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A Critical Literature Review on The Integration of Information Communication Technologies in the Teaching and Learning of English Language: An Emphasis of a Total Immersion Approach

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Abstract: *This critical literature review examines Stephen Krashen's theory of language acquisition and learning, focusing on the implications of its six key models: The Acquisition-Learning Hypothesis, the Monitor Hypothesis, the Natural Order Hypothesis, the Input Hypothesis, the Affective Filter Hypothesis, and the Compelling Input Hypothesis. The study explores how the integration of Information and Communication Technologies (ICTs) can modernize and enhance these models to address contemporary language teaching challenges, with a specific focus on supporting learners in Special Needs Education (SNE). Key objective of this study was to analyze the alignment of ICT tools with Krashen's principles to optimize language acquisition, explore the role of ICT in addressing the unique needs of SNE learners and identify best practices for integrating ICT into language teaching frameworks. The main findings this study shows that the integration of ICT enhances access to rich and diverse linguistic input, supports individualized and self-paced learning, and reduces affective barriers by fostering engaging and low-stress environments. ICT tools also enable adaptive content delivery, accommodating the varied learning styles of SNE learners. However, the potential of ICT remains underutilized due to systemic and practical barriers. Major analyzed in the study challenges include limited ICT infrastructure, inadequate teacher digital literacy, resistance to technology adoption, and a scarcity of tailored ICT solutions for SNE learners. This study also analyzed relevant solutions to remedy the situation. Overcoming these barriers requires increased investment in ICT infrastructure, robust teacher training programs, development of inclusive ICT tools, and policies promoting equitable access to technology in education. The following recommendations are also put forward: Policymakers, educators, and stakeholders must prioritize sustainable ICT integration strategies, implement continuous professional development for teachers, and encourage evidence-based research on ICT's role in language acquisition, particularly for SNE learners. In conclusion, aligning ICT integration with Krashen's theoretical framework offers significant potential to transform language teaching, making it more inclusive, adaptive, and effective in meeting diverse learner needs.*

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Key words*:* acquisition, affective, digital, educational, E-learning, English, filter, CT, immersion, individualization, Language, learning, technology, transformation

INTRODUCTION

In the evolving landscape of language education, the integration of Information and Communication Technologies (ICT) has emerged as a transformative force, reshaping traditional teaching and learning methodologies. ICT encompasses a wide range of tools, including multimedia applications, virtual classrooms, interactive language software, mobile applications, and artificial intelligence-driven platforms, all of which have created opportunities for more dynamic, engaging, and personalized language learning experiences (Chapelle, 2010; Blake, 2013). The integration of ICT in language education has proven to enhance accessibility, flexibility, and learner autonomy, allowing students to interact with authentic materials and real-life communication scenarios beyond the confines of traditional classrooms (Dudeney & Hockly, 2012).The current paradigm shift in the inclusion and integration of ICT tools to education offer dynamic opportunities for enhancing language acquisition by addressing individual learner needs, fostering engagement, and enabling personalized learning experiences.

At the heart of contemporary language acquisition research lies Stephen Krashen's Theory of Second Language Acquisition, which remains one of the most influential frameworks in language education. Krashen proposed six key hypotheses that explain how learners acquire and process language: The Acquisition-Learning Hypothesis, Monitor Hypothesis, Natural Order Hypothesis, Input Hypothesis, Affective Filter Hypothesis, and Compelling Input Hypothesis. These hypotheses emphasize the importance of meaningful exposure to comprehensible input, low-anxiety learning environments, and opportunities for natural language acquisition rather than explicit grammatical instruction.

The intersection of ICT and Krashen’s theories offers a powerful synergy. ICT tools can operationalize Krashen’s hypotheses by providing learners with abundant comprehensible input through multimedia content, interactive exercises, and real-world language contexts. Additionally, ICT reduces affective barriers by creating engaging, low-stress virtual environments that encourage experimentation and confidence in language use. For Special Needs Education (SNE) learners, ICT plays a pivotal role in offering adaptive tools that cater to diverse learning abilities, ensuring inclusivity and equitable access to language learning opportunities.

However, despite the evident potential, the integration of ICT with Krashen’s theories faces challenges, including infrastructure limitations, lack of teacher training, and insufficient research on tailored ICT solutions for SNE learners. This review critically examines the synergy between

ICT and Krashen's models, identifying key opportunities, challenges, and actionable recommendations to maximize the benefits of this integration in both mainstream and inclusive language education settings.

Language acquisition has long been a central focus in the field of education, with various methodologies emerging over time to address the complexities of second language learning.
It is important to note that many education researchers have greatly supported the integration of ICTs in the process of teaching and Learning. According Byungura et al., (2019), ICT provides remarkable opportunities for developing countries to enrich their educational system since it can help in acquiring and assimilating knowledge also Jo Shan Fu,(2013) concurred that Information and Communication Technology (ICT) includes computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field . These observations are narrow in nature therefore giving an impetus urge for more specific literature analysis to establish possible gaps of knowledge in the area of ICT. Before delving deeply into this ICT integration into linguistic learning and teaching, it is important to understand what ICT means in the field of education. According to the United Nations Development Program (UNDP, 2003) ICTs is basically defined as information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. This general understanding of ICT guides us to make the understanding of ICT more specific. ICT in education therefore refers to the utilization of technology in the process of teaching and learning to reinforce students learning experience and makes the work of a teacher more efficient and effective. Al-Sharqi and Abbasi (2020) pinpointed that technological tools complement the traditional teaching approach since ICT supplements unlimited online resources for the teaching of literature in English classrooms. This critical literature review has filled the gap of limited meaning of ICT in education, expanded the ICT tools and opened up the alignments of ICT tools and utilization to theories of learning and teaching. This is fully informed by the dynamic nature of education currently.

According to Kumar and Tammelin (2008), ICTs provide three main benefits for foreign language learning and teaching: (i) providing authentic language learning resources and contexts, (ii) creating co-operative and collaborative environment, and (iii) providing opportunities for effective teaching and learning.

These tools enable interactive learning, enhance teacher-student collaboration, provide access to global resources, and facilitate flexible and remote learning environments. In the context of language teaching, particularly with the Krashen immersion method, ICT can play a pivotal role in creating immersive, authentic, and engaging language experiences. In recent years, Information and Communication Technology (ICT) has revolutionized the educational landscape, offering innovative tools and platforms to enhance teaching and learning processes. Expert systems according to Alfarsi et al., (2021), can be used to provide students with learning experiences where

they interact directly with the computer system, and are not just passive but active participants in the learning process, thus increasing the quality of education.

Among the most influential theories is Stephen Krashen's Second Language Acquisition Theory, which emphasizes natural communication, meaningful interaction, and a low-anxiety learning environment. Krashen's Immersion Approach is rooted in the belief that language learners acquire a second language most effectively when they are exposed to comprehensible input in a rich, immersive linguistic environment.

The integration of Information and Communication Technology (ICT) in language immersion programs, particularly within the framework of Stephen Krashen's immersion method, significantly enhances language acquisition by providing interactive, engaging, and authentic learning experiences. ICT tools such as multimedia resources, virtual classrooms, language apps, and online collaborative platforms create immersive environments where learners are consistently exposed to comprehensible input in meaningful contexts. These technologies facilitate personalized learning, real-time feedback, and access to diverse language materials, catering to individual learning paces and styles. Additionally, ICT bridges geographical and cultural barriers, connecting learners with native speakers and real-world language usage, ultimately fostering motivation, confidence, and fluency in the target language. This study is a step toward linking old teaching and learning theories to current practices through the integration of ICTs.

Background of the Study

In recent years, the integration of Information and Communication Technologies (ICT) into language education has gained significant attention due to its potential to revolutionize teaching and learning processes. ICT tools, such as virtual learning environments, mobile applications, digital storytelling platforms, and AI-powered language assistants, have enabled learners to access immersive, interactive, and flexible language-learning opportunities (Kukulska-Hulme & Shield, 2008; Chen, Chen, & Tsai, 2021). Research indicates that ICT enhances learner motivation, promotes active participation, and facilitates self-paced learning, particularly in environments where traditional teaching methods face logistical or resource-based challenges (Al-Shehri, 2017; González-Lloret & Ortega, 2014). Research by Okello-Obura and Mulindwa (2020) reveals that ICT-enabled access to educational content, including online libraries, e-books, and educational websites, enhances students' knowledge base, promotes self-directed learning, and provides teachers with additional teaching materials.

Current scholarly articles reviewed in this study and beyond highlights that ICTs (Information and Communication Technology) in education encompasses a broad range of technologies used to support, enhance, and optimize the delivery of education and learning processes. These technologies include:

Hardware Devices: Computers, laptops, tablets, Smartphones, Interactive whiteboards and Projectors and Digital cameras.
Software Applications: Learning Management Systems (LMS) like Moodle, Blackboard, or Google Classroom Educational apps (e.g., Duolingo, Kahoot!, Quizlet), Multimedia tools for creating and sharing content and Virtual and Augmented Reality (VR/AR) tools.
Internet and Online Platforms: Video conferencing tools (e.g., Zoom, Microsoft Teams), Online research databases-learning platforms (e.g., Coursera, Udemy, Khan Academy) and Digital libraries.
Communication Tools: Email, Discussion forums, Instant messaging platforms.
Assistive Technologies: Text-to-speech and speech-to-text software, Screen readers, Adaptive keyboards.
Emerging Technologies: Artificial Intelligence (AI) for personalized learning, Gamification platforms and Blockchain for secure certification and credentialing.

At the same time, Stephen Krashen's Second Language Acquisition (SLA) Theory continues to serve as a foundational framework in understanding how individuals acquire a second language. Krashen (1982) emphasizes the importance of comprehensible input, the role of low affective filters, and the distinction between acquisition and learning. Numerous studies have validated Krashen's key hypotheses, highlighting their relevance in modern classrooms (Lightbown & Spada, 2013; Ellis, 2020). For instance, Krashen's Input Hypothesis, which advocates for meaningful and comprehensible language exposure, aligns closely with ICT tools that provide multimedia content, real-time interaction, and exposure to authentic language use (Godwin-Jones, 2018). Importance of integrating ICTs in English language teaching and learning has attracted immense support from several scholars. James Mukhula et al., (2021) asserts that ICT has influenced the way people function today, both personally and professionally, which demands change in the educational arena. According to Kidega, C& Zhejiang N,.e tal.,(2023), ICT has brought about a paradigm shift in the way teaching and learning are carried out in schools, colleges, and universities.

Moreover, the use of ICT has shown promising results in Special Needs Education (SNE) contexts. ICT offers adaptive technologies, text-to-speech software, interactive platforms, and gamified tools that cater to diverse learning abilities and preferences, creating inclusive language learning environments (Barton-Hulsey et al., 2018; Dell, Newton, & Petroff, 2017). For example, a study by Melo et al. (2020) demonstrated that mobile-assisted language learning (MALL) tools significantly improved language acquisition outcomes for students with learning disabilities.
However, despite the potential benefits, challenges persist in the integration of ICT with language acquisition theories. These challenges include inadequate infrastructure, lack of teacher training, limited access to digital resources, and resistance to technological adoption (Ertmer & Ottenbreit-Leftwich, 2013; Tondeur et al., 2017). Addressing these barriers requires evidence-based

strategies, policy-level interventions, and teacher professional development programs tailored to ICT-enhanced language teaching (Blayone et al., 2017).

This study seeks to bridge the gap between Krashen's SLA theories and ICT applications in language learning, with a special focus on learners in Special Needs Education (SNE) contexts. By critically reviewing existing literature, this study aims to identify synergies, challenges, and actionable recommendations for leveraging ICT to support Krashen's principles in modern, inclusive language education settings.

Theoretical Gaps in ICT Integration and Immersion Theories

While Information and Communication Technologies (ICT) have demonstrated significant potential in enhancing language acquisition, their integration with immersion-based approaches, such as Stephen Krashen's theories of second language acquisition, reveals critical theoretical and practical gaps. These gaps highlight the need for further investigation into the interplay between technological tools and the underlying principles of language immersion theories.

1. Alignment with Krashen's Hypotheses

Krashen's theories emphasize the importance of comprehensible input, low affective filters, and naturalistic acquisition over explicit learning (Krashen, 1982). ICT tools are often praised for providing abundant access to authentic materials and interactive learning environments (Chapelle, 2010). However, questions remain regarding:

The extent to which ICT tools can deliver personalized and meaningful input that aligns with Krashen's Input Hypothesis.

Whether digital environments can sufficiently replicate naturalistic and low-stress immersion, as described in the Affective Filter Hypothesis (Ellis, 2020).

