

Controllers English Teachers' Readiness and Challenges in Implementing ICT-Integrated 21st Century Skills

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ABSTRACT

This study investigated English teachers' readiness and challenges in implementing ICT-integrated 21st century skills in English language teaching. A descriptive quantitative and qualitative research design was used to conduct this research. Data was collected from 50 English teachers through a 15-item Likert-scale questionnaire. The findings illustrate that teachers demonstrate a moderate level of readiness, including adequate technological knowledge, positive attitudes, and confidence in using digital tools. However, some challenges hinder effective implementation, such as limited technological facilities, insufficient training, lack of institutional support, time constraints, technical issues, and varying levels of students' digital literacy. The study concludes that institutional support, professional development, and adequate infrastructure are essential to support effective ICT integration.

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1. INTRODUCTION

Integrating 21st century skills including ICT Competences becomes familiar for current teaching and learning activity (Khilda Shopia & Ifan Iskandar, 2019). The advancement of technology has significantly influenced educational practices, particularly in English language teaching (Bandan & Dewanti, 2019). Similar with 21st century skills, teachers are expected not only master subject content but also to integrate information and Communication Technology (ICT) to foster essential skills such as critical thinking, communication, collaboration and creativity (Care et al.,

2012); (Siswadi et al., 2020); (UNESCO Institute for Information Technologies in Education, 2003). These competencies are widely recognized as key components of 21st century skills needed to prepare students for global and digital societies (Larson & Miller, 2011).

The integration of ICT in English language classrooms offers various opportunities to enhance teaching and learning processes (Haerazi, 2024). Digital tools such as learning management systems, multimedia resources, and online communication platforms enable teachers to design interactive and students-centred

learning environments (Leicht, A. Heiss, J. Byun, 2018). Through ICT integration, English language instruction can support the development of 21st century skills by encouraging problem-solving, collaboration, and meaningful communication beyond traditional classroom boundaries (Sulistyaningrum & Shopia, 2024).

Despite the recognized benefits of ICT-Integrated instruction, its effective implementation largely depends on teachers' readiness (Norasiah et al., 2025). Teachers' readiness includes their technological competence, pedagogical knowledge, and attitudes toward using ICT in teaching (Champa et al., 2019a). English teachers who are well-prepared and confident in using digital tools are more likely to integrate ICT meaningfully to support both language learning and the development of 21st century skills. However, variation in teachers' readiness levels may influence how ICT is utilized in classroom practices (Norasiah et al., 2025).

In many educational contexts, including developing educational systems, English teachers encounter challenges when integrating ICT into their instruction. These challenges may include limited access to technological infrastructure, insufficient training opportunities, lack of institutional support and time constraints in lesson preparation. Such obstacles can hinder teachers' ability to fully implement ICT-integrated approaches that promote 21st century skills (Shopia et al., 2022).

Previous studies (Norasiah et al., 2025); (Champa et al., 2019a); (Shopia et al., 2022) have highlighted that although teachers may hold positive perceptions toward ICT integration,

practical challenges often affect its classroom application. Understanding both teachers' readiness and the challenges they face is therefore essential to identify gaps between policy expectations and actual teaching practices. This understanding can provide valuable insights for improving professional development programs and educational support systems.

Therefore, in relation to these issues, the first research question of this study seeks to examine to what extent English teachers are ready to implement ICT-integrated 21st century skills in English language teaching and the second research question addresses the challenges English teachers face in integrating ICT to support the development of 21st century skills in their classrooms.

Investigating teachers' readiness is crucial to determine their preparedness in terms of technological skills, pedagogical strategies, and attitudes toward ICT use. Then, by exploring these challenges, this study aims to provide a comprehensive understanding of the factors that influence the successful implementation of ICT-integrated 21st century learning. The findings of this research are expected to contribute to the improvement of English language teaching practices and inform stakeholders in designing more effective ICT integration strategies.

2. METHOD

This study aimed to examine English teachers' readiness and the challenges they encounter in implementing ICT-integrated 21st century skills by employing a descriptive quantitative and qualitative research design. English teachers were involved as respondents and completed

an online questionnaire distributed through Google Forms. A total of 50 respondents participated in the study. Data were collected using a five-point Likert scale questionnaire consisting of 15 items, with response options ranging from *Strongly Agree*, *Agree*, *Neutral*, *Disagree*, to *Strongly Disagree*.

Furthermore, in collecting the data 15 questions provided in questionnaire was distributed to English teachers, the fifteen questions are divided into section A and section B.

