Exploring the students' perceptions of the integration of web-based and non-web-based ICT in ELT at the vocational high school in Indonesia

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Abstract

Numerous scholarly investigations have been conducted on students' perceptions of integrating information and communication technology (ICT) in English language teaching (ELT). However, existing research lacks specific exploration of students' perceptions regarding web-based and non-web-based ICT in vocational high schools across perspectives of understanding, ease of learning, and learning challenges. Therefore, this study aims to investigate students' perceptions of ICT integration in ELT, specifically examining web-based and non-web-based ICT across perspectives of understanding, ease of learning, and learning challenges. The research method used was a case study. The research involved six students of the two departments (Engineering and Management) at a vocational high school in Malang, Indonesia, as the participants. Data were collected through interviews and analyzed thematically. Results indicate that, based on perspectives of understanding and ease of learning, students exhibit positive attitudes towards integrating ICT, particularly web-based tools like Canva, Quizizz, and Wordwall, alongside non-web-based tools such as LCD and tablet, citing enhanced learning processes. Conversely, in the perspective of learning challenges, challenges like poor internet connectivity for web-based ICT and operational issues for non-web-based tools persist. This

study emphasizes the importance of a balanced approach to ICT integration to meet diverse learning needs.

Introduction

Nowadays, technology profoundly influences various aspects of human life, including education, where it significantly shapes English language teaching practices (Pasaribu et al., 2023; Zafar, 2019). Both educators and students recognize information and communication technology (ICT) as a potent tool for improving English language proficiency (Hafifah, 2019). The studies explore how ICT can address challenges like large class sizes, promoting collaborative learning, ICT literacy, and effective English language teaching (ELT) practices (Hafifah & Sulistyo, 2020; Sharndama & IJemofwu, 2013; Uzun, 2016). Thus, further research is essential to comprehensively understand ICT's impact and potential in language education.

Given the widespread integration of ICT in ELT, understanding its impact on students as learning 'objects' is crucial. Examining students' perceptions is vital as it influences their response to learning, often determining success or failure (Hafrizal et al., 2021). According to Mahzura et al. (2022), students' perceptions, shaped by assessments of their abilities, significance of tasks, relevance of information, and interactions with peers and teachers, significantly influence learning outcomes (Pekrun et al., 2009). Previous studies explored students' perceptions about the use of ICT in learning English as a foreign language (EFL) at the high school level (Alkaromah et al., 2020; Ningsih et al., 2022). It was found that students have positive responses to the integration of ICT in any form of it in English language learning because it makes learning

easier and motivates them to learn more. In addition, studies were conducted at the university level by Amrullah et al. (2023), Arif (2019), Basri and Paramma (2019), and Wiyaka et al. (2018) clarified several perspectives on ICT in general. These views range from positive to negative. Positive perceptions stem from ICT's interaction and efficacy. Negative views stem from a sense of complexity and a deficiency of necessary resources.

Research on the integration of ICT in vocational schools mainly focuses on teachers' perspectives, emphasizing its role in enhancing student engagement and facilitating efficient learning (Mukminin et al., 2019). English teachers incorporate ICT into their lectures for various reasons, including improving teaching efficiency (Maqbulin, 2020; Rodliyah, 2018). Teachers generally view ICT positively, using it for regular tasks and professional teaching activities (Bhandari, 2020; Khan & Markauskaitė, 2017). However, limited research explores students' perceptions within the vocational school context.

Based on previous research findings, there was no specific examination of students' perceptions of using non-web and web-based ICT in ELT, particularly in vocational high schools. However, integrating ICT is crucial for enhancing academic procedures in vocational education (Aryani & Siahaan, 2020). ELT aims to enhance students' English language competency, and since technology can aid language learners, it should play a significant role in their academic pursuits (Irzawati & Hasibuan, 2020). Therefore, understanding students' perceptions regarding ICT integration in ELT in vocational schools is essential. According to Kuhn and Rundle-Thiele (2009), high school students' perceptions of their learning development are an appropriate method for this exploration.

Additionally, previous research, such as that by Alkaromah et al. (2020) and Ningsih et al. (2022) on high school students' perceptions of ICT use in ELT, and studies by Amrullah et al. (2023), Arif (2019), Basri and Paramma (2019), and Wiyaka et al. (2018) on university students, indicates mixed perceptions toward ICT integration in ELT. However, insights from these studies may not fully translate to the vocational school context due to differing educational priorities and environments (Berk, 2022). While research by Mukminin et al. (2019), Maqbulin (2020), Rodliyah (2018), and Khan and Markauskaitė (2017) primarily focuses on teachers' perspectives, highlighting benefits like increased student engagement, students' viewpoints remain understudied. Furthermore, existing research lacks a comprehensive exploration of students' perceptions across perspectives of understanding, ease of learning, and learning challenges. Therefore, to assess the suitability of ICT-based English learning for vocational high school students, this study investigated their perceptions regarding web-based and non-web-based ICT integration in ELT across those three perspectives

in vocational high school. Prior research indicates that both web-based and non-web-based ICT enhances learning effectiveness and motivation (Kamardina, 2019; Sonawane, 2020). Considering the significant impact of ICT on teaching and learning in vocational education (Oyebolu & Lemo, 2013), it's essential to evaluate its effectiveness. Insights from this research can inform teachers in adapting their teaching strategies accordingly (Flodén, 2016). Hence, this study tries to answer the following research questions, which are consistent with the research objectives:

(1) What are the students' perceptions of the integration of web-based and non-web-based ICT tools in ELT based on the perspective of understanding in the Indonesian vocational high school?