2. Insufficient Research on ICT for Special Needs Education (SNE)

Although ICT is widely recognized for its adaptability and accessibility, there is limited research on its application for learners with special needs within the framework of immersion theories. While studies have highlighted the benefits of adaptive tools (Melo et al., 2020; Barton-Hulsey et al., 2018), they often fail to examine:

How such tools can be designed to deliver compelling and comprehensible input for diverse SNE learners. The effectiveness of ICT in reducing affective barriers for learners with cognitive, sensory, or physical impairments.

3. Overreliance on Explicit Learning Paradigms

Many ICT-based language tools prioritize explicit instruction, such as grammar drills, vocabulary exercises, and test-oriented frameworks (Stockwell, 2012). This approach contrasts sharply with immersion theories like Krashen's, which favor natural acquisition through meaningful interaction. Research suggests that current ICT designs often neglect the subtle, experiential aspects of language immersion, such as cultural context and implicit understanding (Godwin-Jones, 2018).

4. Limited Evaluation of Long-Term Impact

The long-term efficacy of ICT tools in sustaining immersive language acquisition remains underexplored. Existing studies often focus on short-term outcomes, such as improvements in vocabulary or grammar, but fail to address how ICT supports fluency development, intercultural competence, and the transition to advanced proficiency over time (Reinders & Benson, 2017).

5. Accessibility and Equity Gaps

The integration of ICT in language immersion frameworks is often hindered by disparities in access to technology and teacher training (Ertmer & Ottenbreit-Leftwich, 2013). These gaps disproportionately affect under-resourced schools and marginalized communities, limiting the potential of ICT to democratize access to immersive language learning opportunities (Tondeur et al., 2017).

Conclusion

Addressing these theoretical gaps requires interdisciplinary research that combines insights from language acquisition theories, educational technology, and inclusive education. By critically examining the limitations of existing ICT tools in relation to Krashen's immersion principles, this study aims to provide actionable recommendations for designing more effective, inclusive, and theory-driven ICT applications in language education.

Addressing this gap is essential, as a theoretical alignment between ICT tools and Krashen's immersion principles could optimize language acquisition outcomes. Future research should aim to establish clear connections between specific ICT functionalities and the theoretical constructs of immersion, thereby moving beyond generalized benefits to more targeted pedagogical outcomes.

Research question

Research questions are clear, focused, and specific inquiries that guide a research study. They define what the researcher aims to explore, investigate, or understand about a particular topic. In essence, they act as the foundation of the research process, shaping the methodology, data collection, and analysis.

The systematic review will analyze the included studies to attain its objective by addressing the following questions which have been organized from general to specific question to the alignments of ICTs to Stephen Krashen immersion approaches:

RQ1: Which benefits of ICT integration exist in teaching and learning of second language?

RQ2: What challenges and barriers hinder ICT's practical and meaningful integration in teaching and learning of second language?

RQ3: Which kind of solutions and recommendations can be put in place to address the current challenges and barriers hindering ICT's practical and meaningful integration in teaching and learning of second language?

RQ4: Which best practices and strategies have been implemented for effective ICT integration in the area of language learning and acquisition?

Specific questions.
RQ5: How has ICT been used to enhance Krashen's Immersion Method in language teaching?
RQ6: What ICT tools have been most effective in supporting Krashen's five hypotheses (e.g., comprehensible input, affective filter)?
RQ6: What challenges are associated with integrating ICT in Krashen-based immersion programs?

Research Paradigms
Qualitative Research: Involves non-numerical data such as interviews, observations, and case studies to understand experiences and perspectives. Qualitative research is an exploratory approach used to gain an in-depth understanding of human behavior, experiences, and social phenomena. It focuses on how and why questions rather than quantifying variables.

Key Features of Qualitative Research:
Subjective Reality: Focuses on participants' perspectives and experiences.
Natural Settings: Conducted in real-world environments (e.g., classrooms).
Rich Descriptions: Data is presented in words, themes, or narratives.
Flexible Methods: Allows adaptation during data collection and analysis.

Methods in Qualitative Research:
There are several methods normally used in qualitative research but this study adopted:
Document Analysis: Which concern itself in reviewing related literature to the ICTs in education with specific reference to English Language teaching and learning theories by Stephen Krashen
Example: Analyzing digital resources used in immersion programs.

When to Use Qualitative Research?
To explore new or under-researched phenomena.
To understand complex, context-specific issues.
To capture human experiences, emotions, and perceptions.

METHODOLOGY

In English Education Research, methodology refers to the systematic approach or framework of methods and principles used to investigate questions, analyze data, and draw conclusions about teaching and learning English. It encompasses the strategies, tools, and procedures researchers employ to address their research objectives effectively.

Thematic Analysis in a Literature Review
This study was guided by the thematic analysis of literature. Thematic analysis is a qualitative method of data analysis used to identify, analyze, and report patterns or themes within a set of qualitative data. In the context of your literature review on the use of ICT to enhance the Stephen

Krashen immersion method of language teaching, thematic analysis will help to synthesize the findings from various studies by identifying common themes or key concepts related to your research question.

Thematic analysis allows the researcher to organize and synthesize the literature in a way that makes it easier to see the broader patterns and themes emerging from the studies. By identifying and explaining these themes, one can provide a clear and comprehensive summary of how ICT tools enhance Krashen's immersion method for language teaching, while also discussing the challenges and gaps that remain in the field.

This paper compares and analyses several related journals and articles specifically related to the utilization of ICT in the area of education and a lot of biased towards the teaching and learning of English language. Most of the reviewed literature comes from reputable book authors and journals. In this section, the study focuses on grouping similar findings from different studies into broader themes, such as the effectiveness of specific ICT tools, the alignment with Krashen's principles, or the impact of ICTs on language learning outcomes.

Purpose of Thematic Analysis

Thematic analysis helps organize the literature in a way that: Summarizes the main findings of the included studies. Highlights recurring patterns or themes related to the role of ICT in enhancing Krashen's immersion method. Explores relationships between different aspects of language learning, such as the tools used, learner outcomes, and engagement with immersion techniques. Finally, it identifies gaps in the literature where further research might be needed.

Steps in Thematic Analysis

This study followed these general steps to conduct thematic analysis on the studies in your review:

a. Familiarization with the Data

Reading and re-reading the included studies to become familiar with the content.
Taking notes on initial impressions, recurring patterns, or interesting points related to your research question and highlighting passages where studies discuss the use of ICT and its relationship to immersion methods in language teaching.

b. Generate Initial Codes

The study begun by coding the data, i.e., labeling sections of the text that relate to the research questions. The goal was to organize the data into meaningful chunks that are related to your research focus.

c. Search for Themes

Similar codes were grouped together into broader themes. This process involved combining related codes and giving them a more descriptive label.

For example, codes such as ICT tools, mobile apps, and virtual reality might fall under the broader theme of Types of ICT Tools Used.

The following are some themes for that were generated for review:

- Types of ICT Tools Used in Language Immersion ICT tools, such as apps, VR, online platforms, etc.
- Alignment of ICT tools with Krashen's Immersion Principles
- Importance of integration of ICT in ELLT
- Learner Engagement and Motivation
- Challenges and Barriers to ICT Integration
- Solutions to Challenges and Barriers to ICT Integration to ELLT

d. Review of the Themes

Themes were reviewed to ensure they accurately reflect the data.

Do the themes work well to answer your research question? Are there any overlapping themes that need to be merged or split?

Eligibility Criteria in a Literature Review

In the context of a literature review, eligibility criteria are the specific conditions used to determine which studies or articles should be included or excluded. These criteria are essential to ensure the review focuses on relevant, high-quality research and aligns with the research question or objectives. For this review on the use of ICT to enhance the Stephen Krashen immersion method of language teaching, eligibility criteria might include:

Inclusion Criteria

These criteria define the characteristics a study must have to be included in the review.

a. Relevance to the Research Question

Studies must specifically examine the application of ICT (Information and Communication Technology) in the context of language teaching or immersion methods with great focus on Krashen's immersion method or related language acquisition theories.

b. Type of Study

Empirical studies: In this case qualitative method was used. Systematic reviews or meta-analyses that discuss ICT and language teaching, was used accordingly.

c. Language of Publication

Studies published in English, unless multilingual studies are part of the review's scope.

d. Time Frame

The scope of this review, includes studies published within a specific period, of the last 10 years, to ensure contemporary relevance.

e. Population

Studies focusing on language learners (e.g., second language learners, bilinguals, or immersion students). It also primarily focuses on both students and teachers as subjects of study in ICT-immersive language settings.

f. Intervention or ICT Tools

Studies where ICT tools, such as educational software, online platforms, interactive apps, or virtual reality are used to support language learning or immersion. The tools should be explicitly linked to Krashen's immersion or input hypothesis.

Exclusion Criteria

These are the conditions that would cause a study to be excluded from the review.

a. Lack of Focus on ICT or Immersion

Studies that discuss language teaching without the use of ICT or without reference to Krashen's immersion methods were excluded.

b. Non-Empirical Studies

This study also excluded studies such as opinion pieces, editorials, or theoretical papers that do not present empirical research.

c. Studies Not Focusing on the Target Language Group

Studies focusing on general education, not second language acquisition or immersion, unless the study provides direct insights into language learning processes.

d. Insufficient Quality or Methodological Issues

Studies with unclear methodology, poor sampling, or no clear link between ICT tools and language learning outcomes.

e. Non-English Studies.

This study excluded studies published in languages outside the scope of time frame review.

5.7. Ethical Considerations

This study adhered to ethical requirements by ensuring proper citation and credit for all sources and avoiding plagiarism by using citation tools.

REVIEW OF THE LITERATURE

A literature review is a survey of existing research and publications on a specific topic. It provides a comprehensive overview of what is known, identifies gaps, and places new research in context. It summarizes, synthesizes, and critically evaluates previous research and theories.

A literature review helps the author understand the history and nature of their topic, and identify research gaps and problems. It also helps establish context for the research, evaluate the quality of existing literature, and guide future research directions.

This study critically reviewed literature in the relevant thematic areas as follow:

Types of ICT Tools Used in Language Learning and Teaching

Information and Communication Technology (ICT) in education refers to the use of technology in educational settings to communicate, create, store, and manage information. ICT in education can be defined as a hierarchical process which involves teaching and learning with the support of certain medium and technology (Awang et al., 2018). In the previous studies educationist had mentioned ICTs in education to be limited to computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others this was according to Blurton,2002. They also had a narrowed meaning that; Information and Communication Technology tools are defined as a "group of various technological tools and resources used to communicate, create, distribute, store, and manage information. Results of the review of related literature conducted reveal that among the most common type of technology that teachers use to facilitate teaching are Power Point (Ruggiero, & Mong, 2015), internet or web-based applications [(Rolando, Salvador, & Luz, 2013), (Kale, & Goh, 2014)], tablet, iPads or mobile devices [(Riley, 2013), (Thomson, Bridgstock, & Willems, 2014) (Lindsay, 2016)], social media networking [(Aydin, 2014), (Cunha Jr, van Kruistum, & van Oers, 2016)], virtual classroom (Martin & Parkerm 2014), and game-based applications (Wang, 2015). In contrary this critical review has expanded the meaning of ICTs in education, demonstrated an immense type of contemporary tools and broad-based utilization. Therefore, this study, has reviewed works of several scholars in the field of ICT in education and are in agreement that the following are current ICT that can be integrated to the process of teaching and learning: Softwire and hardware tools are integral to enhancing teaching and learning processes, especially in the context of modern education. Here's an overview of both categories:

Softwire Tools (Software Tools)

In support of softwire utilization in education Pérez-Sanagustín, Paredes, and Palomo-Duarte (2017) discuss the role of Moodle an open-source learning management system in educational settings, particularly in higher education.

Learning Management Systems (LMS): Moodle, Google Classroom, Blackboard: These platforms help manage course content, track student progress, and facilitate communication between students and instructors.

Educational Apps: Duolingo, Khan Academy, Quizlet: These apps provide interactive learning, personalized exercises, and quizzes to enhance subject understanding.

Virtual Classrooms and Video Conferencing: Zoom, Microsoft Teams, Google Meet: These tools facilitate remote learning, offering features like video calls, screen sharing, and virtual collaboration.