Section A: Teachers' Readiness in Implementing ICT-Integrated 21st Century Skills (*Items 1–8 address Research Question 1*). Section A examines English teachers' readiness to implement ICT-integrated 21st century skills in English language teaching. The items in this section focus on teachers' technological knowledge, confidence, and pedagogical competence in integrating ICT into instructional practices. The indicators reflect teachers' ability to use various ICT tools and digital platforms, such as learning management systems and multimedia applications, as well as their capacity to design learning activities that integrate technology with the development of 21st century skills. In addition, this section addresses teachers' understanding of the pedagogical role of ICT in fostering students' critical thinking, collaboration, and communication skills. Teachers' preparedness to adapt their teaching methods to ICT-integrated instruction and their attitudes toward the use of ICT in English classrooms are also examined. Collectively, these items provide a comprehensive overview of teachers' readiness in terms of technological proficiency, pedagogical application, and attitudinal readiness to

support ICT-integrated 21st century English language learning.

Section B: Challenges in Implementing ICT-Integrated 21st Century Skills (*Items 9–15 address Research Question 2*). Section B explores the challenges encountered by English teachers in implementing ICT-integrated 21st century skills in English language teaching. The items in this section address various institutional, technical, and pedagogical barriers that may hinder effective ICT integration. These challenges include limited access to technological facilities, insufficient professional training, and a lack of institutional support, all of which may constrain teachers' ability to implement ICT effectively in the classroom. In addition, time constraints related to lesson preparation, frequent technical problems, and students' varying levels of digital literacy are identified as significant obstacles to successful ICT-integrated instruction. This section also considers the increased workload and effort required to integrate ICT with 21st century skills compared to traditional teaching methods. Overall, the items in this section provide insight into the multifaceted challenges that influence the implementation of ICT-integrated English language teaching.

The collected data were analysed quantitatively and interpreted qualitatively to reflect the respondents' perceptions and preferences. The results were then presented in percentages and displayed through tables and figures to support the findings and discussion.

3. FINDINGS AND DISCUSSION

This section presents the findings of the study based on the responses obtained from the 15-item Likert-scale

questionnaire. The findings aim to answer the two research questions concerning English teachers' readiness and the challenges they face in implementing ICT-integrated 21st century skills in English language teaching. The data were analysed descriptively and presented in percentages through tables and figures.

3.1 Teachers' Readiness in Implementing ICT-Integrated 21st Century Skills

The findings from items 1–8 indicate that English teachers generally demonstrate a moderate level of readiness in implementing ICT-integrated 21st century skills. Most respondents expressed agreement that they possess sufficient knowledge and confidence in using ICT tools for English language teaching. Teachers also reported a positive attitude toward integrating technology into their instructional practices, suggesting an openness to digital innovation in the classroom. The results as follows;