(2) What are the students' perceptions of the integration of web-based and non-web ICT tools in ELT based on the perspective of ease of learning in the Indonesian vocational high school?

(3) What are the students' perceptions of the integration of web-based and non-web ICT tools in ELT based on the perspective of learning challenges in the Indonesian vocational high school?

Literature review

The role of ICT in ELT

Technological advancements have greatly impacted education, especially in English language teaching (ELT), transforming classroom dynamics (Singh, 2019). Information and communication technology (ICT) in ELT, as highlighted by Abdurahmonov et al. (2020) and Yundayani et al. (2019), enhances content understanding and language acquisition, fostering proficiency and fluency. Additionally, technology allows educators to adapt to diverse teaching scenarios, thereby enhancing the learning process (Anand et al., 2020). Teachers' widespread use of technology improves language learning outcomes and promotes high-quality instruction (Srebnaja, 2017).

Institutions face barriers to effective language teaching and learning, including limited technology access and instructors' insufficient practical experience (Arafin, 2020; Poudel, 2022). Financial constraints, technological challenges, and pedagogical difficulties impede ICT integration, especially for students lacking tech experience and necessary tools (Wiyaka et al., 2018; Yang et al., 2020). Despite its resource accessibility benefits, ICT integration can lead to student dependency and loss of focus (Dewi et al., 2023; Tristiana & Rosyida, 2018). Efforts were made to enhance tech literacy for teachers and students and

integrate technology effectively into teaching (Mohammed, 2020). Thoughtful planning is crucial for technology integration to enhance ELT significantly (Kumar et al., 2022). This literature review highlights the essential role of integrating ICT in ELT, emphasizing its impact on content understanding, language acquisition, and learning processes while also addressing both the benefits and challenges. These insights set the context for exploring ICT integration in ELT in Indonesian vocational high schools.

The integration of web-based and non-web-based ICT in ELT

Nowadays, ICT is widely used in both web-based and non-web-based learning. Web-based tools streamline access to online course materials, while non-web-based tools are linked to digital infrastructures (Alkaromah et al., 2020). Computers, tablets, smartphones, and LCD projectors are a few examples of non-web-based use. Meanwhile, email, Google Classroom, social media, PowerPoint presentations, and WhatsApp are the most utilized web-based modes (Pasaribu et al., 2023; Rafique, 2022). ICT technologies such as laptops, smartphones, multimedia projectors, and online platforms like Facebook and YouTube are beneficial in ELT (Acharya, 2015). Internet-based tools like Google Classroom, Kahoot, Quizizz, and YouTube enhance ELT classrooms by making them more dynamic and engaging (Ulla et al., 2020). Portable technologies like smartphones and tablets show the potential to improve ELT, especially in areas with limited access to the target language (Abugohar et al., 2019).

Ilyas et al. (2023) found Canva beneficial for English curriculum understanding, while Indriani and Widiastuti (2021) reported positive student perceptions of Moddle for learning management. Sari and Wahyudin (2019) emphasized Instagram's value in connecting with native speakers. YouTube's effectiveness during the pandemic (Simanjuntak et al., 2021) underscores student perceptions' importance in online English learning. Websites with specialized editions for students and teachers have transformed English language learning (Mobinizad, 2018). However, Athanasiadou et al. (2020) warned that online applications may not fully meet the needs of students with specific learning challenges like reading comprehension difficulties. Overcoming obstacles in digital literacy requires adequate preparation (Sari & Wahyudin, 2019).

Research shows that ICTs and mobile devices accelerate language learning for English language learners (ELLs), particularly in e-portfolio creation and overall learning outcomes (Hsu & Wang, 2019). Incorporating these devices into English education enhances learning, self-efficacy, and student engagement with academic material (Ok & Ratliffe, 2017). Smart gadgets are essential in English language learning, providing access to information and enabling communication

beyond the classroom (Alsanosi et al., 2019). It emphasizes the vital role of integrating web-based and non-web-based ICT tools in ELT, highlighting their positive impact on language learning outcomes. Understanding these ICT tools significance in language education is crucial for enhancing students' learning experiences and addressing digital literacy barriers.