Interactive Whiteboard Software: Jamboard, Miro, Microsoft Whiteboard: These allow teachers and students to collaborate, brainstorm, and engage in interactive lessons in real-time.
Simulation and Modeling Software: PhET, GeoGebra, Tinkercad: These tools simulate real-world phenomena, helping students visualize complex concepts in science, math, and engineering.
Assessment and Feedback Tools: Socrative, Kahoot!, Poll Everywhere: These tools enable teachers to create quizzes, polls, and surveys for real-time feedback and assessments.
Content Creation Tools: Canva, Adobe Spark, Animoto: These tools assist in creating visually engaging presentations, infographics, and videos for more dynamic learning experiences.
E-books and Digital Libraries: Google Books, Project Gutenberg: These provide easy access to a wide range of textbooks and reading materials online.

Hardwire Tools (Hardware Tools)
Dube, S., & Li, M. (2019) Talked of the use of current ICTs to complement the role of Blackboard in modern educational settings in enhancing student-teacher interaction. They pointed out in a general perspective on how ICT tools, particularly LMS platforms like Moodle, contribute to modern educational practices, with a focus on improving student engagement, autonomy, and learning outcomes.

Computers and Tablets: Devices like laptops, desktops, and tablets (iPads, Chromebooks) serve as platforms for using educational software, conducting research, and engaging with digital content.
Mobile smart phones: This is becoming more accessible tools in education because most of the families have. Children learning ca access different games in the phone that can shape their language learning skills.

Interactive Whiteboards (Smartboards): Promethean, SMART Boards: These are touch-sensitive boards that enable teachers to display content interactively and allow students to engage with the lesson.

Projectors and Displays: LCD Projectors, Interactive Projectors: Used to project multimedia presentations, videos, and other learning materials to large groups of students.
Document Cameras: These devices allow teachers to project physical documents, books, or small objects onto a screen for the whole class to see.

Audio-Visual Equipment: Microphones, Speakers, Cameras: Essential for delivering clear sound and visuals, particularly in large classrooms or during online learning.
Virtual Reality (VR) and Augmented Reality (AR) Headsets: Devices like Oculus Rift or Microsoft HoloLens provide immersive learning experiences, especially in fields like medicine, architecture, and history.

Classroom Response Systems (Clickers): These handheld devices allow students to respond to questions in real-time during lessons, providing instant feedback to instructors.
Digital Learning Stations: These include computers or tablets set up in stations where students can independently explore topics, watch instructional videos, and complete exercises.
The 3D Printers: In STEM education, 3D printers allow students to design and create physical objects, helping them visualize and understand complex concepts.
Assistive Technologies: Tools like screen readers, hearing aids, and adaptive keyboards help students with disabilities access and engage in learning.
It is also important to note that AI as a tool in education is gaining prominence.
Both softwire and hardwire tools work in synergy to create a more engaging, interactive, and personalized learning environment. These tools are increasingly central in education to cater to diverse learning needs and improve learning outcomes.
Ammanni and Aparanjani (2016) noted that technologies can also involve the internet, webinar, video chat, Skype, voice call, some applications, laptops, Light Emitting Diode (LED), LCD, remotes as well as some Mobile Apps.
It is important to note that the above tools currently are largely available in our societies and at the reach of learners. It is therefore important to integrate them in the teaching and learning process so that learners may be guided appropriately to avoid cyber-crimes and unethical use of technologies.

GENERAL UTILIZATION OF ICTS IN EDUCATION

Inductive and deductive reasoning are two fundamental approaches to logical thinking and problem-solving, widely applied in education, research, and everyday decision-making. Both methods have distinct processes, strengths, and limitations. Inductive reasoning moves from specific observations to general conclusions. It involves identifying patterns or trends and then formulating a broader principle or theory. On the other hand, deductive reasoning moves from a general principle or theory to a specific conclusion. It follows a logical progression where the conclusion must be true if the premises are true. The literature review in this study has taken the inductive approach moving systematically from a general point of view to particular. Current research has indicated that ICT assists in transforming a teaching environment into a learner-centered one this is according to Castro Sánchez and Alemán (2011). La Shun (2017) defines technology as something inherently intelligent enough to either function, be used to function, or be interpreted as having a function that intelligent beings such as human can appreciate, something devised, designed or discovered serving particular purposes from a secular standpoint without humankind creating it, or significantly beneficiary of rationally derived knowledge that is used for purpose without itself necessarily being translated into something material does autonomously or dependently when used Information and Communication Technologies (ICTs) have become integral to modern education, transforming teaching and learning processes. Technology such as internet provides users with some potential use not only for learning but also for communication,

planning future career, and developing larger and useful participation (Abbasi, 2020; Costley, 2014). It is because technology provides some essential tools for learning that allow students to use for facilitating cooperative learning and offering exciting alternatives for more language skills development through experimentation (Ahmadi,2017).

A comprehensive literature review by Jo Shan Fu (2013) examines the merits and challenges of ICT integration in schools, highlighting factors influencing successful implementation, teachers' attitudes, and the importance of school culture. Since learners are actively involved in the learning processes in ICT classrooms, they are authorized by the teacher to make decisions, plans, and so forth (Lu, Hou and Huang 2010). ICT therefore provides both learners and instructors with more educational affordances and possibilities. ICT has transformed teaching and learning processes from being highly teacher-dominated to student-centered, and this transformation will result in increased learning gains for students, creating and allowing for opportunities for learners to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills this is an observation Nwigbo & Madhu,(2016) in their study.

ICT (Information and Communication Technology) has become a cornerstone in modern education systems worldwide, playing a vital role in transforming teaching, learning, and administration. Information and Communication Technology (ICT) has revolutionized education, enhancing access, improving teaching methodologies, and fostering learner engagement. Below are key areas where ICT is generally utilized in education. Jo Shan Fu (2013) observed that the use of ICT facilities for teaching enhanced students' performance because it supports self-direct learning and students can access digital information efficiently and effectively.

The adoption of ICT may offer opportunities for students' engagement and collaboration in the learning process, but instruction must be scaffolded so that students can take advantage of these opportunities (Al Arif, 2019; Caldwell, 2020; Ziegler, 2016). It is reported that the use of ICT in language learning can maximize student learning and build or enhance their learning autonomy (Howlett & Zainee, 2019). The arguments by the above scholars makes the teacher central in the process of integration of ICTs in education. This is therefore an awakening to all the policy planners in all the countries where ICT has not been fully implemented. Teacher training and continuous professional development is very important towards realization of ICT integration in education.When teachers are digitally literate and trained to use ICT, it can lead to higher order thinking skills, and better prepare students for the technological change in society and the workplace. ICT provides remarkable opportunities for developing countries to enrich their educational system since it can help in acquiring and assimilating knowledge as mentioned by Byungura et al., (2019).

Furthermore, education has become more integrated with ICT in the twenty-first century, thriving on advancements in computer technology; teaching and learning in secondary schools can be improved in various ways. There is a possibility to support, enhance, or alter the processes and outcomes of teaching and learning in secondary schools through (Pareja Roblin N., Tondeur J,.et al 2018).

Al-Sharqi and Abbasi (2020) pinpointed that technological tools complement the traditional teaching approach since ICT supplements unlimited online resources for the teaching of literature in English classrooms. Knowledge transfer and application is an important evidence for the occurrence of deep learning. It shows not only the learning results, but also the embodiment of learning style. It is also a simulated social practice for students in the process of learning (Guo Hua, 2016). According to Wang (2015), game-based applications like Kahoot! brought dynamic experiences to students. It boosts their engagement, motivation and learning.

According to a study conducted by (Montenegro-Rueda, 2021), the use of new technologies can be negative for teachers because it implies changes in their teaching methods or pressure to acquire technological skills, leaving sequelae such as physical, social, and psychological problems. The lack of support and training provided by school districts and the pressure to implement new technologies is counterintuitive. For educators to alleviate this stress and anxiety, the school districts need to determine which technologies are necessary for student learning and provide them with the professional development courses needed to master them. According to Smith, J., & Thomas, R. (2023) this study supports the argument that ICT has the potential to transform education, but effective implementation requires a strategic approach that considers both the technology and the pedagogical practices associated with it.

TEACHERS' PERSPECTIVE IN THE INTERGRATION OF ICT IN ELT

The integration of Information and Communication Technology (ICT) in English Language Teaching (ELT) has transformed traditional pedagogical approaches, reshaping how educators engage with students and deliver content. With advancements in technology, language teachers now have access to diverse tools and resources that can enhance learning experiences, foster collaboration, and improve student outcomes. However, the effectiveness of ICT integration is heavily influenced by teachers' perceptions, attitudes, and readiness to adopt these innovations.Effective integration of ICT requires ongoing professional development. Teachers need not only access to technology but also training in how to use it pedagogically. Research suggests that when teachers receive adequate training and support, they are more likely to successfully integrate ICT in their classrooms Sweeney & Keogh, (2020).

Institutional Support for ICT Integration: Effective ICT integration in ELT requires institutional support, including provision of resources, technical assistance, and a conducive environment for

experimentation. Teachers' experiences often reflect that support from school administrators and access to reliable technology are key factors in successful ICT adoption (Martins & Silva, 2021). Zhao (2020) conducted a mixed-methods study that explored how teachers and students perceive the impact of ICT on language learning. Findings suggest that teachers view technology as a tool to diversify instructional strategies, making lessons more engaging and interactive. Multimedia tools like videos, games, and virtual classrooms have been particularly successful in motivating students, helping them visualize complex concepts and practice language skills outside of traditional learning spaces. Point to note here is that Technology fosters an engaging learning environment, but teachers report that integration depends heavily on the specific tools and students' ability to use them effectively.

Thompson (2019) highlights the wide variety of ICT tools available and highly appreciated by ELT practitioners which, includes but not limited to mobile apps, online learning platforms, and digital resources like podcasts. Teachers in the study found that ICT enhanced language acquisition by providing immediate feedback, promoting collaborative learning, and offering opportunities for self-paced study. Additionally, it helps bridge gaps in resource availability, especially for students in remote areas who might otherwise lack access to traditional educational materials. The teacher's point of view here is that the integration of ICT is particularly beneficial for creating personalized and flexible learning pathways that support diverse student needs.

Albirini (2019) surveyed English language teachers in Saudi Arabia to assess their attitudes toward using ICT in the classroom. Results showed that while many teachers were enthusiastic about the potential of technology, they often felt underprepared to use it effectively due to a lack of professional development and insufficient training. Teachers were also concerned about the challenges of adapting to technological tools and balancing them with traditional pedagogical methods. Key Takeaway point here is that Teachers' attitudes are generally positive, but proper training and support are critical for effective integration of ICT into ELT practices.

Sweeney and Keogh (2020) this article examines the role of professional development in the effective integration of ICT. They argue that ICT integration into ELT is heavily dependent on teachers' access to and participation in ongoing professional development programs. Teachers in the study expressed that one-time workshops or training sessions were not sufficient to master ICT tools. Continuous support, collaborative learning environments, and training that focuses on pedagogical integration rather than just technical skills were seen as more effective.

Their argument points out that Professional development must be continuous, context-driven, and aligned with pedagogical goals to support teachers in using ICT effectively. Focus: Martins and Silva (2021) discusses how institutional support impacts teachers' adoption of ICT in ELT settings. They found that teachers' success in using ICT in the classroom was closely tied to institutional factors, such as availability of technology, technical support, and encouragement from

administrators. Teachers in schools with robust technical infrastructure and support systems were more likely to use ICT frequently and effectively. The study emphasizes the importance of creating a culture of ICT support at the institutional level.

Key Takeaway: Institutional support—ranging from providing resources to fostering a supportive learning environment—plays a crucial role in the successful integration of ICT in language teaching. ICT training for teachers can also improve communication and collaboration between teachers and their students. With the use of technology, teachers can easily communicate with their students through email, messaging apps, and online discussion forums (Albantani & Madkur, 2019). Through the organization of various curricular and co-curricular activities, teachers can foster among children various moral qualities which machines cannot do. The result acquired is in compliance with the research that has been carried out by Shah & Empungan (2015) which demonstrated the majority of the respondents among teachers have positive attitude towards the usage of Information Communication Technology (ICT) in teaching and learning.

Shah.M. and Empungan (2015) state that attitudes toward ICT usage reflect the general feelings of teachers and learners towards ICT and also related observation on teachers' attitude and the success of ICT implementation in education was observed in their research by (Smith, Caputi, & Rawstone, 2000; Abedalaziz, Sharir & Chin, 2013). The researchers quote Joseph (2013) who believes that teachers' must be encouraged to use ICT in their classes. Like certain previous studies, this study also concluded that teachers had positive attitudes towards ICT integration. There is a need to link ICT use with teachers' talent as well as choice of use.