1. I have sufficient knowledge to use ICT tools in English language teaching.

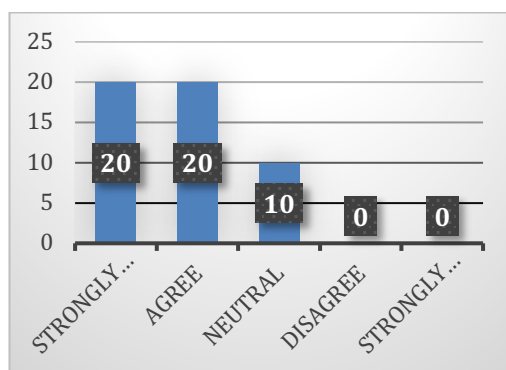


Figure 4.1

2. I feel confident integrating digital technologies into my English lessons.

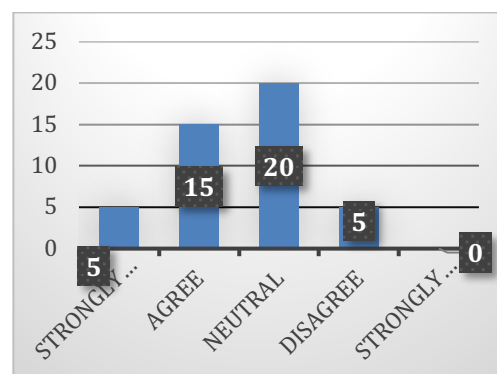


Figure 4.2

3. I am able to design English learning activities that integrate ICT and 21st century skills.

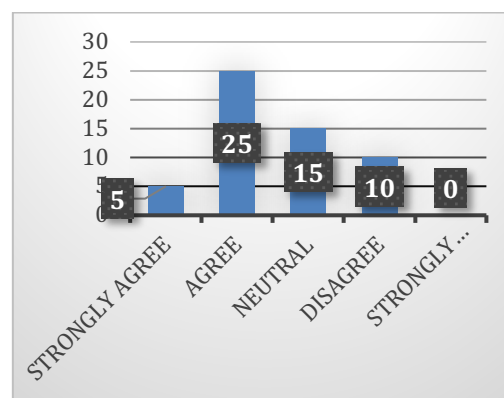


Figure 4.3

4. I regularly use digital platforms (e.g., LMS, online applications, multimedia) in my teaching.

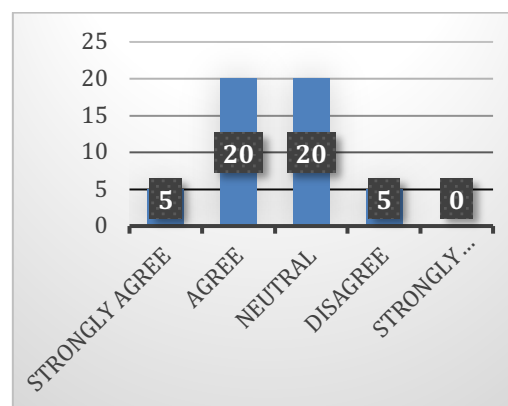


Figure 4.4

5. I understand how ICT can support the development of students' critical thinking skills.

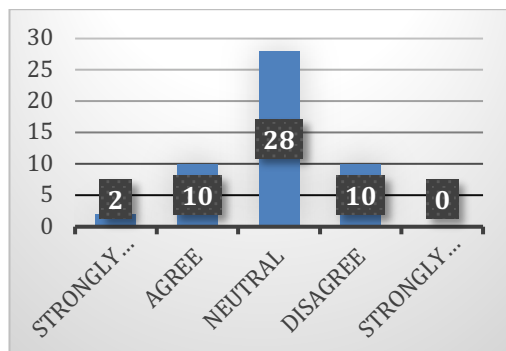


Figure 4.5

8. I have a positive attitude toward using ICT to support 21st century skills in English classrooms.

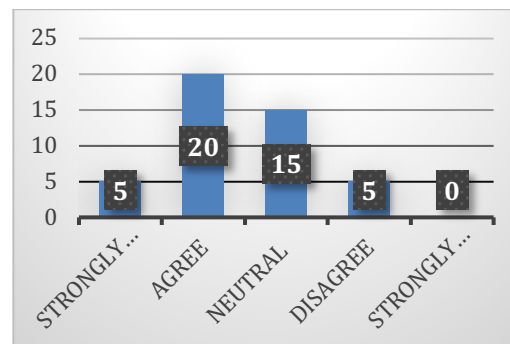


Figure 4.8

6. I am capable of using ICT to promote students' collaboration and communication in English learning.

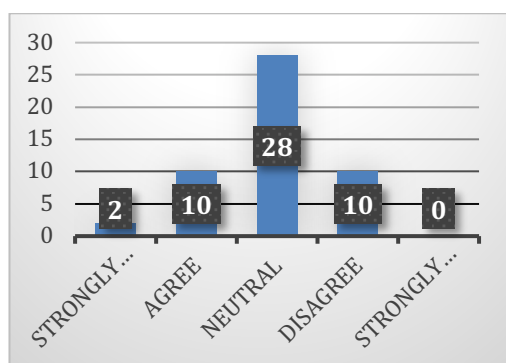


Figure 4.6

7. I feel prepared to adapt my teaching methods to ICT-integrated instruction.

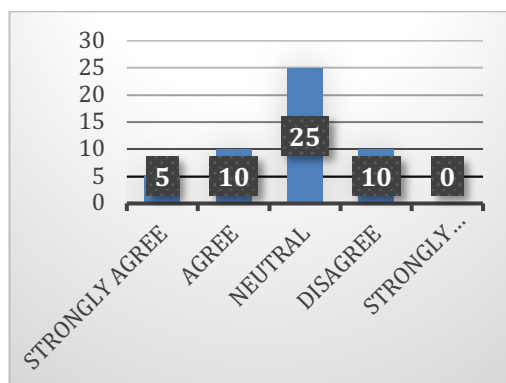


Figure 4.7

This section illustrates the findings related to English teachers' readiness in implementing ICT-integrated 21st century skills based on responses to questionnaire items 1–8. The results from the questionnaire elaborate insights into teachers' technological knowledge, confidence, pedagogical preparedness, and attitude toward ICT integration in English language teaching.