The integration of ICT in ELT in vocational schools

Studies have explored ICT integration in ELT in professional settings. Rodliyah (2018) noted positive attitudes among English instructors in Indonesian vocational schools toward ICT, emphasizing the need for professional development. Technology-enhanced content-integrated training, such as e-books and web-based apps, has significantly improved vocational students' performance (Kuzucu & Kartal, 2020). Computers, networks, and other new technologies are increasingly used across educational levels in ELT classrooms (Mirzakmatova & Zheenbekova, 2021).

Encouraging ICT use in English instruction enhances students' enthusiasm and language proficiency in higher education vocational schools (Luo, 2021; Shi, 2021). Teachers focus on student engagement and effective learning through ICT integration in vocational classrooms (Mukminin et al., 2019). English teachers incorporate ICT for various reasons, aligning with technology's role in complementing teaching models in vocational colleges (Ji, 2016; Maqbulin, 2020; Rodliyah, 2018). Furthermore, Li (2021) underscores the necessity of research in vocational college English teaching in the "Internet+" era, proposing strategies for optimization. In this regard, Smartphone usage is suggested to overcome ICT device unavailability (Wiranda et al., 2020).

ICT integration in vocational school ELT reveals instructors' positive attitudes towards ICT, emphasizing the need for professional development and highlighting its significant impact on students' performance. Hence, it underscores the increasing use of technology in ELT classrooms and aligns closely with this study's objective of exploring students' perceptions of ICT integration in vocational education, contributing to research in this field.

Perspectives in learning: Understanding, ease of learning, and learning challenges

Learners' opinions significantly influence learning outcomes (Carpenter et al., 2020). To investigate learners' opinions, many perspectives can be used as a basis. This study examines various perspectives, including understanding, ease of learning, and learning challenges. Understanding, rooted in cognitive theories like constructivism, highlights learners' active knowledge construction

(Mugambi, 2018). Amalia et al. (2024) utilized this concept to explore EFL students' views on project-based learning in vocational high schools. Ease of learning, informed by instructional design theories like Merrill's Principles of Instruction (Merrill, 2012), focuses on creating effective learning environments with appropriate instructional strategies and media. This perspective indicates that well-designed technological tools can improve learning with intuitive interfaces, clear navigation, and engaging multimedia content. Aulia and Marsasi (2024) implemented this concept to explore how technology tasks influence learning through perceived usefulness and ease of use.

Learning challenges emerge when instructional methods fail to engage learners in meaningful, hands-on experiences, aligning with the constructivism theoretical framework (Krahenbuhl, 2016). Marsevani (2022) explored challenges in E-learning implementation in high schools, revealing technical and non-technical impediments such as issues with lecturer-learner contact, insufficient internet connectivity, and learner motivation. Considering students' perspectives from various angles enables the development of comprehensive learning approaches tailored to individual needs and experiences. Thus, the perspectives in learning underscores the significance of understanding learners' perspectives, encompassing understanding, ease of learning, and learning challenges. Rooted in cognitive and instructional design theories like constructivism and Merrill's (2012) principles of instruction, the study aims to explore students' perceptions of ICT integration in vocational education, aligning to develop tailored and effective learning approaches.

Method

Design

This research employed a qualitative approach as a case study research design (Yin, 2018). Yin (2018) characterized a case study as an empirical examination of a present-day occurrence within its authentic setting, characterized by blurred distinctions between the occurrence and its context and involving the utilization of various evidence sources. It is in line with the present study's issue to fill a gap by specifically targeting vocational high school students. At the same time, existing research has mainly examined either high school or university students' perceptions. Furthermore, this method effectively evaluated activities from a practical perspective because it allowed the study of reality in its singularity (Lavarda & Bellucci, 2022). This was also related to this research, which discussed student perceptions in learning practices. Therefore, using a case study approach

provided in-depth and relevant insight into students' perceptions of ICT integration in ELT in vocational high schools.

Context and participants

The primary focus of this study was on vocational high school students who learn English with the integration of ICT in their classrooms. Purposive sampling (Suri, 2011) was used in selecting the participants. The sampling method incorporates certain considerations or criteria (Cohen et al., 2007). The following criteria were utilized in this sampling: Students with three levels of achievement in English language class. First, high-achieving students grasp English language learning; second, those at the medium level; and third, low-achieving students. This approach aimed to capture diverse perspectives and experiences across different proficiency levels. Grouping was established using six weeks of learning data collected during the first author's teaching practicum in the 2023–2024 academic year. The participants for the sample of this study were six students in the 10th grade from two classes in different departments in one of the vocational high schools in Malang, Indonesia. The departments are the Engineering Department and the Management Department. From the Engineering Department, the chosen class was TKR (*Teknik Kendaraan Ringan*—Light Vehicles Technics), and from the Management Department, the chosen class was BDP (*Bisnis Daring Pemasaran*—Digital Marketing Business). In this case, student participation was completely voluntary by obtaining consent forms and making clear their right to withdraw at any time without consequences. We used a unique label to represent the participants, where the first participant was assigned as S1, the second as S2, and so on. The demographic information of the participants is shown in Table 1.

