Long before the school bell rang, they used generative artificial intelligence as a private learning partner. SLT explains that people learn by observing others (Bandura, 1977). In these schools, the AI acted as a digital model for the teachers. They observed the AI's suggestions, checked the facts, and built their own confidence before teaching. Then, they stepped into the classroom as the human model for their students. They adapted the digital information to fit face-to-face teaching perfectly.

The personal laptop helped Mr. Sharma to prepare his lessons in the quiet hour before the classroom. He consulted generative AI as his cognitive partner to observe and curate materials that he needed to present in his classroom. Generative AI became the resource pool for him to sift through the materials that he would need to present in his classroom over the whiteboard. He did not just copy them blindly. Instead, he acted as a responsible "human-in-the-loop" (Zhai et al., 2026). He changed the examples to match the local culture and his students' English level. During class, he kept his laptop open on the podium as a reference guide. He looked at the screen and then wrote the simplified grammar rules directly onto the physical whiteboard. This careful mediation process using 'human-in-the-loop' model allowed him to organize the digital content exactly for his specific classroom environment.

Mr. Dinesh Ghimire planned his lessons using only a smartphone. He used the free version of ChatGPT to explore themes in literature. For example, he used the AI

to break down the complex symbols in Roald Dahl's story "The Wish," comparing the "red-hot lumps of coal" to "immediate, painful physical hazards" and "poisonous snakes" to "hidden threats". Because he had no screens in his classroom, he wrote these curated notes into a physical teaching diary. This diary became his main teaching tool. Holding the diary, he could walk down the rows of benches and talk directly with his students. The notes he recorded in his artifact became the permanent resource that he could refer to when he was in his classroom presenting them to his students with his guided discussions and storytelling technique (Hussein et al., 2025).

Both these educators used distinct devices and used different contextual contexts. However, the method that they used was basically the same. They both used generative artificial intelligence as a vast resource pool from which they sifted the information and curated them to plan their lessons before their respective classes. Most importantly, the teachers remained completely in charge. They evaluated the facts, selected the best parts, and presented the content in their own human voice (Ali et al., 2023). These findings show a clear truth. Successful technology integration does not depend on having expensive classroom hardware. Instead, it depends on the teachers' ability to translate digital information into simple, physical tools for face-to-face learning.

Findings from Research Question 2: Practical Challenges and the Educational Values

This section deals with the second research question RQ2. It looks at everyday physical hurdles and the real educational benefits the teachers experienced. The ethnographic findings show a clear pattern. The teachers found true value in how they prepared their lessons behind the scenes, not in the physical hardware installed in their classrooms.

Systemic Friction and Practical Challenges

Both Mr. Sharma and Mr. Ghimire successfully used generative artificial intelligence to prepare their lessons. However, their actual teaching spaces consisted of concrete walls and wooden benches, completely lacking projectors or digital screens. This missing hardware changed the entire nature of their technology integration. Instead of simply plugging in a device to show digital slides, the teachers had to do all their digital work long before the students arrived by engaging in a demanding process of *backend digital curation*. Through this active digital-to-

analogue mediation, the teachers took full responsibility for the knowledge they shared. They stepped in as the essential human-in-the-loop model (Zhai et al., 2026). From the perspective of SLT (Bandura, 1977), they acted as cognitive filters, processing the AI's raw text into safe, observable models for their students. To bridge the digital gap, they manually adapted the digital text into physical teaching tools. Mr. Sharma wrote grammar rules and sentence structures on the whiteboard to help the students internalise the sentence structure and learn relative clause. Mr. Ghimire observed through the vast resources of generative AI and carefully sifted through them to copy literary themes into his handwritten teaching diary to guide his thematic discussions when he presented his class on "The Wish" for his grade 11 students. These manual steps used by these two educators created clear systemic friction and demanded valuable time and extra cognitive load for the teachers during their daily lesson preparation.