The findings from questionnaire 1 indicate that most respondents agreed that they have sufficient knowledge to use ICT tools in English language teaching. This suggests that English teachers are generally familiar with basic digital technologies commonly used in instructional contexts, such as learning management systems, multimedia resources, and online applications. This foundational knowledge reflects teachers' exposure to ICT and their ability to utilize technology as part of their teaching practice.

Questionnaire 2 further reveals that a majority of teachers feel confident integrating digital technologies into their English lessons. This confidence is an important indicator of readiness, as teachers who

feel comfortable using ICT are more likely to apply it in classroom instruction. The result implies that teachers not only possess basic technological knowledge but also feel capable of applying it in real teaching situations.

Regarding pedagogical readiness, the findings from questionnaire 3 show that many respondents agreed that they are able to design English learning activities that integrate ICT and 21st century skills. This indicates that teachers understand the pedagogical role of ICT in supporting learning activities that promote communication, collaboration, creativity, and critical thinking. However, the presence of neutral responses suggests that some teachers may still experience uncertainty in designing ICT-integrated activities that effectively address 21st century skills.

The results from questionnaire 4 demonstrate that teachers regularly use digital platforms such as learning management systems, online applications, and multimedia in their teaching. This finding confirms that ICT use has become part of teachers' instructional routines. Regular use of digital platforms indicates practical engagement with ICT, particularly for delivering learning materials, managing assignments, and facilitating learning interactions.

Questionnaire 5 reveals that most teachers understand how ICT can support the development of students' critical thinking skills. This finding suggests that teachers recognize ICT not merely as a tool for content delivery but as a medium that can encourage higher-order thinking through activities such as problem-solving, analysis, and information evaluation. Such understanding reflects alignment

between ICT use and the objectives of 21st century learning.

Similarly, the responses to questionnaire 6 indicate that teachers feel capable of using ICT to promote students' collaboration and communication in English learning. This finding highlights teachers' awareness of the potential of digital tools to facilitate interactive learning, peer collaboration, and meaningful communication in English. The ability to support collaborative learning through ICT is a key component of 21st century skills development.

Questionnaire 7 shows that many respondents feel prepared to adapt their teaching methods to ICT-integrated instruction. This result suggests that teachers are willing to modify traditional teaching approaches and adopt more technology-enhanced strategies. However, some neutral responses imply that not all teachers feel fully prepared to consistently adjust their teaching methods, indicating differences in levels of pedagogical readiness.

Finally, the findings from questionnaire 8 demonstrate that teachers generally hold a positive attitude toward using ICT to support 21st century skills in English classrooms. Positive attitudes are crucial in influencing teachers' motivation and willingness to integrate ICT into teaching practices. This finding reinforces the notion that teachers perceive ICT integration as beneficial for enhancing English language learning and developing students' essential skills.

Overall, the findings indicate that English teachers demonstrate a moderate level of readiness in implementing ICT-integrated 21st century skills. Teachers show sufficient

technological knowledge, confidence, and positive attitudes toward ICT use. They also recognize the pedagogical value of ICT in supporting critical thinking, collaboration, and communication. However, variations in responses across several items suggest that readiness is not evenly distributed among teachers. This implies that while many teachers are prepared to integrate ICT, others may still require additional training and support to enhance their pedagogical competence and ensure consistent implementation of ICT-integrated 21st century learning in English classrooms.

3.2 Challenges in Implementing ICT-Integrated 21st Century Skills

The second research question presents the findings related to the challenges faced by English teachers in implementing ICT-integrated 21st century skills in their classrooms. The results of the questionnaire as follows:

9. Limited access to technological facilities hinders my use of ICT in English teaching.

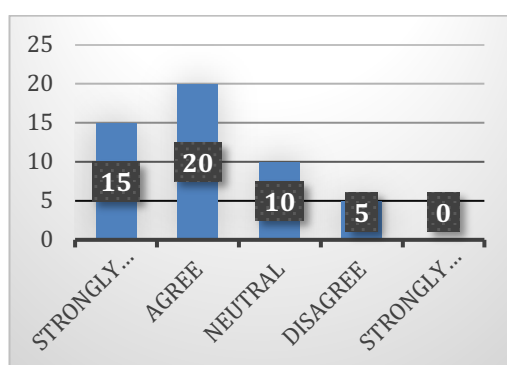


Figure 4.9

10. I face difficulties due to insufficient training on ICT-integrated instruction.

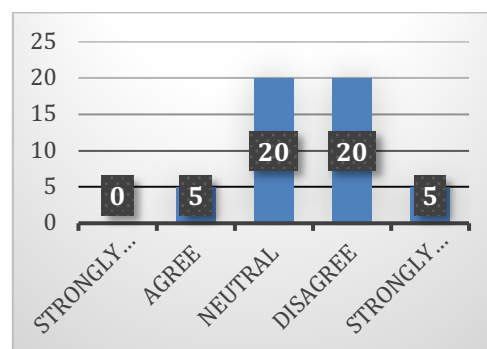


Figure 4.10

11. Lack of institutional support affects my implementation of ICT in the classroom.

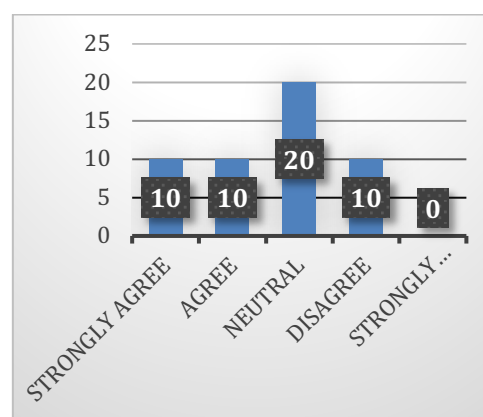


Figure 4.11

12. Time constraints make it difficult for me to prepare ICT-integrated English lessons.

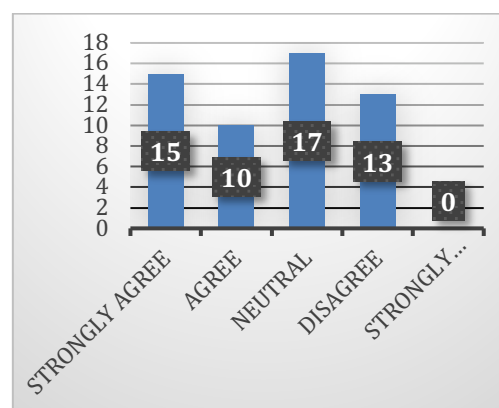


Figure 4.12

13. Technical problems often disrupt the use of ICT during English lessons.

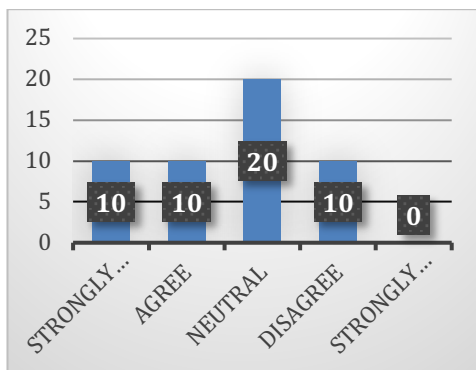


Figure 4.13

14. Students' varying levels of digital literacy present challenges in ICT-integrated learning.

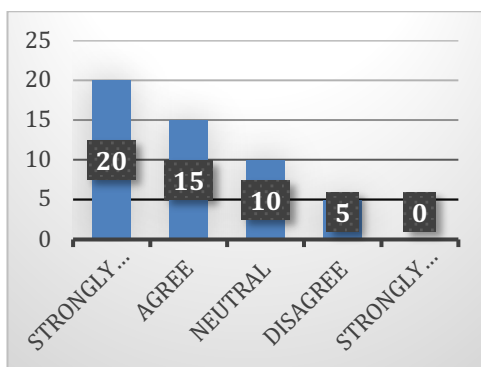


Figure 4.14

15. Integrating ICT with 21st century skills require more effort than traditional teaching methods.

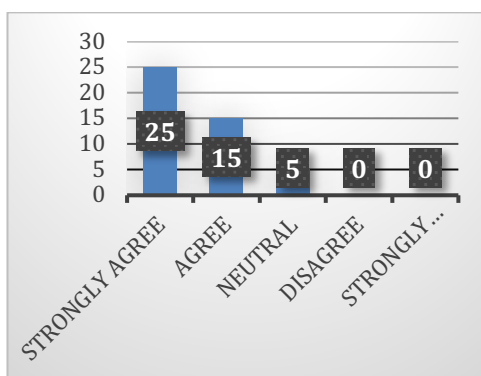


Figure 4.15

This section discusses the challenges faced by English teachers in implementing ICT-integrated 21st century skills based on responses to questionnaire items 9–15. The findings reveal that although teachers demonstrate a generally positive readiness toward ICT integration, they encounter several structural, technical, and pedagogical challenges that hinder effective implementation in English language classrooms.