Table 1
Demographic information of the participants

Participants	Gender	Ages (year)	Department	Class	Level of English proficiency achievement
S1	Male	15	Engineering	TKR	High achiever
S2	Male	16	Engineering	TKR	Medium achiever
S3	Male	16	Engineering	TKR	Low achiever
S4	Male	16	Management	BDP	High achiever
S5	Female	15	Management	BDP	Medium achiever
S6	Female	15	Management	BDP	Low Achiever

Instruments

The semi-structured interviews (Carruthers, 1990; DeJonckheere & Vaughn, 2019) were adapted from previous research (Arifatin, 2022) regarding students' perceptions of pop-up books and were divided into three criteria, namely student perceptions of the perspective of understanding (items 1-3), ease of learning (items 4-5), and learning challenges (item 6) during learning with ICT integration. The blueprint of the question from the semi-structured interview is shown in Table 2.

Table 2

The blueprint of the question from the semi-structured interview

No	Perspectives	Questions	Item
1	Understanding	How would you describe your overall impression regarding the integration of ICT as a learning tool?	1
		In your opinion, how can ICT tools, both web-based and non-web-based, that you regularly use serve as effective language learning tools in general?	2
		Do you believe that the web-based and non-web ICT applications that you usually use are appropriate for your English learning objectives? Why?	3
2	Ease of learning	Can you share your views on how using ICT-based methods in English learning helps ease your overall learning process?	4
		What kind of ICT-based English learning interests you most?	5
3	Learning challenges	What are the challenges when learning English with the help of ICT?	6

(Source: Table by authors)

In the perspective of understanding, in item 1, participants shared feedback on how technology enhances their English learning, focusing on motivation, understanding, and engagement. Item 2 explored participants' opinions on useful ICT tools for learning English. In item 3, participants discussed how well their chosen tools meet learning goals. Item 4 delved into how technology aids understanding, practice, and motivation. Item 5 investigated preferences for ICT-based English learning tools. Lastly, item 6 addressed challenges faced in using technology for learning, including technical issues and environmental distractions.

Data collection

The data were collected through semi-structured interviews. Semi-structured interviews (Arifatin, 2022; Carruthers, 1990; DeJonckheere & Vaughn, 2019) were used because they provided opportunities for direct and one-on-one interaction between the researchers as the interviewer and the participants as the interviewees in this study. The first author conducted the interview as an intern teacher at the school studied. This interview involved all the participants from Class 10 majoring in TKR and BDP and was conducted face-to-face at the vocational high school under study. In employing this method, we aimed to strike a balance between structured questioning and allowing for spontaneous responses. Before each interview, participants were assured of their right to withhold information or discontinue the interview at any point. The semi-structured nature of the interviews provided a framework with guiding questions while also allowing for an organic conversation flow. Each interview session was recorded with the consent of the participants, ensuring accurate documentation of responses.

Data analysis

This study utilized thematic analysis, a qualitative method for identifying patterns in data (Braun & Clarke, 2019). Initially, we employed deductive analysis to allow patterns to emerge naturally (Fereday & Muir-Cochrane, 2006). The process involved coding the data, organizing codes to identify themes, and refining them to align with the dataset and research goals. Table 3 summarizes the thematic analysis process adapted from Braun and Clarke (2021).

Table 3
Data analysis steps

No	Step	Description
1	Familiarization with data information	We transcribed, read, reviewed the data, and wrote down some initial ideas.
2	Coding the data	We collected important data in a systematic manner.
3	Identifying the theme	We developed a thematic map by arranging the relevant themes.
4	Reviewing theme	To generate a thematic map of the analysis, we developed functional connections between the themes and coded extracts, as well as the full dataset.
5	Determining and naming the theme	We further examined the data to identify certain trends. This phase produced untitled themes.
6	Writing the report	In this final analytical stage, we selected a specific theme from the data, attempted to tie it to the research

questions, and then proceeded to create the findings of the report.

(Source: Braun & Clarke, 2021)

Five themes emerged from this process in line with the research objective to determine students' perceptions of ICT in ELT from the perspective of understanding, ease of learning, and learning challenges. These themes include (1) ICT effectiveness in education, (2) ICT-enhanced visualization of material, (3) ICT facilitation of content learning clarity, (4) preferential engagement with interactive learning, and (5) challenges with ICT implementation. By studying the links between these themes, we were able to address research objectives while also gaining valuable insights properly. The example of the coding process is shown in Table 4.