The educators in these two schools used different personal devices. Mr. Sharma possessed both a laptop and a smartphone. The laptop in his reach gave him a wider workspace to compare different AI outputs at the same time as his laptop provides him multi window working space. Mr. Ghimire, on the other hand, relied entirely on a smartphone. This does not allow him the privilege that Mr Sharma has. He has to read from a small mobile screen that could result in requiring more time to review long texts and copy selected information into his diary. The specific hardware they owned and used in their mediation process directly affected how efficiently they could prepare their lessons and mediate the digital content (Gorghiu et al., 2025).

Another practical challenge in these unprojected classroom was keeping the students engaged during the teaching-learning activities. A well-prepared presentation over the smartboard with guided instructions through them could have kept the students engaged in the classroom activities. The absence of glowing screens or digital animations to capture student interest increased the workload of the teachers as they had to rely entirely on their own physical presence and energy to hold the room's attention. Mr. Sharma commanded the engagement of his classroom by using his voice and active movement to keep his Grade 12 students focused. He often led guided discussions that invited the student input on the sentence structures and example sentences when he taught relative clause to the students. Mr. Ghimire used a similar hands-on strategy for his Grade 11 literature class. Holding his teaching diary,

he walked up and down the narrow aisles between the wooden benches to guide reading activities and spark literary discussions. From the perspective of SLT, the complete lack of digital displays forced the teachers to remain the absolute centre of the learning experience (Bandura, 1977). They had to act as the only visible human models in the room. These educators actively managed the students' cognitive load and prevented them from losing focus when they personally mediated the digital content from the vast resource pool of generative AI for analogue delivery in their classroom (Alruwaili & Alasmari, 2025; Hussein et al., 2025).

This ethnographic research also revealed the silent challenge of AI over-dependence. The generative AI had already entered academic sector threatening student creativity and human-mediated output. Some of the students had started using generative AI to complete their assignments. The tools they used would provide them readymade answers for their homework and assignments. They even used these tools to find quick answers for grammar practice or to read generic plot summaries. The growing dependence on AI threatened to bypass the real mental effort required for deep language learning (Hussein et al., 2025). Passive copying of machine-generated text ruins this internal learning process. The teachers realized they had to protect their students from this passive digital dependency. Interestingly, the physical limits of their classrooms helped them solve this problem. Because there were no screens or internet access for students, the unprojected classroom acted as a protective analogue boundary. The teachers kept the artificial intelligence completely hidden in their backend curation process. Through their active digital-to-analogue mediation, they brought only the filtered, humanized lessons into the room. The teachers successfully stopped them from taking passive digital shortcuts at least during their classroom hours when they wanted their students to listen to the teacher and participate teacher led interactive activities in their respective classroom (Zhai et al., 2026).

Perceived Educational Value

Both the educators also found genuine educational values in generative AI even though they perceived some practical challenges of teaching in unprojected classrooms. They identified clear benefits from the generative AI if they used it responsively. When they identified the practical value of the generative AI, they realized that their extra manual effort in mediating resources as a human-in-the-loop was worthwhile. The digital tools that they used sifting through the vast resources of

generative AI brought greater efficiency to their lesson planning. The mediation process also helped the teachers verify their teaching materials and adapt resources flexibly for their specific students taking full accountability of the content they were sharing with the students.

Generative AI that the educators used in their daily lessons greatly reduced the time required to prepare daily lessons. It saved Mr. Sharma from having to search through multiple grammar books to find better sentence examples and syntactic structures. Mr. Ghimire cold quickly pull together literature summaries on his phone treating the AI as his cognitive partner. They completed their preparation tasks much faster. However, the AI did not replace their own lesson planning. Instead, the digital tools acted as a helpful cognitive partner. In SLT, working with this digital partner helped build the teachers' professional confidence and self-efficacy long before they entered the physical classroom (Bandura, 1977).

Both participants described generative artificial intelligence as a powerful resource for building classroom activities. Through *backend digital curation*, they gathered valuable additional information to support their teaching. However, they never accepted the AI outputs blindly. They relied on their decades of teaching experience to review every piece of digital text that they observed and curated from the vast pool of internet-based resource (Ali et al., 2023). They checked the facts for accuracy and made sure the language fit the local Nepalese context.