Study conducted by Venkateswar, Gopikanta and Rajashree (2020) looked into the attitude of teachers about the use of Information and Communication Technology (ICT) in teaching and learning process. The main findings show that the research results of this study support the results of different studies carried out in different regions of the country and the world, which shows the importance of ICT in education for teachers. This study shows the importance of ICT in the complementation of the work of a teacher. This does not reduce or remove the work of a teacher but makes it effective and efficient. In the three areas of psychological learning domains namely; Cognitive, Psychomotor and Affective, CT largely promotes Cognitive and Psychomotor with proper guidance of the teacher. But the affective domain in teaching which is a way to track how students' feelings and emotions change throughout the learning process remains to be the work of a human being and in this context the teacher. It's one of the three domains in Bloom's Taxonomy, along with the cognitive and psychomotor domains.

The affective domain includes learning objectives that focus on a student's interest, attitude, or values related to a subject. It can also include how students deal with things emotionally, such as their appreciation, enthusiasm, and motivation.

These results correspond with the findings of Kamaruddin et al. (2017) and Suparjan (2021), who found that the majority of respondents who in this case were teachers have a positive attitude towards the use of ICT in education. Therefore, this study story agrees that ICT must be used in all aspects of education. To bring this section into a conclusion, Aldwyn Cooper (2017), stated that "Despite advances in artificial intelligence, humans will always have the edge over machines when it comes to teaching. Cooper must have realized this due to the unique work of the teacher when it comes to the place of emotional intelligence (EI) in the teaching process. Therefore, other studies from developing countries which have expressed the fear by teachers that the ICTs might replace them like in other fields such as agriculture should not be a worry as of now. This finding is parallel to the study done by Coban & Atasoy (2019) which is said that teachers had positive attitudes for their self-development in the use of ICT. These insights reflect how teachers' perspectives on ICT integration are shaped by a variety of factors, including training, institutional support, culture, and access to resources. The studies underline the complexity of successfully integrating ICT into ELT and emphasize the importance of providing continuous support, adequate training, and considering the cultural context of ICT adoption.

However, as the school culture became more positive, the teachers' ICT usage level increased. Ward and Parr (2010) stated that teachers need to feel confident in their ability to facilitate student learning with technology in order to integrate technology into their classrooms. To achieve this goal, more professional development is required with a focus on increasing teachers' skills so that they are able to overcome apprehensions associated with using technology. Further, new teaching approaches and technical support should be offered by schools to allow them to retain control while facilitating learning with computers. Overall, implementing effective teaching with technology integration requires changes in teachers' knowledge, beliefs, and school culture (Ertmer and Otternbreit-Leftwich 2010).

On the other hand, O'Connor (2018) argues that ICT adoption in ELT is not just a matter of infrastructure or teacher attitudes but is also deeply influenced by cultural factors. In some cultures, traditional methods of teaching (e.g., teacher-centered approaches) are dominant, and integrating ICT may be seen as disruptive. In contrast, other cultures place a strong emphasis on innovation in education, which leads to greater acceptance of ICT. The study stresses the importance of understanding cultural contexts when planning ICT integration in ELT. This therefore points out clearly that Cultural perspectives play a significant role in the acceptance and integration of ICT in ELT, and strategies need to be tailored to local educational traditions. Despite positive attitudes, teachers often face significant challenges in effectively using ICT. These challenges include lack of proper training, inadequate technical infrastructure, and resistance from students who may not be accustomed to or interested in technology-enhanced learning (Hassan, 2021).

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ICT AND TEACHERS' CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

The integration of ICT in teachers' Continuous Professional Development (CPD) has revolutionized how educators enhance their skills, access resources, and adapt to evolving pedagogical practices. CPD broadly refers to variety of supported learning activities aimed at developing teachers' professional knowledge, abilities and disposition, in order to improve their practice and student learning outcomes (Egert et al., 2018). It is also characterized by the acquisition of new knowledge and skills beyond those acquired during initial teacher preparation (Armour et al., 2017; Richter et al., 2011). ICT provides diverse opportunities for personalized learning through online courses, webinars, virtual communities, and digital teaching tools, enabling teachers to develop their competencies at their own pace and convenience. It fosters collaboration and peer learning by connecting educators across geographical boundaries, promoting the exchange of innovative strategies and best practices. Additionally, ICT-driven CPD programs address the growing demand for digital literacy in classrooms, equipping teachers with the skills needed to integrate technology effectively into their teaching. However, challenges such as unequal access to digital tools, limited ICT proficiency among educators, and inadequate institutional support highlight the need for structured, equitable, and sustainable ICT-based CPD initiatives. As education systems increasingly embrace digital transformation, leveraging ICT for CPD remains critical to ensuring teachers are well-prepared to meet the demands of modern learners.

Effective CPD thus alters teachers' professional practices, beliefs, and knowledge to facilitate improvement in student learning (Taddese & Rao, 2022). CPD also supports teachers' adaptation to emerging trends in their practice, prepare teachers for future work and expand the career options of teachers (Muijs & Reynolds, 2017; Richter et al., 2019). Language research scholars such as James Mukhula et al., (2021) asserts that ICT has influenced the way people function today, both personally and professionally, which demands change in the educational arena and the role of a teacher in this case is crucial. Technology should be used for more than just support of traditional teaching methods (Tezci, 2011). According to Tezci (2011), teachers should learn not only how to use technology to enhance traditional teaching or increase productivity, but also should learn from a student-centered perspective how ICT can be integrated into classroom activities in order to promote student learning. This is why integration of ICT in the teaching and learning of English is crucial. Another importance of English language mention in his study that English is also utilized to promote profound comprehension of cultural diversity and ethnic inclusiveness according to Davlatova, (2020**)**. To achieve this important linguistic cultural comprehension element integration of ICT is pivotal and the role of a professional teacher is very critical. According to Armah (2017), there is a gap between the professional ideals and skills required in 21st-century schools and those available within Ghana's teaching population. This impacts the quality of student learning, as students' performance in the Basic Education Certificate Examination (BECE) has

only improved steadily (Akaboha & Kwofie, 2016; Ansong et al., 2015). The role of a teacher in the integration of ICTs in the teaching and learning process is unparalleled. This is because a teacher set a high standard of moral behavior before the child. The effective integration of ICT in teaching and learning requires adequately trained teachers. Various studies highlight the importance of teacher training and professional development programs to enhance their ICT skills and pedagogical practices (Namisango & Kizito, 2016). CPD stands for Continuing Professional Development, and it's a term used to describe the learning activities that educators engage in to improve their skills and knowledge. CPD is important in education because it helps teachers to:

- Stay up-to-date with the latest teaching methods, technologies, and research findings
- Improve their ability to relate to students, peers, and authority figures
- Increase their motivation and self-confidence
- Develop a stronger commitment to teaching
- Create a more stimulating learning environment for their students

Online courses, instructional videos, webinars, and e-conferences provide opportunities for language teachers to continue their education and develop new skills related to educational technology and language teaching pedagogy. It improves teacher quality and enhances the quality of student learning (De Vries et al., 2014; Opfer & Pedder, 2011). For these reasons, several countries have made investing in teachers' CPD a policy priority in order to ensure quality education (Borg, 2015; King, 2014). According to Opfer and Pedder (2011), boosting student learning and performance requires teachers to engage in meaningful professional learning engagements throughout their careers. Effective CPD activities, according to studies, strengthen teachers' content and pedagogical knowledge to improve practice and empower teachers to make complicated decisions about their practice to support student learning (Banks & Smyth, 2011; Chetty et al., 2014; Shriki & Patkin, 2016). In fact, the report Estado de la Educación 2021 (Costa Rican yearly analysis on current education issues) indicates2 that pre-service and in-service teachers look for opportunities to learn more about technologies that can be applied in the classrooms because «When technology is integrated into instruction in conjunction with effective teaching practices, it can enrich and enhance teaching and learning processes. Professional development, teacher learning is as important as learners' learning. Welch (2012) argues that "if professional development is not cantered on the link between educators' skills and knowledge and student learning, it cannot be said to be working" (p. 2). It is noted that effective ICT professional development should be linked to teacher learning and learners' achievements; however, there is scant literature explaining how to measure the impact of ICT professional development in ICT pedagogical integration and student achievement. The literature points out that ICT professional development needs to change teachers' beliefs and attitudes about ICT in order for them to integrate ICT into education. Continuous Professional Development (CPD) in ICT is crucial for teachers involved in language immersion, especially within the framework of Stephen Krashen's theories. Here's why it is essential:

Enhancing Pedagogical Skills: CPD in ICT equips teachers with the latest tools and methodologies to create an engaging, tech-enhanced learning environment. Teachers can learn how to effectively integrate multimedia resources and adapt to new technologies that facilitate language immersion, promoting the principles of comprehensible input and meaningful interaction.

Supporting Personalized Learning: With CPD, teachers stay updated on adaptive learning platforms and tools that allow them to personalize lessons according to each learner's needs. This supports Krashen's i+1 hypothesis by ensuring that learners receive the appropriate level of challenge in a stimulating yet manageable environment.

Reducing the Affective Filter: CPD programs teach teachers how to use ICT to create low-stress environments where students feel more comfortable. Understanding how to incorporate gamified elements, virtual interactions, and online communities helps teachers reduce anxiety and increase motivation in learners, addressing Krashen's Affective Filter Hypothesis.

Expanding Interaction Opportunities: Through CPD, teachers learn to incorporate ICT tools that enable authentic communication with native speakers and global peers. This not only enhances language acquisition but also fosters meaningful cultural exchange, which is central to the immersion experience.

Staying Current with Technological Advancements: ICT is constantly evolving, and CPD ensures teachers remain aware of the latest innovations in digital tools, software, and platforms that can enhance immersion practices. This helps maintain high-quality, dynamic, and effective language learning experiences.

Professional Networking and Collaboration: CPD encourages collaboration among teachers worldwide through online workshops, webinars, and professional communities. Sharing ideas, experiences, and teaching strategies leads to improved practices and the development of a collaborative immersion teaching environment.

Boosting Teacher Confidence: As teachers gain new ICT skills, they become more confident in their ability to use technology effectively in the classroom, which positively impacts their teaching performance and students' learning experiences.

In conclusion, CPD in ICT is integral to ensuring that teachers have the tools, knowledge, and confidence to create effective immersion environments. By staying informed about technological advancements, teachers can more effectively implement Krashen's principles and provide engaging, personalized, and meaningful learning experiences for students.

Therefore, attempts have been made to enhance English language teaching (ELT) and make it more advanced. Introducing technology in language teaching and learning provides great opportunities for both students and teachers to learn something new and to have to experiences (Merzifonluoğlu & Gonulal, 2018). Therefore, the use of technology in the classroom is recommended because the use of technology in the classroom can improve cognitive skills and abilities (Santhosh & Meenakshi,2015).

ICT IN THE ASSESSMENT OF LEARNERS AND LEARNING RESOURCES

The integration of Information and Communication Technology (ICT) in education has significantly transformed how learners are assessed and how learning resources are managed and utilized. ICT tools provide innovative methods for evaluating student performance, fostering interactive learning environments, and improving access to educational materials.

ICT in Assessing Learners

Traditional assessment methods often rely on written exams, essays, and oral presentations. However, ICT introduces dynamic and adaptable assessment tools, such as online quizzes, digital portfolios, and computer-adaptive testing, which allow educators to evaluate students in real-time and tailor assessments to individual learning needs. Platforms such as Google Classroom, Kahoot! and Moodle facilitate formative and summative assessments, providing instant feedback and analytics to monitor student progress. The use of information and communication technology (ICT) for assessment can also free up valuable teacher time within the school (Md et al., 2015). Additionally, automated grading systems reduce teachers' administrative workload and ensure objective evaluation. ICT tools also support self-assessment and peer assessment, empowering students to take responsibility for their learning. Technologies such as ePortfolios allow students to document their progress, reflect on their achievements, and set future learning goals.

Benefits of ICT in Learner Assessment include but not limited to:

- **Immediate Feedback:** Real-time insights help students correct mistakes quickly.
- **Personalization:** Assessments can be tailored to individual learning styles and abilities.
- **Scalability:** ICT allows assessments for large groups without significant cost increases.
- **Data Analytics**: Teachers can analyze trends, track performance, and identify knowledge gaps.
- **Reduced Bias:** Automated scoring minimizes human error or bias.

Role of ICT in the Krashen Immersion Assessment Method

- **Monitoring Comprehensible Input**: Tools like audio/video recordings assess if input aligns with learners' proficiency.
- **Assessing Affective Filter**: Surveys and interactive tools can measure learner anxiety and motivation.

- **Tracking Silent Period**: Observational tools in LMS platforms can track early-stage immersion progress.