Table 4

Example of the coding process

Data excerpts of the interview	Code	Data condensation	Interpretation	Themes
ICT web-based and non-web-based tools help deliver material, influence understanding, and facilitate learning. (S3)	ICT tools in learning	ICT, web-based and non-web-based, facilitates learning	Students have a good impression of ICT integration in learning.	ICT effectiveness in learning
Both ICT web-based and non-web-based facilitate language learning by making it easier and more convenient. (S2)	ICT facilitation of language learning	Learning a language with ICT is easier and more convenient	Students have a good opinion of ICT integration in language learning.	
ICT is beneficial since learning English is clearer than conventional approaches such as books. Images are more detailed, especially on larger screens such as LCDs. So, it makes it easy to visualize the material. (S4)	Visualization material enhanced by ICT in English learning	Learning English with ICT is better than the conventional approach	Learning English with ICT is appropriate	ICT-enhanced visualization of material

It's a little easier since you understand the content well through both web-based and non-web-based ICT. Writing English from the tablet also adds to the learning experience. (S6)	Comprehension and writing enhanced by ICT in English learning	ICT web-based and non-web-based help understanding English content well	Learning English with ICT helps the overall learning process	ICT facilitation of content learning clarity
What I personally, and most of my friends, like the most is the quiz game because it is easier to understand than ordinary questions on paper. We specifically like the paired quizzes on the Quizizz platform and group quiz on the Wordwall platform because the learning medium is unique and fun. (S2)	Preference for interactive quiz games in English learning	Students like ICT-based in the form of quiz such as Quizizz and Wordwall	Quiz from Quizizz and Wordwall is the most interesting ICT-based in learning English	Preferential engagement with interactive learning
The use of ICT, especially when using the ICT web-based internet, is poor. The use of LCD projector sometimes is also difficult to use. (S5)	Challenges in implementing ICT in learning	The obstacle to web-based ICT is poor internet connection, and the obstacle to no-web-based ICT is the difficulty of operating it.	Students have negative opinions regarding the obstacles to integrating ICT into English learning.	Challenges with ICT Implementation

(Source: Table by authors)

Trustworthiness

To ensure the reliability of our qualitative research, we used a member-check approach (Lincoln & Guba, 1985; Merriam, 1998). This involved sending our findings and interpretations to participants for validation (Scott & Morrison, 2006). Here is what we did: First, we compiled a final report with descriptions and interpretations based on data analysis. Then, we sent this report, along with transcripts and data analysis findings, to participants. They reviewed the report anonymously, providing feedback in writing. We analyzed their feedback to ensure our report accurately reflected their perspectives. After several rounds of

review, we confirmed alignment with participants' views, bolstering the research's credibility. This process ensured that our findings and interpretations authentically represented participants' perspectives, enhancing the study's credibility.

Findings

The understanding of ICT integration in ELT

This section discusses the findings of the interviews regarding students' perceptions of the integration of ICT, both web-based and non-web-based, in ELT, from the perspective of understanding in the vocational high school context in Indonesia. From the perspective of understanding, questions are divided into three items. First, discussing students' overall impressions of ICT as a learning tool; second, discussing students' opinions regarding whether ICT is a suitable tool for learning languages in general; and third, discussing students' opinions regarding whether ICT models, both web and non-web, can help English language learning.

In item 1, students' impressions tend to be positive and consider ICT useful for learning. As the S3 said, "ICT web-based and non-web-based tools help deliver material, influence understanding, and facilitate learning." This excerpt shows that integrating ICT, both web-based and non-web-based, has facilitated learning because the material delivered through ICT is easier to understand, thereby increasing their understanding of the material being taught. Furthermore, ICT facilitates learning, which includes speaking skills. This is supported by the statement from S6, who stated that "ICT appears to be highly beneficial in learning, particularly in speaking." This excerpt indicates that ICT, apart from facilitating learning in general, can also help speaking skills in particular.

Item 2 discusses students' opinions regarding whether ICT is a suitable tool for learning languages in general. In this item, participants tend to give positive opinions, which shows that ICT can be used as a tool for learning languages. As stated by S2, "Both ICT web-based and non-web-based facilitates language learning by making it easier and more convenient." This excerpt shows that ICT, in general, is suitable for learning a language because of its convenience.

One of the things that makes ICT convenient for learning is that it is presented in the form of enjoyable games. Like what S4 said,

> ICT web-based is simple to use, and ICT non-web-based is beneficial for comprehending language content. Learning becomes enjoyable, especially when it is done in the guise of a game with your friends. (S4)

The above excerpt indicates that games played in pairs with friends are one of the ICT web-based tools that can make learning more enjoyable. Furthermore, this game can only be run properly with the help of non-web-based ICT. This is supported by S5, who stated, "Technology makes it simple to view and comprehend the language material, particularly with gadgets such as LCD screens and tablets." This excerpt indicates that using non-web-based ICT is beneficial to learning a language. LCD screens and tablets are assumed to be a suitable intermediary for learning languages because it is simple and make it easy to comprehend language material.