Both the educators remained completely responsible for their final lessons as a human model acting as proximal and behavioural model for their students to learn. The ethnographic observations confirmed that neither teacher ever presented raw AI responses directly to their students without first carefully observing and curating them with their personal cognitive knowledge. They stepped in as the essential human link, translating digital content from generative AI into hands-on, analogue materials for their classrooms (Zhai et al., 2026). They handpicked the strongest ideas, simplified complex vocabulary, and reshaped the digital text to fit their students' needs. Then, they incorporated this curated information into their live explanations, whiteboard notes, and handwritten teaching diary entries. By taking full epistemic responsibility for the knowledge they shared, they ensured every lesson matched their students' reading levels and the secondary English curriculum (Davison et al., 2024). These

findings prove that artificial intelligence serves best as a backstage planning tool, while the human teacher must always make the final instructional decisions.

Higher-Order Synthesis: The Digital-to-Analogue Mediation Process

The combined findings from both research questions reveal a clear picture of technology integration. In resource-constrained schools, meaningful integration happens out of sight. It operates entirely as a backend preparatory process, not as a frontend display of glowing screens. The ethnographic data shows that systemic friction—specifically the lack of classroom hardware—prevents teachers from projecting digital slides directly to their students. These physical limits did not stop Mr. Sharma or Mr. Ghimire from using advanced digital resources. Instead, the missing hardware shifts the entire weight of technology integration directly onto their own pedagogical agency.

Through the practice of backend digital curation, the teachers use generative artificial intelligence as a private cognitive partner. According to SLT, this backstage interaction builds the teachers' professional confidence before they teach (Bandura, 1977). They use the digital tools to verify facts and plan their daily lessons. Then, they manually translate this digital intelligence into physical tools, such as the whiteboard and handwritten teaching diary. By managing this active digital-to-analogue mediation, they ensure a strict "human-in-the-loop" approach in their classrooms (Zhai et al., 2026).

This synthesis shows a truth about modern educational technology. The true value of these digital tools does not lie in their ability to deliver content directly to students. Instead, their value lies in empowering teachers. The technology simply supports the educators, allowing them to act as active, analogue mediators who carefully curate and humanize digital knowledge for face-to-face instruction.

Conclusion

This research challenges the prevailing "*frontend bias*" in much of today's educational literature. People often measure technology integration just by looking for visible hardware, like projectors, smartboards, and glowing student screens. However, the ethnographic data from this study proves that this view is incomplete. When schools and policymakers judge modernization only by the physical presence of devices, they completely miss the quiet, powerful work of the teachers. They overlook

the hidden, teacher-mediated digital practices that make learning possible in resource-constrained classrooms.

The ethnographic findings from Ratnanagar show that true digital shifting does not depend on institutional hardware. Instead, it depends on the teachers' professional judgement, personal agency, and behind-the-scenes hard work. In these Nepalese secondary schools, the physical classrooms remain strictly analogue. They are defined by wooden benches, the smell of dry-erase ink, and physical textbooks. The technology has not disappeared; it has simply moved. It has migrated into the quiet preparation room, the teachers' morning desk, and the personal glowing screen of a laptop or smartphone. Through *backend digital curation,* teachers use artificial intelligence as a private learning partner. From the perspective of SLT, this backstage practice builds their professional confidence before they ever face their students (Bandura, 1977).

By moving our focus away from the blank classroom walls and toward the teachers' private workflow, this study completely reframes technology integration. It shows that using technology is a deeply human-centred, translation-based art. Teachers query generative AI on their mobile phones and then carefully write those insights into physical teaching diaries. They read complex grammar rules on a laptop and then manually break them down on a physical whiteboard. By actively bridging digital tools with traditional classroom materials, the educators kept a human touch at the center of a safe learning environment (Zhai et al., 2026). This study also argues that we must stop defining digital modernization in developing contexts by counting devices. Instead, we must recognize it as a living process of pedagogical mediation, where dedicated teachers evaluate, adapt, and humanize global digital resources for face-to-face instruction.