ICT in Managing Learning Resources

The use of ICT has revolutionized the storage, accessibility, and dissemination of learning resources. Digital libraries, cloud-based storage, and Learning Management Systems (LMS) provide educators and learners with instant access to a vast array of educational materials. Resources such as eBooks, interactive simulations, and multimedia content enrich the learning experience and accommodate diverse learning styles. ICT was the key factor in improving the efficiency of the teachers, along with the staff by using software and hardware Teachers also saw the benefits of managing, storing, and other work like preparing reports with time saved (Srivastava, 2016).

Open Educational Resources (OER) have become a significant outcome of ICT integration. These free and accessible materials enable educators to customize content to meet specific curriculum goals while reducing costs associated with traditional textbooks**.** Access to Educational Resources Through ICT training, teachers can quickly and easily access online databases and educational websites, as well as digital libraries that contain a large amount of information and resources that can be used in their lessons (Madhukar, 2013). Furthermore, ICT tools such as data analytics help educators track the usage and effectiveness of learning resources. Insights gained from data analysis can inform resource allocation, content improvement, and curriculum design. ICT plays a crucial role in transforming assessment practices and managing learning resources in modern education. Its ability to provide real-time feedback, enhance resource accessibility, and support personalized learning underscores its importance. However, addressing challenges such as accessibility, digital literacy, and data security is essential to maximize the potential of ICT in education.

Despite the benefits, integrating ICT in assessment and resource management comes with challenges. Digital divides, unequal access to technology, and limited digital literacy can hinder effective implementation. Data privacy and cybersecurity also remain significant concerns.

ICT IN MOTIVATION OF LEARNERS AND TEACHERS (KRASHEN'S IMMERSION APPROACH)

Motivation drives achievements. Frydrychova Klimova and Poulova (2014) released a paper about two studies conducted on ICT as a motivational tool in the learning of learning of foreign languages. ICT therefore should be integrated into the learning then students are more motivated and take more interest in the learning. Motivation is a key element of the learning. If students are motivated towards a task then commitment to the learning task, enjoyment and self-esteem increase. Most of the educational scholars whose works were analyzed such as Kreutz and Rhodin

(2015) studied ICT impact on learners found that computers make learning exciting by developing learners' curiosity and motivation; developing independent and personalized learning (Jedeskogs, 1998; Frydrychova Klimova, & Poulova, 2014). The study further found that learners get motivation both from teachers and parents. Moreover, integration technology in English language classroom improves students' motivation, confidence (Ghavifekr et al.,2016) and students' interest in learning foreign language (Elvi,2017). Learners are therefore exposed to authentic materials which enhance their motivation and cultural knowledge (Dizon, 2022).

Stephen Krashen's immersion approach emphasizes creating a naturalistic language-learning environment where learners acquire language through meaningful interactions rather than direct instruction. His *Input Hypothesis* stresses the importance of comprehensible input (i+1), while his *Affective Filter Hypothesis* highlights how emotional factors, such as motivation, anxiety, and self-confidence, influence language acquisition. Information and Communication Technology (ICT) plays a crucial role in addressing both these hypotheses, enhancing motivation for both learners and teachers.

Motivation for Learners through ICT

- **Engaging Multimedia Resources:** ICT tools, such as language-learning apps, gamified platforms, and interactive videos, create immersive and engaging experiences. Resources like Duolingo, Rosetta Stone, and immersive VR simulations allow learners to experience real-world conversations in a low-pressure environment.
- **Personalized Learning Paths:** Adaptive learning technologies can tailor content to match a learner's proficiency level (i+1), ensuring comprehensible input while maintaining challenge and interest.
- **Authentic Communication Opportunities:** Tools like Skype, Zoom, or language exchange apps connect learners with native speakers worldwide, promoting authentic communication.
- **Reduced Anxiety:** Virtual environments allow learners to practice without the fear of public embarrassment, lowering the affective filter.

Motivation for Teachers through ICT

- **Access to Diverse Resources:** Teachers can easily access videos, podcasts, and digital libraries to create rich, authentic learning materials.
- **Efficient Assessment Tools:** Digital assessment tools provide immediate feedback, allowing teachers to track progress and adjust instruction effectively.
- **Professional Development:** ICT platforms offer online workshops, webinars, and communities of practice where teachers can exchange ideas and strategies.

- **Increased Engagement:** Teachers often report higher engagement levels when students are actively participating through digital tools, making the teaching process more fulfilling.

In conclusion, when ICT is integrated thoughtfully, it can support Krashen's key principles by offering abundant comprehensible input, reducing affective barriers, and creating authentic, meaningful interactions. Both learners and teachers benefit from increased motivation, resulting in more effective language acquisition in an immersion setting. Education researchers such as Shyamlee & Phil, (2012), Azmi, (2017) and Kreutz & Rhodin, (2016) all asserts that Technology in the form of multi-media is able to improve students' learning motivation and attention and promotes autonomy to enhance students' performance in the EFL classroom.

ICT IN PROMOTING THE TEACHING AND LEARNING OF LANGUAGE SKILLS (STEPHEN KRASHEN'S IMMERSION APPROACH)

The integration of Information and Communication Technology (ICT) in language teaching has gained prominence over recent decades. ICT tools not only enhance the accessibility of language resources but also support pedagogical strategies that emphasize naturalistic language acquisition, as championed by Stephen Krashen's Immersion Approach. This review examines the synergy between ICT and Krashen's principles of language acquisition, exploring its implications for teaching language skills in general education and Special Needs Education (SNE).

Stephen Krashen's Immersion Approach

Stephen Krashen's Immersion Approach is grounded in the principles of comprehensible input, low affective filters, and a focus on meaning rather than form (Krashen, 1982). The theory posits that learners acquire language most effectively when exposed to input slightly above their current proficiency level ("i+1"), in contexts that minimize anxiety and foster natural communication.

ICT tools align seamlessly with these principles by providing diverse, interactive, and personalized learning environments.

ICT in Language Teaching and Learning

ICT encompasses a wide range of tools, including multimedia applications, online platforms, and mobile applications, which can enhance listening, speaking, reading, and writing skills. Key technologies include:

1. Multimedia Tools

Multimedia tools such as videos, podcasts, and interactive software offer rich, contextualized language input. For instance, platforms like YouTube provide authentic materials that can serve as comprehensible input (Sokro & Yeboah, 2019). Such tools help bridge the gap between classroom learning and real-world language use.

2. Learning Management Systems (LMS)

Platforms like Moodle and Google Classroom facilitate access to instructional materials and foster collaborative learning. These systems enable teachers to design immersive environments tailored to individual learners' needs (Alm & Waller, 2020).

3. Mobile-Assisted Language Learning (MALL)

Applications such as Duolingo and Babbel support self-paced learning, reinforcing Krashen's idea that input should be meaningful and stress-free. MALL tools integrate gamification elements, which can reduce affective filters and increase motivation (Godwin-Jones, 2017).

ICT and Specific Language Skills Development

1. Listening Skills

Platforms like Duolingo, Rosetta Stone, or BBC Learning English offer structured listening exercises tailored to different proficiency levels. Video conferencing tools like Zoom and Skype allow learners to interact with native speakers, providing real-time listening practice. Moreover, one of the reasons why the learners of English find it difficult to learn listening is due to lack of facilities in terms of technological tools that is believed to have some roles to improve listening comprehension ability (Rintaningrum & R, 2018).

ICT tools like podcasts and audiobooks expose learners to diverse accents, intonations, and real-life conversations, enhancing listening comprehension. These resources align with Krashen's emphasis on providing comprehensible input in an engaging format.

2. Speaking Skills

Speech recognition software and virtual communication platforms, such as Zoom or Microsoft Teams, offer opportunities for spoken interaction. Virtual Reality (VR) environments simulate immersive language contexts, enabling learners to practice speaking in real-life scenarios (Chen & Kent, 2021). Rintaningrum (2016) emphasized that technological tools can be used to assist in maintaining the ability to speak in English in a setting where English is not widely used as well as during the outbreak (Ying et al., Citation2021). Learning how to pronounce foreign words and sentences is a key starting point of language learning. Displaying video clips for students could provide detailed guidelines that show how to move their tongue and jaw in the right way to produce a certain sound. Speech recognition technology will help students correctly pronounce common words and phrases and they will receive targeted feedback and scoring to get the sounds just right.

3. Reading Skills

ICT supports the teaching and learning of reading skills by providing interactive, engaging, and adaptable tools that cater to diverse learner needs. Digital reading platforms, such as e-books and online libraries, offer access to a vast array of reading materials, allowing learners to explore texts that align with their interests and proficiency levels (Brown & Green, 2020). Interactive features, such as hyperlinks, embedded multimedia, and annotation tools, enhance comprehension by enabling learners to access definitions, contextual information, and related content in real time

(McKenna & Conradi, 2016). Adaptive learning systems, powered by artificial intelligence, provide personalized reading experiences by adjusting text difficulty and offering tailored feedback based on learners' progress (Reynolds, 2019). ICT also facilitates collaborative reading activities through platforms like discussion boards and shared digital documents, which encourage learners to critically analyze texts and exchange interpretations (Kruk et al., 2020). For struggling readers and those in Special Needs Education (SNE), assistive technologies such as text-to-speech software and audiobooks improve accessibility and foster independent reading (Smith et al., 2017). Despite these benefits, challenges such as unequal access to devices, limited digital literacy, and distractions inherent in digital environments need to be addressed to maximize ICT's potential in supporting reading skill development (Selwyn, 2021).

Digital texts, e-books, and online articles cater to varied proficiency levels. ICT tools can also integrate interactive features, such as glossaries and instant translations, to support reading comprehension (Lai & Zheng, 2018).

4. Writing Skills

ICT supports the teaching and learning of writing skills by providing tools, platforms, and resources that enhance engagement, collaboration, and individualized learning. Word processors and writing software enable students to draft, edit, and revise their work with ease, incorporating features such as spell check, grammar correction, and thesaurus tools that support language accuracy (Hyland, 2019). Collaborative platforms, such as Google Docs or online discussion boards, foster peer feedback and cooperative writing exercises, promoting the development of critical thinking and communication skills (Zheng et al., 2018). ICT also offers access to diverse multimedia resources, such as visual prompts, videos, and interactive writing tutorials, which can inspire creativity and improve learners' understanding of different genres and structures (Kessler, 2017). Additionally, digital storytelling tools, blogging platforms, and writing apps encourage students to practice writing in authentic, real-world contexts, increasing their motivation and confidence (Anderson, 2019). For teachers, ICT provides assessment tools that allow for personalized feedback and track students' progress over time (Graham et al., 2019). Despite these advantages, challenges such as unequal access to technology and varying levels of digital literacy must be addressed to ensure ICT's full potential in enhancing writing skills (Selwyn, 2021).

Writing tools with integrated feedback, such as Grammarly or Google Docs, enhance learners' writing accuracy and coherence. Collaborative writing platforms encourage peer review and foster active engagement in the writing process. Writing tools, including grammar checkers (e.g., Grammarly) and collaborative platforms (e.g., Google Docs), enable learners to write and receive instant feedback. Blogging platforms and discussion forums provide spaces for creative and interactive writing activities, aligning with Krashen's focus on meaningful communication. Moreover, the use of ICT in planning for writing contributes to the reduction of anxiety levels and, at the same time, increases motivation, especially in relation to high support students (Centre for Education Statistics and Evaluation, 2021).

Online informal learning opportunities could particularly help language learners mediate their writing and literacy skills (Andujar, 2016, Elola and Oskoz, 2017,). These types of writing practices, which are interactive in essence (Sauro & Smith, 2010), can engage language learners in less intimidating authentic interactions with more proficient or competent language users and writers to practice writing and receive immediate feedback or advice on their performance. Interacting with online informal tools can further involve language learners in self-regulated strategies to edit and proofread their own writing in order to communicate effectively in informal spaces or even deal with classroom-based written activities. ICT-enabled informal writing practices could be then operationally defined as self-directed writing activities taking place in naturalistic settings whereby language learners interact with online informal mediational tools to create, edit, and share texts with others or find solutions to their own writing problems.