Item 3 discusses students' opinions regarding whether web and non-web ICT models can help English language learning. Participants tend to give positive opinions on this item, which shows that ICT can help in learning English. S4 stated that,

> ICT is beneficial since learning English is clearer than conventional approaches such as books. Images are more detailed, especially on larger screens such as LCDs. So, it makes it easy to visualize the material. (S4)

This excerpt highlights how larger displays like LCDs enhance visualization, aiding a better understanding of English material and promoting positive student perceptions. Consequently, ICT is deemed suitable for learning English. Apart from the benefits shown by non-web-based ICT above, another reason is that web-based ICT is also exciting. This is conveyed by S3 who said, "ICT is an appropriate tool to learn English since we can have fun while studying English on an ICT-based platform." This excerpt shows that participants are considering ICT-based platforms (web-based) as a fun platform to learn English. Apart from making it fun, ICT is also suitable for learning English because it can facilitate comprehension of the discussed topic. This is supported by S5, who stated, "I feel it is appropriate since studying English using ICT facilitates comprehension of the topic." This excerpt highlights ICT's suitability for language learning, particularly in enhancing topic comprehension. It acknowledges ICT's benefits in providing diverse digital resources for improved understanding, indicating its value in offering dynamic learning methods for English acquisition.

The ease of learning of ICT integration in ELT

Questions are divided into two items in the perspective of ease of learning. First, item 4 discusses how ICT-based learning can facilitate English language learning.

Second, item 5 discusses the type of ICT-based English learning most interests students.

In item 4, ICT helps to learn primarily through non-web-based ICT, such as LCD screens and tablets. Apart from that, web-based ICT also helps in accessing information. This is supported by S1, who stated, "Learning English is exciting because the courses are displayed right on the LCD screen. It makes the visualization process of English learning easier and is fun." This excerpt emphasizes how LCD screens enhance learning by simplifying the visualization of English content, making it more accessible and enjoyable for learners. Apart from LCD screens, tablets are non-web-based ICT tools that are useful for learning. This is supported by S6, who stated, "It's a little easier since you understand the content well through both web-based and non-web-based ICT. Writing English from the tablet also adds to the learning experience." This excerpt indicates that technology aids in a deeper understanding of content while writing directly from tablets enhances learning. Tablets create an interactive learning environment. Apart from the LCD and tablet as non-web-based ICT tools that facilitate English learning, web-based ICT is also very helpful. As S3 said, "In my opinion, web-based ICT in the form of Canva, Quizizz, and Wordwall can facilitate learning because the access to information about English is wide." This excerpt indicates that web-based ICT gives students access to various information and materials for learning English. The interconnected nature of the Internet allows learners to engage with authentic language materials from Canva, Quizizz, and Wordwall, which can significantly enrich their language learning experience.

Item 5 discusses what type of ICT-based English learning is most interesting and helpful for students.

> What I personally, and most of my friends, like the most is the quiz game because it is easier to understand than ordinary questions on paper. We specifically like the paired quizzes on the Quizizz platform and group quiz on the Wordwall platform because the learning medium is unique and fun. (S2)

The excerpt above indicates that participants favor web-based platforms like Quizizz and Wordwall for learning English, particularly for their interactive quiz features, which are easier to understand than traditional paper-based questions. Pair quizzes on Quizizz and group quizzes on Wordwall are especially popular due to their unique and entertaining format, enhancing engagement. In non-web-based ICT tools, students like tools that can be used to help create assignments. This is supported by S6, who stated, "What I like most is making videos because it practices speaking skills in English, which are channeled through the help of ICT." This excerpt highlights that by using ICT tools, such as tablets, to record

video, students can engage in speaking practice and interact with English-language content dynamically and effectively.

The learning challenges of ICT integration in ELT

From the perspective of learning challenges, a question is provided in one item that discusses what challenges students face in learning English with ICT integration, both web-based and non-web-based.

In item 6, students' opinions are divided into two types: those where they encounter problems in learning English with the help of ICT and those where they do not encounter problems. According to S5, "The use of ICT, especially when using the ICT web-based internet, is poor. The use of LCD projector sometimes is also difficult to use". The excerpt indicates challenges in effectively utilizing web-based ICT resources, which as the Internet, and highlights operational complexities with non-web tools like LCD projectors. S1, S4, and S6 echo this sentiment. Even though it raises challenges in learning, some students also believe that ICT integration does not provide obstacles to learning. One example is from S2, who stated, "There are no problems with the ICT integration, and it actually helps to learn." This excerpt highlights the positive assessment of ICT integration in the learning environment. This shows no problems or challenges associated with applying ICT, which positively contributes to learning. This shows that using ICT is smooth and effective, thereby improving the overall educational experience.

Table 5 summarizes the themes and subthemes that emerged from the interview results regarding students' perceptions of ICT integration, both web-based and non-web-based, seen from the perspective of understanding, ease of learning, and learning challenges.