Theoretical Synthesis

Applying Albert Bandura's SLT to these unprojected classrooms completely changes how we look at technology integration. Instead of focusing on the physical classroom space, this theoretical lens shifts our attention to the hidden preparatory workflow of the teachers. Within this framework, generative artificial intelligence is not just a simple software programme. It acts as an accessible cognitive partner during the quiet hours of *backend digital curation*. The teachers do not just download facts; they hold a continuous, back-and-forth dialogue with the AI models. The educators

test different explanations and improve the quality of their teaching materials when they step in as the active human-in-the-loop in their class (Zhai et al., 2026).

With the help of their private interaction with the digital tools and the vast pool of resources, the educators engage in active cognitive modelling (Bandura, 1977). They carefully observe the AI's structured language, adapt its suggestions, and mentally rehearse their lessons. This modern form of observational learning deeply boosts the teachers' professional self-efficacy. It gives them strong linguistic and pedagogical confidence before they ever cross the threshold into the physical classroom. Through careful digital-to-analogue mediation, they prepare themselves to be the best possible human models for their students. Ultimately, this theoretical synthesis demands a major shift in how we understand educational technology. In resource-constrained schools, meaningful digital integration does not happen on a glowing classroom wall. It happens in the private, cognitive backend, where dedicated teachers synthesize global digital intelligence into local human pedagogy.

Redefining Integration

This dissertation argues that '*backend digital curation*' must be recognized as a legitimate form of educational technology integration. It is not simply a temporal survival strategy for schools with limited infrastructure. Instead, it is a highly skilled professional practice. This study places the teacher back in the central position of the learning process. By stepping as the essential human link, the educators refuse to accept automated text at face value (Zhai et al., 2026). They actively observe the digital content and curate it for their local learners before they translate it into safe instructional materials for their classrooms.

We must expand our understanding of technology integration in resource-constrained environments. We can no longer measure modernization just by counting the number of digital screens in a building. Instead, we must value the teacher's pedagogical work during quiet lesson preparation. In the observed classrooms in Ratnanagar, digital technologies successfully supported lesson planning and content development. However, the teachers remained completely responsible for the final instruction (Davison et al., 2024). Using active digital-to-analogue mediation, these educators source the hidden knowledge to life into the physical whiteboard, teaching diary, teacher led thematic interaction in the classroom activities.

From the perspective of SLT, these teachers successfully turned invisible digital data into observable human behaviours for their students (Bandura, 1977). These findings send a clear message to educational leaders. Technology policies and evaluation frameworks must formally recognize these teacher-mediated digital practices alongside physical hardware investments. By redefining integration in this way, we place the highest value on the teacher's professional judgement. We finally recognize that human educators are the only true bridge connecting global digital resources with the daily realities of the physical classroom.

Theoretical Contributions to Educational Technology

This study contributes two novel conceptual frameworks to how we understand educational technology, particularly in schools with limited resources. These new conceptual frameworks are *Backend Digital Curation* and *The Analogue Bridge*.

For years, educational research has suffered from a strong frontend bias. People believed that real technology integration only happens when students look directly at interactive smartboards or digital tablets. This study proves that such a view is incomplete. By looking closely at how teachers work, this research defines AI integration as a hidden, preparatory process called *Backend Digital Curation*. It shows that highly advanced technology use can happen entirely outside the physical classroom walls. From the perspective of SLT, teachers use generative AI as a cognitive partner to build their own professional confidence and self-efficacy before they ever face their students (Bandura, 1977).

The second novel framework, *The Analogue Bridge*, explains the physical translation process required in unprojected classrooms. In the absence of display screens and student facing devices, the teacher must step in as the physical medium. They refer to their cognitive partner for the information, and the manually transfer the curated digital knowledge to their traditional tools like the whiteboard handwritten teaching diary. This active digital-to-analogue mediation guarantees a safe, human-in-the-loop learning experience and enables the teachers take full accountability of the knowledge they share to their learners (Zhai et al., 2026).