ICT IN INTERACTIVE LEARNING

Information and Communication Technology (ICT) enhances interactive learning by providing tools and platforms that foster engagement, collaboration, and personalized learning experiences. Multimedia resources, video conferencing tools, gamified platforms, and virtual reality create immersive and dynamic environments that support active participation and communication. These tools allow learners to access diverse, context-rich content, interact in real-time with peers and instructors, and practice language skills in low-stress settings. ICT supports the teaching and learning of reading skills by providing interactive, engaging, and adaptable tools that cater to diverse learner needs. Digital reading platforms, such as e-books and online libraries, offer access to a vast array of reading materials, allowing learners to explore texts that align with their interests and proficiency levels (Brown & Green, 2020). Interactive features, such as hyperlinks, embedded multimedia, and annotation tools, enhance comprehension by enabling learners to access definitions, contextual information, and related content in real time (McKenna & Conradi, 2016). Adaptive learning systems, powered by artificial intelligence, provide personalized reading experiences by adjusting text difficulty and offering tailored feedback based on learners' progress (Reynolds, 2019). ICT also facilitates collaborative reading activities through platforms like discussion boards and shared digital documents, which encourage learners to critically analyze texts and exchange interpretations (Kruk et al., 2020). For struggling readers and those in Special Needs Education (SNE), assistive technologies such as text-to-speech software and audiobooks improve accessibility and foster independent reading (Smith et al., 2017). Despite these benefits, challenges such as unequal access to devices, limited digital literacy, and distractions inherent in digital environments need to be addressed to maximize ICT's potential in supporting reading skill development (Selwyn, 2021).

Additionally, adaptive learning technologies tailor content to individual needs, ensuring that learners receive appropriate challenges. Overall, ICT transforms traditional learning into an interactive, student-centered experience, promoting deeper understanding and better language

acquisition outcomes. ICT has transformed teaching and learning processes from being highly teacher-dominated to student-centered, and this transformation will result in increased learning gains for students, creating and allowing for opportunities for learners to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills (Nwigbo & Madhu, 2016).

ICT complements Krashen's Immersion Method by providing interactive, accessible, and engaging tools that align with the principles of comprehensible input, low affective filter, and meaningful communication. Those tools offer learners access to authentic and engaging content, opportunities for interactive learning, and the flexibility to tailor their learning experiences to their specific needs and interests. The potential of these resources to enhance language proficiency is well-documented and holds significant promise for English language learners (Ardndt & Woore, 2018; Bakla & Mehdiyev, 2022). ICT and Interactive Learning in Krashen's Immersion Method
Stephen Krashen's Immersion Method emphasizes meaningful exposure to a target language in a low-stress environment, where learners acquire language naturally through comprehensible input. Information and Communication Technology (ICT) serves as a powerful tool to amplify this approach by enhancing interaction, engagement, and access to rich linguistic content.
Interactive platforms such as video conferencing tools (Zoom, Skype), chat forums, and collaborative tools (e.g., Google Classroom, Padlet) facilitate real-time communication with native speakers and peers. These tools support meaningful exchanges and provide opportunities for learners to practice output without fear of correction, aligning with Krashen's emphasis on lowering the affective filter.

ICT AND TEACHING ENVIRONMENT

Information Communication Technologies (ICTs) can build an interactive, engaging, learner-centered environment that fosters student creativity, transformation, and communication among students (Centre for Education Statistics and Evaluation, 2021). Current research has indicated that ICT assists in transforming a teaching environment into a learner-centered one (Castro Sánchez and Alemán 2011). Shaharanee and Rodzi (2018) mentioned that the use of Google classroom in class can help in transforming teacher-centered lessons to learner-centered lessons which support students' sharing and exchanging of ideas. This will create a very natural, real, communicative and stress-free learning environment for the students (Cakiki, 2016). ICT transforms the teaching environment by creating dynamic, flexible, and engaging spaces that support diverse learning styles. Digital tools such as interactive whiteboards, virtual classrooms, and online collaboration platforms facilitate communication between teachers and students, enabling more personalized and student-centered learning experiences. These technologies provide access to a wide range of resources and learning materials, allowing educators to tailor lessons to meet the individual needs of students, regardless of their location. Furthermore, ICT fosters greater student engagement through multimedia content, gamification, and interactive simulations, which can motivate

learners and enhance their understanding of complex concepts (Johnson et al., 2020). However, successful integration of ICT in the teaching environment requires appropriate infrastructure, ongoing professional development for teachers, and the effective management of digital tools to ensure equitable access and avoid potential distractions (Selwyn, 2021).

ICT also plays a significant role in motivation to learn and in the interest and attention students pay to the proposed tasks, thereby generating an atmosphere of involvement and engagement during lessons (Azmi, 2017). ICT Connects the classroom learning and teaching environment with the real world. In this context new technology in the language classroom such as videos, images, and software solutions empower teachers to incorporate the larger real-world environment into the classroom. Turning the theories into practical experiences motivates students to practice and be deeply immersed in second language learning.

Information and Communication Technology (ICT) significantly transforms the traditional language immersion environment by aligning with Stephen Krashen's key hypotheses for effective language acquisition—comprehensible input, low affective filter, and meaningful interaction.

Comprehensible Input (i+1): ICT provides diverse and accessible resources (such as multimedia content, interactive apps, and virtual environments) that offer learners input slightly above their current level of understanding, ensuring the content remains engaging yet challenging. These interactive apps support teaching and learning through Krashen theories in the following ways:

- **Lowering the Affective Filter**: ICT creates a safe, low-pressure environment where learners can practice without fear of judgment, reducing anxiety and boosting self-confidence. Virtual spaces like gamified platforms and online language exchanges allow for experimentation and error-making in a non-threatening context.
- **Facilitating Meaningful Interaction:** Through ICT tools such as video calls, chat apps, and language-learning platforms, learners can engage in authentic communication with native speakers, fostering real-world language use and increasing motivation.
- **Personalized and Adaptive Learning**: ICT enables individualized learning paths, adapting content to meet the unique needs of each learner, ensuring they receive appropriate challenges that support continuous growth.
- **Multisensory Engagement**: ICT incorporates various sensory modes—audio, visual, and tactile—creating a rich, immersive learning environment that reinforces language skills in a holistic way.
- **Teacher Support:** ICT empowers teachers by providing tools for resource creation, collaboration, and professional development. It also facilitates efficient lesson delivery and real-time feedback, enhancing both teaching practices and student engagement.
- **Global Connectivity and Cultural Exposure**: ICT removes geographic barriers, allowing learners to interact with peers and native speakers from different cultures, enriching the immersive experience with authentic global perspectives.

In essence, ICT creates an immersive environment that not only supports Krashen's theories but enhances the language learning experience by providing engaging, personalized, and meaningful opportunities for interaction.

IMPORTANCE OF ICT IN THE TEACHING AND LEARNING OF ENGLISH LANGUAGE: IMMERSION APPROACH BY STEPHENE KRASHEN

Stephen Krashen's Immersion Approach emphasizes creating an environment where language learners are surrounded by the target language in a natural and meaningful way. This approach relies heavily on comprehensible input, low affective filters, and meaningful interactions to ensure successful language acquisition. Integrating Information and Communication Technology (ICT) into Krashen's immersion method significantly enhances its effectiveness in teaching and learning the English language. Classroom use of ICT tools such as computers, projectors, and interactive whiteboards has been associated with increased student motivation, participation, and achievement (Twesigye & Rwegasira, 2017.These tools have the potential to support Krashen's Immersion Approach by providing authentic language exposure and interactive communication opportunity.
Educational research scholars are in agreement that ICT promotes learning and teaching environment. According to Byungura et al., (2019), ICT provides remarkable opportunities for developing countries to enrich their educational system since it can help in acquiring and assimilating knowledge. In a technology-driven learning environment, flexible classroom spaces where connected devices, audiovisual tools, and purposeful furniture are integrated facilitate positive engagement of students and the mix of independent, small-group, and whole-class learning that is now viewed as essential to student success (EdTech staff, 2018).This study therefore posits that the integration of ICT in the immersion English teaching approach contributes significantly to environmental sustainability. By reducing paper consumption, minimizing carbon footprints, promoting energy efficiency, and fostering environmental awareness, ICT serves as a powerful tool for creating eco-friendly and effective language learning environments. Educators and policymakers must prioritize ICT adoption in language education to align pedagogical goals with environmental sustainability initiatives. It is also good to observe here that ICT has environmentally make the world a digital village .The United Nations Conference on Trade and Development (UNCTAD ,2021) has stated that the rapid advancement of technology has affected education, along with the economy and society .Digital technologies have made distance learning and virtual learning environments possible, which can benefit students who would otherwise be excluded.

In conclusion, integrating ICT tools into Stephen Krashen's Immersion Approach enhances comprehensible input, interaction, and affective filter reduction, while providing teachers and learners with innovative ways to engage with the language.

By leveraging ICT effectively, English language learning becomes more accessible, interactive, and engaging, ultimately leading to better acquisition outcomes in immersive environments. The integration of ICT in English Language Teaching is complex and influenced by various factors, including teachers' attitudes, professional development opportunities, and institutional support. While many teachers recognize the potential benefits of ICT in enhancing engagement, resource accessibility, and teaching effectiveness, challenges such as insufficient training, technological barriers, and resistance to change persist. Addressing these challenges through comprehensive training, institutional support, and fostering a positive attitude toward ICT can enhance the integration of technology in ELT.

THE ROLE OF ICT IN SPECIAL NEEDS EDUCATION (SNE)

Information and Communication Technology (ICT) plays a transformative role in Special Needs Education (SNE) by addressing diverse learning challenges, promoting inclusivity, and enhancing accessibility to educational resources. For learners in SNE, ICT provides tailored solutions to overcome language barriers. Assistive technologies, such as text-to-speech and speech-to-text software, address specific learning needs, making language acquisition more accessible (Kagohara et al., 2013). Interactive storytelling apps and visual aids also support learners with cognitive or sensory impairments by providing multimodal input.

ICT plays a vital role in Special Needs Education (SNE) by providing tools and resources that enhance accessibility, inclusivity, and individualized learning experiences. Assistive technologies such as text-to-speech software, screen readers, and voice recognition tools enable learners with disabilities to access educational content more effectively (Smith et al., 2017). Interactive tools, such as touchscreens and adaptive learning platforms, cater to diverse needs by offering personalized learning pathways and multimodal content delivery, which support students with learning difficulties, visual or hearing impairments, and physical disabilities (Adebisi et al., 2015). Moreover, ICT fosters communication for students with speech or language challenges through augmentative and alternative communication (AAC) devices, enhancing their ability to interact with peers and educators (Cook & Polgar, 2020). These technologies not only empower students to participate more actively in their education but also enable teachers to design more inclusive and effective teaching strategies. However, challenges such as the cost of assistive technologies, limited teacher training, and infrastructural barriers must be addressed to fully leverage the potential of ICT in SNE (Selwyn, 2021).

Through adaptive tools and tailored platforms, ICT supports learners with disabilities or special educational needs, empowering them to participate effectively in learning environments, including language immersion programs based on Stephen Krashen's immersion method. The UNESCO IITE (2006) report suggests that: The conditions in every type of inclusive educational area cannot be successfully created without the appropriate ICT tools applied. Assistive tools must be used to

allow students with SEN to participate in the educational process based on special techniques and equipment.

This report by UNESCO was emphasized once again in the year 2009 according to the UNESCO Policy Guidelines document (2009) suggests that inclusion can be seen as a process of addressing and responding to the diversity of needs of all children, youth and adults through increasing participation in learning, cultures and communities, and reducing and eliminating exclusion within and from education. It is based on a values system that welcomes and celebrates diversity arising from gender, nationality, race, language, social background, level of educational achievement, disability, etc. Inclusion also implies that all teachers are responsible for the education of all learners. In conclusion, aligning ICT with immersion theories in Special Needs Education not only bridges the gap between technology and pedagogy but also ensures that every learner, regardless of their abilities, can access and benefit from a rich language-learning environment. The synergy between these two domains offers innovative pathways to foster inclusivity, engagement, and effective learning outcomes.

The establishment of inclusive schools where meaningful learning and participation is encouraged for all students has become an educational imperative with countries around the world increasingly embracing inclusive education as official policy and practice. For some student's computers provide the only environment which they can manipulate and the only tools that reduce their level of disability. Modified keyboards and mouse drivers may be used to allow extremely handicapped students to use regular software packages.

Research has revealed that teachers who had positive attitudes toward inclusion consistently used several practices and various types of interventions to teach their students (i.e. adaptations to meet the needs of all students; Tant & Watelain, 2016). In contrast, negative attitudes toward inclusion focused on the participation of students with disabilities in traditional sports and physical activities that were not adapted (Combs et al., 2010). One's perceived teaching competence is the most influential factor for a teacher's positive attitude toward including students with disabilities (Gallego-Ortega & Rodriguez-Fuentes, 2021).