Table 5
Summary of the emerging themes and subthemes

Category	Themes	Subthemes
Student's understanding of ICT integration in ELT	ICT effectiveness in learning	• Facilitation of understanding and comprehension • Convenience and enjoyment in learning with ICT
	ICT-enhanced visualization of material	• Enhanced material comprehension through visual aids such as LCD • Enhanced material comprehension through visual aids such as web-based platform

The ease of learning of ICT integration in ELT	ICT facilitation of content learning clarity	● Enhanced the clarity through the visualization process of English learning on LCD screens ● Writing English on tablets ● Access to wide information from web-based ICT such as Canva, Quizizz, and Wordwall about English
	Preferential engagement with interactive learning	● Preference for quiz game on Quizizz and Wordwall platform ● Preference making videos through tablet
The learning challenges of ICT integration in ELT	Challenges with ICT implementation	● Bad internet connection (web-based) ● Difficulty operating an LCD projector (non-web-based)

Discussion

The understanding of ICT integration in ELT

Understanding student perception is important to determine student learning outcomes, whether they result in success or failure (Hafrizal et al., 2021). However, most research mainly focuses on students from general schools, especially senior high school and university level, rather than vocational schools, especially at the high school level. The results of student perceptions from general schools cannot be generalized to vocational schools due to differences in educational and environmental priorities (Berk, 2022). Therefore, it is important to explore this gap to find out how students perceive information and communication technology (ICT) integration in English language teaching (ELT) in vocational schools, especially in Indonesia.

Results revealed positive perceptions of ICT integration, particularly in English learning, facilitating material comprehension and enhancing enjoyment. This resonates with constructivist theory, which emphasizes students' active role in knowledge creation through interaction with materials (Leask & Younie, 2001). ICT promotes student-centered learning, aligning with previous research highlighting its benefits in improving learning outcomes and language acquisition (Abdurahmonov et al., 2020; Dewi et al., 2023; Singh, 2019; Tristiana

& Rosyida, 2018). Their favorable views on web-based or non-web-based ICT suggest its potential for enhancing learning outcomes and student progress (Pardede, 2020).

This study differs slightly from previous research, which focused on general perceptions of ICT use. Here, we examine web and non-web ICT use across understanding, ease of learning, and learning challenges. In this 'understanding' section, students readily adapt to ICT integration in their learning, citing various factors. Interviews with six students reveal their comprehension of both web and non-web ICT use. Mobile applications in collaborative learning have enhanced language learning resource accessibility (Lu et al., 2022), and web-based online courses have garnered positive student feedback (Nurani & Widiati, 2021). However, it is worth noting that online applications may not fully accommodate students with specific learning impairments, such as reading comprehension difficulties (Athanasiadou et al., 2020).

Most students recognize LCD as a non-web-based ICT medium as an effective learning aid in English language learning. This finding aligns with research results from Idami (2018), which stated that students can learn English more effectively when a teacher employs an LCD projector instead of a traditional mode of education. These results indicate that TKR and BDP students across various English achievement levels acknowledge ICT's effectiveness in facilitating learning. They find it beneficial for accessing information and enhancing learning. This aligns with Ningsih et al.'s (2022) findings, emphasizing ICT's appeal, effectiveness, and relevance in EFL learning. Additionally, Sabti and Chaichan (2014) found that students' attitudes toward learning English improve when ICT is integrated into ELT.

However, contrary to those findings, Wiyaka et al. (2018) found that ICT use can be challenging for students with limited tech experience and lacking necessary tools. Moreover, while ICT integration aids both teachers and students, it can also lead to dependency and loss of focus (Dewi et al., 2023; Tristiana & Rosyida, 2018). Therefore, Shah (2022) emphasizes that the effectiveness of ICT in teaching and learning hinges on teachers' preparedness with ICT resources and tools. To get around it, efforts are being made to increase teacher and student knowledge of how to benefit from technology and incorporate it into the teaching and learning process (Mohammed, 2020). In general, effective technology integration requires careful planning to significantly enhance English language teaching (Kumar et al., 2022).

The ease of learning of ICT integration in ELT

From the perspective of ease of learning, vocational high school students feel that the integration of ICT, both web-based and non-web-based, in their learning activities facilitates their learning. More teachers using technology in class improves language learning results and encourages high-quality instruction (Srebnaja, 2017). From the interviews, students reported that non-web-based ICT tools like tablets and LCDs and web-based tools such as Wordwall, Canva, and Quizizz aided their English learning. This aligns with Acharya's (2015) findings, emphasizing the benefits of various ICT technologies in ELT. Internet-based platforms like YouTube and Google Classroom enhance classroom dynamics and engagement (Ulla et al., 2020). These studies emphasize ICT's role in enhancing visualization and integrating enjoyable games into learning, supporting its broader importance in modern education (Anand et al., 2020; Srebnaja, 2017). However, some previous research has various opposite results. Visual materials like TV-LEDs and LCDs are preferred over traditional whiteboards, although interactive projectors may pose usability challenges (Liu & Cheng, 2015; Utomo et al., 2019). While tablets facilitate material recording, mobile devices have limitations such as small screens and limited processing power (Percival & Claydon, 2014; Ting, 2012). LCD screens and tablets may also challenge tech-unfamiliar students (Wiyaka et al., 2018).