These two frameworks give us a fresh theoretical lens for looking at educational technology from the perspective of SLT. They encourage us to stop focusing only on missing hardware and infrastructure deficits and shine a light on

teacher agency and pedagogical resilience. This shows the importance of teacher agency showing that even in the most resource-constrained environments the human teacher remains the most important and powerful part of the learning process (Davison et al., 2024).

Pedagogical Implications and Reflection

The findings of this ethnographic study prove that meaningful technology integration in resource-constrained English classrooms depends heavily on the teachers' professional capacity, not just the availability of digital infrastructure. Throughout the fieldwork, both Mr. Sharma and Mr. Ghimire demonstrated exactly how generative artificial intelligence supported their backend lesson preparation. They did not wait for their schools to install smartboards or projectors. They simply used their personal devices to consult digital tools and structure their daily lessons.

The teachers themselves remained fully responsible for curating and presenting instructional materials to fit the context of their classrooms. They did not allow artificial intelligence take over their classrooms. By stepping as a human-in-the-loop safeguard, the educators ensured that technology served their teaching goals rather than dictating them (Zhai et al., 2026). They took full responsibility for the knowledge they shared, carefully filtering the digital text before it ever reached their students (Davison et al., 2024). From the perspective of SLT, this active human mediation kept the teacher at the centre of the room as the primary behavioural model for the students (Bandura, 1977).

Because technology integration relies so heavily on this active, teacher-led practice, it shifts our entire understanding of educational ecosystems. It forces us to look past the physical hardware on the walls and recognize the invisible, daily labour that educators perform to cross the digital divide. Rather than offering a list of top-down recommendations, the following sections reflect on what this digital-to-analogue mediation means for the lived realities of teaching, institutional environments, and broader systemic frameworks.

Reflections on Teacher Agency and Preparatory Practice

Observing the daily routines of Mr. Sharma and Mr. Ghimire revealed that the lack of frontend display technology did not stop educators from using digital tools. They used their strong professional agency as they sifted the information through the vast pool of resources to contextualize them into their classrooms. By actively

engaging with generative artificial intelligence, the teachers accessed a wide range of materials, fresh examples, and alternative explanations that they would never find in a single printed textbook. They did not wait for institutional permission or perfect infrastructure to modernize their teaching. Reflecting on their practice makes it clear that backend lesson preparation is not merely planning. Through the careful practice of backend digital curation, this hidden preparatory work becomes the primary and most legitimate stage of technology integration in resource-constrained schools.

When interacting with AI tools on their devices, teachers step in as the essential human-in-the-loop to evaluate the generated responses (Zhai et al., 2026). Rather than accepting automated digital content at face value, they review it carefully and adapt it to fit the specific needs of their classrooms. They select the most accurate information and manually translate it into physical tools, like whiteboard notes and handwritten teaching diaries. From the perspective of SLT, this quiet preparatory work actively builds the teachers' self-efficacy and pedagogical confidence before classroom instruction even begins (Bandura, 1977).

By completing this digital-to-analogue mediation before they step through the classroom door, these teachers solve a complex problem. They successfully make full use of artificial intelligence while keeping the physical classroom focused and free from digital distractions. This deliberate boundary of the absence of frontend display technological devices preserves their vital face-to-face connection with students. The educators safeguard their professional judgement and take full responsibility for the knowledge they bring into the classroom (Davison et al., 2024).

Reflections on Institutional Ecosystems and Support

Stepping back to view the school as a complete ecosystem highlights a vital truth: technology integration is deeply human work. It depends entirely on how well teachers are supported in their daily routines, rather than simply how much hardware a school purchase. The ethnographic classroom observations confirmed that meaningful digital integration happened every single day in these unprojected spaces. This success occurred not because of institutional technology, but entirely because the teachers willingly performed the heavy lifting of *backend digital curation*. Reflecting on this environment, institutional leadership might find much greater educational value in actively supporting the teachers' role as a strict cognitive filter, rather than

focusing exclusively on buying more projectors or glowing classroom screens (Davison et al., 2024).