The findings from questionnaire item 9 indicate that limited access to technological facilities remains a significant challenge for many English teachers. A considerable number of respondents agreed that inadequate availability of devices, internet connectivity, or supporting infrastructure restricts their ability to integrate ICT effectively in English teaching. This result suggests that technological readiness at the institutional level does not always align with teachers' willingness or competence, thereby limiting consistent ICT use in classroom practices.

It also confirmed by (Bingimlas, 2009) that this finding is consistent with previous studies which report that inadequate technological infrastructure and limited access to digital resources remain critical barriers to effective ICT integration in language teaching contexts.

Questionnaire item 10 highlights insufficient training as another major obstacle. Many teachers reported difficulties arising from a lack of formal or continuous professional development related to ICT-integrated instruction. This finding also confirmed by (Mathebula et al., 2025) implies that while teachers may possess basic technological skills, they often

lack deeper pedagogical training on how to integrate ICT meaningfully with 21st century skills. The absence of structured training programs reduces teachers' confidence in applying advanced or innovative ICT-based teaching strategies.

In relation to institutional factors, responses to questionnaire item 11 reveal that lack of institutional support affects teachers' implementation of ICT in the classroom. Teachers indicated that limited in teachers' administrative encouragement, unclear policies, or insufficient technical assistance hinder the sustainability of ICT integration. This finding underscores the importance of school leadership and institutional commitment in facilitating effective ICT-integrated learning environments as stated by the research (Champa et al., 2019).

Time constraints also emerged as a prominent challenge, as reflected in questionnaire item 12. Many respondents agreed that limited time for lesson preparation makes it difficult to design ICT-integrated English lessons. It also confirmed by (Bai et al., 2016) ICT-based instruction often requires additional planning, material development, and technical preparation compared to traditional teaching methods. Consequently, heavy teaching loads and administrative responsibilities reduce teachers' capacity to consistently implement ICT-enhanced activities.

Technical issues were identified as another practical challenge. The findings from questionnaire item 13 show that technical problems, such as unstable internet connections, software malfunctions, or hardware failures, frequently disrupt English lessons. These technical disruptions not only

interrupt instructional flow but may also discourage teachers from relying on ICT regularly, especially when immediate technical support is unavailable.

Furthermore, questionnaire item 14 reveals that students' varying levels of digital literacy present challenges in ICT-integrated learning. Teachers reported difficulties in managing classrooms where students possess unequal technological skills. This digital divide requires teachers to spend additional time providing technical guidance, which may reduce the focus on language learning objectives and the development of 21st century skills.

Finally, the responses to questionnaire item 15 indicate that many teachers perceive integrating ICT with 21st century skills as more demanding than traditional teaching methods. This perception reflects the increased cognitive, pedagogical, and technical effort required to design meaningful teaching and learning activity of ICT-integrated. Teachers must simultaneously manage content delivery, technology use, student engagement, and skill development, which can be challenging without sufficient support and resources.

Overall, the findings demonstrate that the challenges in implementing ICT-integrated 21st century skills are complicated, multifaceted, encompassing infrastructural limitations, insufficient training, lack of institutional support, time constraints, technical issues, and learner-related factors. These challenges help explain why teachers' readiness does not always translate into optimal classroom implementation. Addressing these barriers is essential to ensure that ICT integration can effectively support English language

learning and the development of essential 21st century skills.

4. CONCLUSION

This study reveals that English teachers exhibit a moderate level of readiness to implement ICT-integrated 21st century skills in English language teaching, as evidenced by their adequate technological knowledge, confidence in using digital tools, and positive attitudes toward ICT integration. Teachers generally acknowledge the pedagogical potential of ICT in fostering students' critical thinking, collaboration, and communication skills and report regular use of digital platforms in instructional practices. Nevertheless, variations in readiness indicate that

many teachers are not yet fully prepared to consistently design and implement ICT-integrated learning activities. Furthermore, the effective integration of ICT is constrained by several challenges, including limited access to technological resources, insufficient professional training, lack of institutional support, time limitations, technical difficulties, and students' diverse levels of digital literacy. These findings underscore that teachers' readiness alone is insufficient to ensure successful implementation, emphasizing the need for sustained institutional support, ongoing professional development, and adequate infrastructure to enhance ICT-integrated English language teaching.

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