The use of Canva, Quizizz, and Wordwall adds an enjoyable dimension to quiz activities. Canva, known for its captivating features, has been shown to spark students' interest in learning English (Na'imah, 2022; Siswanjaya, 2021; Wahyuni et al., 2022). However, Harsabawa (2023) and Pedroso et al. (2023) noted that issues such as overreliance and poor connectivity may hinder the Canva design process, making English learning challenging. Nonetheless, Wordwall and Quizizz are highly beneficial English learning platforms. While Wordwall enhances English proficiency and class engagement (Mazelin et al., 2022), its vocabulary and reading comprehension construction can be costly and time-consuming (Rahmawati & Wijayanti, 2022). Similarly, Quizizz simplifies vocabulary learning and boosts motivation (Na'imah, 2022; Permana et al., 2023), but students may face challenges with program familiarity and distracting advertisements (Sulaiman & Ramadhana, 2022).

Looking at the previous discussion, despite some of the shortcomings mentioned, ICT continues to assist students in learning English, with potential challenges that can be overcome through effective lesson preparation (Kumar et al., 2022). Prior studies affirm the positive influence of ICT on students' English learning motivation (Alkaromah et al., 2020), echoed by Arif's (2019) findings of participants' favorable views on ICT in English language learning. Students

perceive ICT as vital for enhancing their English proficiency and advocate for its increased integration into teaching and learning. Thus, ICT integration in English learning positively impacts students' learning experiences.

The learning challenges of ICT integration in ELT

The third is the perspective of learning challenges. Based on the interview, the students have a generally negative opinion towards the use of ICT in English language classrooms. Most students feel that poor Internet connections hamper the use of ICT in learning English. This aligns with Bhattarai's (2021) findings, highlighting internet infrastructure challenges in English learning with ICT. Furthermore, Yuzulia (2021) similarly found challenges in ICT-based online learning, including unstable internet connections. Additionally, operational issues with ICT hardware like LCD projectors disrupt the teaching and learning process, indicating that ICT-based learning is not as straightforward as perceived (Wiyaka et al., 2018). However, in research by Utomo et al. (2019), in comparison to whiteboards, TV-LEDs and LCDs are thought to be more effective and engaging. The current study contrasts these findings, as students experienced difficulty using ICT. More efforts are needed in teacher training, infrastructure renovation, and developing alternative education strategies (Rejeki, 2021).

While the study provides valuable insights, its limited sample size and demographics constrain generalizability in Indonesian vocational high schools (Yang et al., 2020). Future research could enhance generalizability by using larger, more diverse samples to explore contextual variations. Nevertheless, positive student perceptions of ICT integration in ELT highlight its potential to enrich language learning experiences (Singh, 2019; Yundayani et al., 2019). Educators can use these insights to create innovative language learning activities tailored to students' preferences and needs. Addressing barriers to effective ICT integration, such as technology access and digital literacy skills, is crucial (Arafin, 2020; Wiranda et al., 2020). Advocating for initiatives to enhance infrastructure and provide training and support can facilitate more effective ICT integration in vocational high schools. In conclusion, while this study offers valuable insights, acknowledging its limitations and broader implications is essential. By addressing these limitations and leveraging practical implications, educators and researchers can enhance language learning experiences and foster digital literacy skills in vocational high schools.

Conclusion

This study investigated students' perspectives on understanding, ease of learning, and learning challenges associated with ICT integration in an Indonesian vocational high school. In summary, students generally hold positive attitudes towards ICT use in language learning, finding it beneficial for understanding and ease of learning. From the perspective of understanding, students appreciate the accessibility of information, the facilitation of understanding, and the engaging nature of both web-based and non-web-based ICT tools. From the perspective of ease of learning, students feel that the integration of ICT, particularly through platforms like Canva, Quizizz, and Wordwall, has been highlighted as beneficial for English language learning, providing a wide range of resources and interactive learning opportunities. However, amidst this positive perception, students show the opposite attitude regarding learning challenges. Technical issues, such as poor internet connectivity and difficulties in operating non-web tools such as LCD projectors, presented barriers to effective ICT integration. Although some students report smooth experiences with ICT, others experience obstacles that hinder their learning process. These challenges underscore the importance of addressing technical issues and ensuring equitable access to ICT resources for all students.

The study's positive findings emphasize the need for increased ICT integration in vocational education. Teachers should adopt student-centered approaches and address technical issues while ensuring equitable resource access. Leveraging engaging ICT platforms can enhance language learning experiences, supported by ongoing training to boost students' tech proficiency. Creating a supportive environment empowers students to overcome challenges and maximize ICT benefits in language education. This research underscores the importance of ongoing optimization efforts in ICT integration for enhanced learning experiences in vocational high schools.

Nonetheless, it is important to recognize the study's shortcomings, which include its limited sample size and emphasis on a specific group of students. Therefore, it is recommended that future research expand the sample size and include a diverse range of vocational schools to enable a more comprehensive understanding of students' perceptions of ICT integration in ELT in various contexts. This proposed pathway aims to expand the understanding of ICT integration in ELT for vocational high school students, and influence continued language education practice progress. The findings suggest the importance of providing adequate support and training for both students and teachers to maximize the benefits of ICT integration in ELT. Furthermore, attention should

be paid to addressing technical challenges and ensuring equitable access to ICT resources for all students.

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