This realization naturally shifts the institutional focus toward a new kind of professional development. Instead of just training staff on how to operate physical devices, schools need to help teachers evaluate AI outputs critically, develop effective prompts, and manage responsible digital use. Mr. Sharma and Mr. Ghimire relied heavily on their own personal devices to bridge the gap between traditional teaching and digital instruction. The absence of sufficient hardware mandated the educators to spend their own time and use their personal devices to curate and mediate digital resources. This heavy dependence on personal devices points to the need for a cultural shift within school leadership. Instead of taking the backend curation process for granted, school administrators should build supportive environments that recognizes and provides institutional backing for teachers' invisible digital labour.

From the perspective of SLT, teachers learn best by observing and collaborating with their peers (Bandura, 1977). By creating collaborative spaces for educators to share their successful human-in-the-loop strategies, school leaders can help spread these effective, context-specific teaching practices across the entire school community. When an institution formally values the teachers' active digital-to-analogue mediation, it ensures that technology truly serves the learning environment instead of just sitting locked in a computer laboratory.

Reflections on Systemic Frameworks and Digital Policy

At the macro level, this ethnographic study reveals a clear gap in how national policies understand technology integration in schools with limited resources. In the participating Ratnanagar schools, digital technologies drove lesson preparation rather than classroom presentation simply because projectors and smartboards were unavailable for everyday teaching. Reflecting on this reality shows that when systemic policies measure educational success only by counting classroom hardware, they completely fail to capture how teachers work. This hardware focused approach ignores the active digital-to-analogue mediation that educators perform every day to keep learning alive.

This systemic gap suggests that national frameworks would better reflect the environment of Nepalese classrooms if they balanced investments in digital infrastructure with robust support for the teachers' professional capacity. Policy

makers must formally recognize *backend digital curation* as an essential, legitimate part of technology integration. By officially validating this hidden preparatory work, national frameworks finally place value on the essential human-in-the-loop (Zhai et al., 2026). From the perspective of SLT, this recognition validates the teachers' vital role as the primary behavioural model who safely guides students through a rapidly changing digital world (Bandura, 1977).

Ultimately, true educational modernization does not happen just by delivering devices to a school building. It happens when systemic policies recognize both the physical infrastructure and the invisible human effort required to operate it. In practice, this means giving teachers the autonomy and institutional backing to modify standardized online materials, so they match local curriculum goals and classroom infrastructure. This balanced policy approach ensures that artificial intelligence serves the classroom safely, guided at every step by the professional judgement and pedagogical care of the human teacher.

Limitations of the Study

This ethnographic study paces valuable emphasis on the teachers' tireless efforts behind *backend digital curation*. However, there are several limitations that must be kept in mind when reading these findings. First, the research relies on a very small sample size. It focuses deeply on only two educators, Mr. Sharma and Mr. Ghimire, across two private schools. Because of this tight focus, the research is tightly bound to resource-constrained private educational settings. The findings are intended for rich contextual transferability rather than broad statistical generalization. Furthermore, the geographic scope is strictly limited to Ratnanagar Municipality. Because these research sites were physically close to the researcher's own community, there was a natural risk of selection bias. However, the researcher actively reduced this risk through careful reflexivity and by triangulating the data constantly comparing what the teachers said in interviews with what they did during classroom observation and in their teaching diaries.

Second, the collected data mainly captures teacher practices, personal perceptions, and self-reported efficiencies. The research deliberately focused on the human-in-the-loop and the hidden work of digital-to-analogue mediation. As a result, the study does not include direct student perspectives or measurable learning outcomes, such as test scores or formal assessments. Therefore, any claims made

about student engagement and pedagogical effectiveness rest entirely on the teachers' own professional observations and the researcher's field notes. While this approach beautifully highlights the teachers' vital role in SLT as the primary behavioural model (Bandura, 1977), it leaves room for future studies to measure exactly how backend digital curation directly affects student achievement.