Enhancing Comprehensible Input

The variety of input and output devices available provides the opportunity for students who are physically handicapped to be involved in the same learning activities as other students (Srivastava, 2016). Krashen emphasizes the importance of comprehensible input—language that learners can understand despite not fully mastering it. ICT tools such as text-to-speech software, closed captions, visual aids, and multimedia resources make language input more accessible to SNE learners, particularly those with hearing or visual impairments. Enhancing Comprehensible Input also enhances interactive apps, and virtual simulations, provide dynamic and visually appealing ways to present information. For learners with special needs, these tools help simplify complex

concepts, allowing them to grasp content more effectively. Videos with captions, speech-to-text tools, and interactive story-based software make language exposure richer and more comprehensible.

Lowering the Affective Filter

Krashen's Affective Filter Hypothesis highlights the emotional barriers to language acquisition, such as anxiety, lack of confidence, or fear of failure. ICT can create safe, supportive, and engaging environments for SNE learners through virtual classrooms, gamified learning apps, and speech recognition tools, reducing the fear of making mistakes and increasing participation. Furthermore, a research by Chien, Wu and Hsu (2014) has shown that students in school are having high expectation on ICT integration in classroom as the new generation are born and grown with technologies and could be define as the digital – native phenomenon. The younger the students, the higher their expectation are on ICT integration in classroom. It also proved that the integration of ICT is mostly dependent on the personal factors which define as self-perceptions. This research also shows that the acceptance of ICT of teachers and students in classroom and outside of classroom whereby both are more likely to use technologies outside the classroom. They found that the barriers of ICT integration in classroom are confidence, competence and attitudes of teachers reduce the percentage of ICT integration.

Safe Learning Environments: Online tools allow learners to practice without fear of judgment.
Gamification: Apps like Kahoot! and Quizlet make language learning fun and low-pressure.
Self-Paced Learning: Tools like Rosetta Stone and Babbel let learners progress at their own speed.
Connection to Krashen: ICT helps lower anxiety and foster a stress-free environment, enhancing natural acquisition.

Supporting Interaction and Communication

According to Widiyawati, A. T, (2019), ICT also promotes inclusivity by providing access to those with physical or environmental limitations, ensuring that every individual has an opportunity to learner. Interactive ICT tools like Augmentative and Alternative Communication (AAC) devices, speech-generating apps, and collaborative platforms enable SNE learners to interact with peers and instructors effectively. These tools support both verbal and non-verbal communication, ensuring that learners with speech or mobility impairments can actively participate in immersive language activities.

Personalized and Adaptive Learning.

Adaptive learning technology provides personalized learning at scale by assessing learners' current skills/knowledge, providing feedback and content, and then constantly monitoring progress by utilizing learning algorithms that provide real-time updates and the necessary tools to improve student learning (Educause Learning Initiative 2017). The Horizon Report (2018) explains that

adaptive learning occurs when digital tools and systems are used to create individual learning paths for students based on their strengths, weaknesses, and pace of learning.

ICT enables personalized learning experiences by offering tools and software that adapt to the learner's pace, needs, and abilities. Adaptive learning platforms can adjust vocabulary difficulty, provide real-time feedback, and offer tailored exercises, aligning well with Krashen's emphasis on individualized, low-pressure language acquisition. ICT allows for customized lesson plans tailored to the individual needs of students. For example, students with hearing impairments may benefit from captioned videos, while students with visual impairments can use screen readers. Adaptive learning technologies analyze learner performance and adjust content delivery, ensuring that immersion aligns with each student's learning pace.

Promoting Engagement through Multisensory Learning

ICT offers multisensory tools (e.g., touchscreens, interactive whiteboards, immersive VR platforms) that cater to various learning styles. For SNE learners, multisensory approaches reinforce language comprehension and retention by combining visual, auditory, and kinesthetic inputs. Magulod (2017) found some technical problems in applying multisensory approach and suggested several ways to overcome the challenges. First, for the visual aids, the size of the letters or pictures should be suitable with the student's condition. Moreover, handwritten letters are better off computerized and printed with larger fonts to be more readable.

Drane et al., 2020). Home-based learning refers to a form of distance education conducted in online delivery mode that allowed learners to participate regardless of geographic location, different time, and place (Richardson & Swan, 2003). Although home-based learning has been an alternative to face-to-face learning, home-based learning still creates a different experience that affects the entire atmosphere of the learning experience and engagement as well.

Multisensory approach is a way of teaching that can promote engagement in English lesson especially to primary students. Multisensory approach was first developed by Grace Fernald and popularized by Maria Montessori in teaching language to young learners (Inocian, 2018; Nakra, 2019).

Promoting Engagement and Motivation

Immersion theories stress natural language acquisition through meaningful interaction. ICT tools such as gamified language apps, digital storytelling platforms, and collaborative tools (e.g., online discussion boards) provide engaging platforms for language practice. Several studies, including those by Idowu and Esere (2013) and Pavel et al. (2015) , highlight the positive impact of ICTs on tertiary education. The studies emphasize that ICT integration enhances student motivation, engagement, and skill acquisition.

These tools create safe spaces for students to interact, reducing anxiety and encouraging participation. The evolution of e-learning in tertiary education embraced interactive multimedia elements and gamification techniques (Shatri & Kelmendi, 2023). Educational content started incorporating videos, simulations, and animations, making learning more engaging and immersive. Gamification, integrating game design elements into non-game contexts, transformed the educational experience by adding competitive elements, rewards, and challenges. Gamified e-learning modules increased students' motivation, participation, and retention of information. Interactive multimedia and gamification catered to diverse learning styles and fostered a collaborative and enjoyable learning environment. In e-learning environments, ICTs enable the design of activities that promote collaborative problem-solving, critical thinking, and knowledge creation (Swanson et al., 2020) .

Overcoming Communication Barriers

For non-verbal or speech-impaired learners, ICT tools such as Augmentative and Alternative Communication (AAC) devices provide alternative means of communication. These tools align with immersion principles by enabling students to participate actively in language-rich environments. Mobile Learning (m-Learning) leverages smartphones and tablets, enabling learners to access educational resources anytime, anywhere, fostering flexibility and convenience (Oyelere et al., 2016; Nafiu et al., 2023).

Accessibility and Inclusivity

ICT supports accessibility by offering features like text-to-speech, adjustable font sizes, and high-contrast displays. These technologies ensure that learners with physical or cognitive challenges can still engage with immersion-based teaching methods. For students who are not able to take notes during the class, the system stores in database lessons already taken for further studies and provides a more user-friendly environment for blind students through audio interpretation of the course (Bingimlas, 2009), thus enhancing their learning.

Facilitating Real-World Interaction

Immersion theories emphasize real-life language application. ICT tools such as virtual classrooms, language exchange platforms, and augmented reality experiences simulate real-world interactions, enabling students to practice their language skills in contextually meaningful settings.

10. Accessibility Tools for Specific Disabilities

- **For Hearing Impairments**: Apps with captions, sign language interpreters, and visual-based cues.
- **For Visual Impairments**: Screen readers, braille displays, and audio content.
- **For Cognitive Challenges**: Simplified content, gamified platforms, and repetitive practice tools.

Connection to Krashen: These tools ensure that all learners, regardless of disability, can access comprehensible input and participate in meaningful interactions.

ICT tools align seamlessly with Krashen's Immersion Method by enhancing comprehensible input, promoting meaningful interactions, and lowering affective filters. For students with disabilities, these technologies ensure equitable access to language learning opportunities, breaking barriers and fostering natural acquisition.

During the Covid-19 pandemic, research revealed that it was difficult for many teachers to engage children with disabilities in virtual environments (Al Lily & Alhazmi, 2022; Patel, 2020). Working with children with disabilities often requires direct contact (Bakkaloglu & Ergin, 2020); thus participants reported that it was challenging to engage them in motor play without opportunities to guide them (Verulava et al., 2022). On the other hand, some children with disabilities did better academically when learning online, because they were more comfortable being at home on the computer than at school (Verulava et al., 2022).

However, for students with SEN, meaningful access to a class curriculum that effectively responds to these students' strengths and individual needs remains an elusive issue (Morningstar, Shogren, Lee, & Born, Citation2015). To this end, several authors have urged necessary curriculum modifications (Kurth & Keegan, 2014; Lee, Wehmeyer, Soukup, & Palmer, 2010) to improve the inclusion of students with SEN through differentiated instruction (DI), and the identification of the features that can affect teachers' use of available DI strategies (Strogilos et al, Citation2020; Kurth & Keegan, 2014). This study, conducted in Singapore, therefore aims to explore the types of modifications teachers use for students with SEN in mainstream classrooms, the contextual features that influence the use of DI strategies, and teachers' overall understanding of this approach.

Special education is a type of education that provides support and adaptive methods to help students with a variety of needs learn. Special education teachers may work with students in a number of ways. Emerging technologies, such as Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), Blockchain, and others, are reshaping the landscape of e-learning (Hawarna, 2023) . For instance, AI, with its capabilities for personalized learning, adaptive assessments, and chatbots for student support, will become increasingly prevalent in e-learning. VR and AR offer immersive learning experiences, enabling students to explore complex concepts and engage in practical simulations. Blockchain technology can provide secure and transparent credential verification, transforming how academic achievements are recognized and shared.

In Conclusion, Integrating Information and Communication Technology (ICT) with immersion theories in Special Needs Education (SNE) plays a critical role in enhancing learning outcomes for students with diverse needs. Immersion theories, such as Stephen Krashen's comprehensible input hypothesis, emphasize the importance of creating an environment where learners are exposed

to meaningful and context-rich language experiences. When combined with ICT tools, these theories can be more effectively implemented, leading to a more inclusive and engaging learning experience. The alignment of ICT in SNE aligns with Krashen's immersion principles by enhancing access to comprehensible input, reducing emotional barriers, supporting interaction, and promoting personalized and multisensory learning experiences. Whether addressed in a dedicated section or interwoven throughout your literature review, the role of ICT in SNE highlights its potential to bridge learning gaps and foster inclusive language acquisition environments.

CHALLENGES AND SOLUTIONS OF ICT EDUCATION INTEGRATION

While ICT offers numerous benefits, challenges such as digital divides, lack of teacher training, and limited infrastructure persist (Unesco, 2022). Addressing these issues requires policies promoting equitable access to technology, teacher professional development, and investment in digital infrastructure. The integration of Information and Communication Technology (ICT) in language education has revolutionized traditional teaching methodologies, offering dynamic tools to enhance language acquisition. Many research scholars (Acevedo, 2016; Ince 2014; Liu, 2012) in their research studies have concluded that English language teaching and learning (ELTAL) is effective and more successful with the integration of ICTs. Technology can help teachers create more dynamic and engaging lessons that capture students' attention and keep students engaged throughout the entire class. This can help students retain information and improve their academic performance (Gershenfeld et al., 2001).

This study examines some of the potential barriers such as access to technology, paradigm shifts for educators, and privacy challenges that may arise in the context of digital learning. Information and Communication Technology (ICT) has become a cornerstone of modern education, facilitating access, efficiency, and innovation. However, the integration of ICT in education faces significant challenges. This review explores these challenges and the solutions proposed by scholars, focusing on accessibility, teacher readiness, infrastructure, and pedagogy.

Challenges in ICT Integration

Digital Divide The digital divide refers to the gap between individuals, groups, or regions that have access to modern information and communication technology (ICT) and those who do not. This divide encompasses disparities in access to devices, internet connectivity, digital skills, and the ability to use technology effectively. Description: The digital divide refers to the gap in access to ICT between urban and rural areas, as well as among socio-economic groups. Limits educational opportunities and exacerbates inequality. Van Dijk (2020) highlights that unequal ICT access impedes equitable learning and Warschauer (2004) discusses the sociocultural factors contributing to this divide.

Teacher Preparedness and Professional Development

Teacher Preparedness in ICT refers to the readiness and ability of educators to effectively integrate Information and Communication Technology (ICT) into their teaching practices. It is a critical factor in ensuring the success of ICT implementation in education systems. Lack of sufficient training for teachers to effectively integrate ICT into the curriculum.

Many studies show that many teachers lack the necessary training to integrate ICT into their teaching practices effectively. Koehler and Mishra (2009) propose the TPACK framework to address this gap. While on the other Jimoyiannis and Komis (2007) emphasize the importance of continuous professional development. Ertmer (1999) suggests addressing barriers through targeted training. Lawless and Pellegrino (2007) discuss effective professional development models.

Infrastructure and Costs

The implementation of Information and Communication Technology (ICT) in education is heavily dependent on infrastructure and financial investment. Inadequate infrastructure and high costs are among the most significant barriers to successful ICT integration in many regions, particularly in low-income or rural areas. High costs of devices, internet connectivity, and maintenance hinder ICT adoption, especially in low-income regions. Inconsistent ICT availability disrupts learning continuity. UNESCO (2019) advocates for public-private partnerships to reduce costs. Trucano (2012) discusses cost-effective ICT implementation strategies.