Finally, this study examines the use of specific generative AI tools, such as Gemini and ChatGPT, during a very specific windows of time. The digital world moves much faster than physical school infrastructure. Because these artificial intelligence technologies evolve so quickly, their specific capabilities will inevitably change. The way teachers prompt, interact with, and curate information from these models may look very different in just a few years. This rapid technological shift makes ongoing ethnographic research necessary to record future developments. However, despite these limitations, the core finding of this study remains stable: as long as classrooms lack digital displays, dedicated teachers will continue to act as the essential analogue bridge between global technology and local students.

Directions for Future Research

This study offers an initial ethnographic view of teacher-centred technology integration in the private secondary schools of Ratnanagar. It shows the human effort to connect global digital resources with local classrooms. This study answers the key questions about teachers' hidden preparation work. At the same time, it raises new questions. Using the insights from these unprojected classrooms, further studies should explore the following areas to better understand how technology works in low-resource settings.

Comparative Contextual Expansion

This ethnographic inquiry was intentionally localized within private secondary schools in the Ratnanagar municipality of Chitwan. The observed practices of *backend digital curation* reflect a very distinct socio-economic, material, and institutional matrix. In these private-sector environments, educators operate under unique accountability pressures. They face tuition-driven parental expectations and subtle demands to maintain institutional prestige, all while navigating physical classrooms that remain resolutely unprojected. Future research must expand his qualitative, field-bound approach into public, or community, school settings across Nepal. It is essential to investigate whether '*backend curation*' model functions as a

universal, organic adaptation to national infrastructural scarcity, or whether it is an adaptive strategy present only in private-sector institutions where teachers feel heightened pressure to innovate.

When comparing public community schools and private secondary schools through ethnography would show how teacher agency, prompt literacy and digital-to-analogue mediation change across different school settings. Private school teachers, like the ones in this study, often use their personal devices to access generative AI. They plan their lessons by drawing on their own professional confidence and informal peer networks, learning by observing colleagues outside of formal training (Bandura, 1977). By choosing to remain the essential human-in-the-loop, they also keep their own teaching instincts sharp (Zhai et al., 2026).

Public school teachers work within vastly different bureaucratic frameworks. They rely heavily on state-sponsored Teacher Professional Development (TPD) programmes rather than informal peer networks. Their socio-material classroom reality often presents even starker infrastructural challenges than the private school environment. Future research must explore how the human-in-the-loop operates when facing these different administrative hierarchies and resource tiers. Does the heavy cognitive load of backend digital-to-analogue mediation become too difficult without the supportive, although demanding, culture of a private institution? Or do community schoolteachers find their own resilient ways to actively filter and translate digital knowledge for their students?

Dissecting these structural variations is vital for building macro-level digital education policies. A true digital-to-analogue mediation process might look very different when a teacher has less access to personal digital devices or faces larger class sizes. By comparing these two sectors, future researchers can help design national policies that are deeply responsive to the localized constraints, institutional cultures, and material realities of Nepal’s vast public education sector. This comparative approach will ensure that future technology frameworks support the human teacher as an active mediator, rather than imposing top-down, one-size-fits-all hardware mandates that fail to address the everyday realities of the community school (Davison et al., 2024; Hussein et al., 2025)

Longitudinal Assessment of Student Outcomes

This ethnographic study intentionally focused on the English language teachers—their lived experiences, their instructional decisions, and the hidden workload of their *backend digital curation*. Focusing on teachers shows a clear need to study students directly. Future long-term studies should look at how these adapted AI materials affect students over time Researchers need to measure how they impact language learning and score higher in the national examinations like the NEB Grade 12 SLC examination. To capture this complex dynamic over a full academic year, future researchers should used a mixed-methods approach. They must combine qualitative tools, like ongoing classroom observations and student reflection journals, with hard quantitative data from language test scores.

From the perspective of SLT, the teacher remains the primary linguistic and behavioural model in the room (Bandura, 1977). If engaging with generative artificial intelligence builds a teacher's professional self-efficacy during lesson preparation, future studies must ask if that backstage confidence produces real, measurable gains for the students. Researchers can evaluate specific skills, measuring reading comprehension, written grammar, and speaking confidence as students interact with these curated materials in a traditional, unprojected classroom. Does the teachers' active digital-to-analogue mediation improve student engagement compared to traditional textbook teaching? By tracking these outcomes, researchers can see if the time and mental energy teachers save during backend preparation ultimately leads to deeper student achievement.