Cybersecurity and Digital Safety

Cybersecurity refers to the practices, technologies, and strategies designed to protect computer systems, networks, and digital data from unauthorized access, theft, damage, or disruption. Digital Safety, on the other hand, focuses on protecting individuals from online risks, including privacy breaches, cyberbullying, identity theft, and exposure to harmful content.

Cybersecurity and digital safety are critical challenges to the implementation and effective use of Information and Communication Technology (ICT) across various sectors, including education, healthcare, and business. The increased reliance on ICT has exposed systems and users to numerous threats, which can undermine trust, disrupt operations, and compromise sensitive data. Concerns over online safety and data breaches are rising. Discourages ICT adoption and exposes students to risks. Livingstone and Helsper (2007) highlight the importance of digital literacy. Ribble (2011) promotes digital citizenship education to mitigate risks. Common Digital Safety Risks include the following:

- Identity Theft: Stealing personal information to commit fraud.
- Cyberbullying: Online harassment or abuse.
- Inappropriate Content: Exposure to harmful, explicit, or misleading content.
- Online Scams: Deceptive schemes to steal money or data.

- Addiction: Overuse of digital devices leading to health and social issues.
- Reduced Trust: Stakeholders lose confidence in ICT systems if they are perceived as insecure.
- Increased Costs: Organizations face high costs to recover from cyberattacks and breaches.
- Disruption to Learning and Services: In education and healthcare, cyber incidents can interrupt critical services.
- Legal and Regulatory Risks: Organizations may face penalties for failing to protect sensitive data.

High Costs of ICT Implementation

The high costs associated with implementing Information and Communication Technology (ICT) are a significant barrier to its widespread adoption, particularly in education, healthcare, and rural development. These costs can impede efforts to bridge the digital divide and limit the benefits ICT can provide in fostering growth, efficiency, and access to information.

1 Initial Setup and Infrastructure Costs. Establishing ICT infrastructure involves significant investment in hardware, software, and physical facilities. Impact: Institutions, particularly in low-income regions, struggle to afford these upfront expenses. Examples: Purchasing computers, tablets, servers, and network devices. Upgrading classrooms or offices to accommodate ICT equipment.

2. Operational and Maintenance Costs. ICT systems require ongoing maintenance, updates, and repairs. Impact: Poorly maintained systems can degrade over time, reducing their effectiveness.
Examples: Regular software updates and patch management. Hiring technical support staff to address system failures.

3. Connectivity Costs. Access to reliable and high-speed internet often comes with recurring expenses that can strain budgets. Impact: Limited connectivity restricts access to online resources and collaboration tools.
Examples: High costs of broadband in remote areas. Mobile data expenses for students and teachers.

4. Training and Capacity-Building Costs Description. Ensuring that users (teachers, students, employees) are skilled in using ICT tools requires investments in training programs. Impact: Lack of training diminishes the effectiveness of ICT tools and resources. Examples: Conducting digital literacy workshops for educators. Providing technical training for IT staff.

5. Cost of Digital Content and Software Licenses. Many ICT applications rely on proprietary software, which often requires costly licenses. Impact: Recurrent expenses for software renewals can overwhelm limited budgets. Examples: Subscription fees for cloud-based learning platforms. Licensing costs for productivity tools like Microsoft Office or Adobe Suite.

6. Unequal Cost Distribution. Urban areas often receive better funding and subsidies for ICT compared to rural or marginalized communities. Impact: This disparity exacerbates the digital

divide. Examples: Urban schools equipped with high-tech smartboards, while rural schools lack basic computers.
7. Energy Costs. ICT systems require consistent power, and energy costs can be substantial in regions with unstable electricity grids. Impact: High energy costs or reliance on generators increase overall expenses. Examples: A rural school spending more on generator fuel than ICT hardware.

Solutions to ICT Integration Challenges in Education
Integrating Information and Communication Technology (ICT) in education presents challenges such as high costs, teacher preparedness, infrastructure gaps, and cybersecurity concerns. Below is a brief overview of effective solutions with references:

1.Addressing the Digital Divide
- **Infrastructure Development**: Expanding broadband networks in rural areas.
- **Affordability Programs**: Subsidized internet services and devices for low-income families.
- **Digital Literacy Campaigns**: Providing education on how to use technology.
- **Policy Interventions**: Governments and NGOs working together to bridge the gap.
- **Public-Private Partnerships**: Collaboration between industries to expand access and resources.

2. Addressing High Cost
- **Solution:** Governments and organizations can adopt public-private partnerships (PPPs) to subsidize ICT costs, implement open-source software, and utilize resource-sharing models to reduce financial burdens.
- **Example**: Schools can use free platforms like Moodle or Google Workspace for Education to lower software expenses.

3. Improving Teacher Preparedness
- **Solution:** Conducting continuous professional development (CPD) for teachers to build digital literacy and confidence in using ICT tools.
- **Example:** Workshops and online courses to train educators on integrating ICT in lesson planning and delivery. Trucano, M. (2012). This publication is a foundational resource that provides an overview of key issues, challenges, and opportunities in integrating ICT in education globally. It includes case studies, evidence-based practices, and practical recommendations for policymakers, educators, and other stakeholders
.

4. Enhancing Infrastructure
Solution: Governments can invest in broadband connectivity, provide affordable ICT devices, and ensure stable power supply through renewable energy solutions like solar power for remote schools.
Example: Initiatives like India's Digital India program, which enhances connectivity in rural schools. World Bank (2019). This report discusses how the World Bank's Digital Development

Partnership (DDP) leverages digital solutions for development, aiming to ensure inclusivity in the digital age.

5. Promoting Cybersecurity and Digital Safety

Solution: Schools should implement firewalls, secure authentication systems, and provide digital safety training for students and teachers to recognize and mitigate cyber threats.

Example: Incorporating cybersecurity lessons into the curriculum to foster awareness among students. Kaspersky Lab's 2020 report, "Digital Education: The Cyberizes of the Online Classroom," highlights several key points regarding cybersecurity in education:

- **Increased Digital Literacy**: The shift to remote education has enhanced digital literacy among both students and teachers, leading to a more diverse and technologically integrated learning process.
- **Growing Demand for Cybersecurity**: The rising popularity of digital services in education has heightened the need for robust cybersecurity measures to maintain a secure learning environment.
- **Importance of Digital Security Education**: There's a pressing need to introduce digital security lessons for teachers, enabling them to impart essential cybersecurity knowledge and skills to their students.

These insights underscore the critical importance of implementing comprehensive cybersecurity strategies within educational settings to safeguard against potential cyber threats.

6 Adopting Phased Implementation

Solution: Schools can roll out ICT integration in phases to manage costs and address resource constraints gradually. The UNESCO (2021) report on ICT in Education: Challenges and Opportunities provides several key recommendations aimed at overcoming barriers to ICT integration and maximizing its potential in education.

Example: Starting with pilot projects in select schools before scaling up.

8. Encouraging Localized Content Development

Solution: Develop localized digital learning materials that align with the local curriculum and cultural context to enhance relevance and engagement.

In Trucano, M. (2012), Knowledge Maps: ICT in Education, one of the highlighted solutions for addressing challenges in ICT integration is Encouraging Localized Content Development. The key points include:

Why Localized Content Matters

- Cultural Relevance: Localized content ensures that educational materials align with the cultural and linguistic context of learners, making the content more engaging and accessible.
- Curriculum Alignment: Tailoring content to match national or regional curricula supports learning objectives and improves educational outcomes.

- Inclusivity: Localized resources can address the diverse needs of learners, including those in rural or underserved areas.

How to Encourage Localized Content Development

- Promote Community Involvement
- Engage local educators, content creators, and community stakeholders in the design and development of educational resources.

Example: Developing learning apps in regional languages.

- Leverage Open Educational Resources (OER)
- Use and adapt free, openly licensed resources to create content that is specific to local needs.
- This reduces costs while enhancing resource availability.
- Capacity Building for Teachers and Developers
- Provide training for teachers and content developers on how to create and adapt localized digital content.
- Equip educators with the tools needed to integrate local stories, examples, and cultural elements into digital lessons.
- Incorporate Local Languages
- Prioritize the use of local languages in digital materials to ensure learners can interact with content in their mother tongue, enhancing comprehension.
- Government Support and Policy Frameworks
- Encourage governments to establish policies and funding mechanisms to support localized content creation and dissemination.

Benefits of Localized Content Development

- Increases learner engagement and comprehension.
- Bridges the gap between global technologies and local realities.
- Encourages the preservation and promotion of cultural identity within education.

In conclusion, the challenges and solutions in the area of aligning ICTs to teaching and learning approaches have been summarized by the following scholars based on their supportive literature reviewed and discussed; Rabah (2015) highlights the challenges of integrating ICTs in English schools as: lack of supporting school leadership, inconsistent investments in ICT equipment, infrastructure and resources, inflexibility of funding, lack of professional development and support and incorporation of technology in evaluations and curricular plans. According to Alkahtani (2017), lack of training and a lack of working equipment are the main challenges in ICT integration. He further elaborates that lack of a basic understanding among both students and teachers of how the equipment functions, lack of mastery of ICT teaching techniques, and lack of mastery of electronic equipment are some of the main problems. Likewise, Laronde et al. (2017) found lack of professional development and resources, off-task behavior, and improper referencing

as the main challenges in ICT integration. In the same way, Ozdemir (2017) highlights the inadequacy of technology infrastructure, ICT inadequacy of the teacher and students, inadequacy and unsuitable course materials as the challenges of ICT integration.

In EFL context, particularly in Indonesia, students believe that ICT can be beneficial for learning English. However, In the teaching and learning process, they typically employed ICT for projector as a media. The ICT integration in English language teaching is still a crucial issue among the EFL teachers and educators, such as inadequate ICT facilities and lack of ICT training (Anas & Musdariah, 2018). In Nigeria, as identified, more ICT facilities, reliable electricity supply, and adequate funding hinder the adoption of ICT-driven initiatives in tertiary institutions. Therefore, comprehensive faculty development programs are crucial to enhance educators' ICT skills and encourage innovative teaching methods.

In addition to having some benefits of integrating technology in learning English, there are some challenges that need to be addressed (A. M. Atabek, 2019; Habibu et al.,2012; Iswati,2021; Lie et al.,2020; A. M. Johnson et al.,2016; Nugroho et al.,2021; Salehi & Salehi,2012; Situmorang et al.,2021; Yuzulia,2021). There are some difficulties, such as insufficient time, lack of access to technological resources, difficulty in operating the tools as well as insufficient training provided for the teachers, in implementing technology in learning English (Becta,2004).

The next challenge is the lack of physical and expensive infrastructure and equipment, Wi-Fi connectivity (lack of policy support) and the complexity of materials. Despite the extensive usage of technology in daily life, it is regrettable that not every learner is lucky to experience it. Learners in sub-developed or under-developed areas are negatively impacted as physical equipment and infrastructure are scarce in these areas in Malaysia due to the difficulty of accessing the places (Affendi and Azlina, 2020). Mudra (2020) reported that this problem is also connected to the esoteric nature of Wi-Fi connection. Pedagogical Misalignment; ICT tools are often designed for general language learning and may not align with Krashen's focus on comprehensible input and natural acquisition. Over-reliance on technology can sometimes reduce human interaction, which is essential in immersion.

CONCLUTION AND FURTHER RECOMMENDATIONS

The integration of ICT into the teaching and learning of English demonstrates strong alignment with Krashen's immersion theory by supporting key principles such as comprehensible input, meaningful interaction, and reduced affective filter. ICT tools such as multimedia platforms, gamified learning environments, and virtual simulations provide authentic, context-rich, and level-appropriate content that enhances language acquisition in immersive settings. Literature reviewed in this study,highlights the adaptability of ICT to diverse learner needs, particularly in Special Needs Education (SNE), through assistive technologies like speech-to-text, adaptive interfaces,

and gamification, making Krashen's method more inclusive and accessible. Furthermore, ICT's ability to foster learner autonomy and motivation is underscored in studies emphasizing engagement through personalized and interactive content. However, challenges such as the digital divide, resource constraints, and teacher preparedness remain prevalent. Future research should investigate the long-term effectiveness of ICT-driven immersion, explore innovative technologies like artificial intelligence and augmented reality, and evaluate scalable, cost-effective solutions for under-resourced contexts. Additionally, more work is needed to refine teacher training models and assess ICT's role in fostering language acquisition for learners with diverse needs. Future research should also focus on longitudinal studies to evaluate the sustained impact of ICT-integrated immersion strategies on language acquisition.

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Would you like me to expand on any of these points or focus on solutions to these challenges?ducation and S

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