Finally, gathering this empirical evidence over several school terms will rigorously test the '*backend digital curation*' model. It will move the concept from a localized ethnographic observation to a measurable educational strategy. Future researchers should test how well the human-in-the-loop model protects and educates students in the classrooms.

The Evolution of Surrogate Expertise and AI Ethics

Recent developments and rapid improvements in generative AI are fundamentally changing how educators interact with these digital tools in modern classroom settings. Rather than treating AI as a simple search engine, teachers increasingly consult it as a secondary source of surrogate expertise. While the initial adoption of these tools naturally focuses on saving time and automating routine

administrative tasks, regular daily use raises much deeper cognitive, pedagogical, and ethical questions. Future research must study the potential effects of long-term reliance on AI on a teachers' own independent creativity. Will the convenience of *backend digital curation* eventually cause teachers to become too independent on these algorithmic models for designing their daily lessons? From the perspective of SLT, teachers' self-efficacy grows through active, independent problem-solving (Bandura, 1977). When AI continually solves classroom challenges on a teacher's behalf, research must examine whether this reliance gradually erodes educators' own skills and professional agency (Hussein et al., 2025).

Beyond cognitive dependence, this rapid technological shift introduces the very real threat of cultural bias. Global models are trained overwhelmingly on Western datasets. As a result, their default outputs frequently generate foreign idioms, Western cultural assumptions, and educational norms that simply do not fit the daily lived realities of Nepali secondary students. Because of this, the teachers' responsibility during lesson preparation does not stop at simply translating digital text into analogue whiteboard notes. The human-in-the-loop must actively and repeatedly interrogate the AI material to ensure it is ethically and culturally appropriate for their specific classroom (Zhai et al., 2026). They must act as a strict cultural filter before any digital concept is allowed to cross the analogue bridge.

Teachers must carefully review all AI-generated content for cultural inaccuracies and inappropriate phrasing. This keeps the material aligned with the local knowledge and community values. This makes the educators fully responsible for the knowledge they bring into the classroom (Davison et al., 2024). Future ethnographic research should deeply examine how educators manage these heavy dual responsibilities. Researchers must explore how teacher successfully balance the pressure to integrate global technological tools while fiercely protecting their student's local cultural identity within under-resourced educational systems. Understanding this ethical mediation is crucial for ensuring that educational technology truly serves the Nepali context in improving teaching learning scenario, rather than quietly erasing it.

Concluding Remarks

This dissertation ultimately proves that technology integration in English language classrooms cannot be reduced to the physical presence or absence of

devices. The central argument of this inquiry is that sustainable digital shifting in resource-constrained environments relies entirely on the teachers' evaluative judgment, adaptive mediation, and pedagogical resilience. The ethnographic data shows that secondary English teachers in Nepal do not use digital resources passively, nor do they simply wait for top-down infrastructure policies. Instead, they actively design their own instructional practices, using their professional judgment to connect advanced global AI capabilities with the local realities of the unprojected classroom.

This research introduces *Backend Digital Curation* and *The Analogue Bridge* as new tools to explain how hidden preparation work supports effective teaching. The behind the scenes workload from the teachers and their careful selection, curation and mediation keeps them busy in taking full responsibility towards what they share to the students. The study also shows how SLT explains the way teachers use artificial intelligence as a cognitive partner (Bandura, 1977). Through this backstage practice, teachers build confidence and support their student learning, even in the classrooms without display devices.

These findings apply not only in the context of Ratnanagar. They help to explain other low-resource school settings wherever equipment is scarce, but the teacher agency is stronger. Future researchers, school leaders, and policymakers need to recognize the hidden labour of the human-in-the-loop (Zhai et al., 2026). School systems should stop measuring digital progress by simply counting classroom screens. The must support teachers' daily tech practices. Meaningful digital transformation does not begin with expensive hardware. It begins and ends with thoughtful human mediation.

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