Investigating Vocational High school Teachers' Challenges in Integrating *Computer Assisted Instruction* (CAI) into EFL Classes

Nur Halimah Lubis*, Rahmah Fithriani
English Education Department, Faculty of Tarbiyah Science and Teacher Training,
Universitas Islam Negeri Sumatera Utara
*Corresponding Author. Email: halimah0304193202@uinsu.ac.id

Abstract: This study aims to identify and investigate the difficulties encountered by English teachers utilizing Computer-Assisted Instruction (CAI) in a vocational high school in Mandailing Natal, North Sumatra. This research used a qualitative descriptive method, in which description was used to analyze and interpret data. Six school English teachers were interviewed and observed during their classroom practice. The collected data were analyzed using coding techniques. The findings of this study indicated that English teachers continued to confront numerous obstacles and difficulties in their instruction, particularly regarding the use of technology. This difficulty arose for several reasons, spanning from the need to invest a substantial amount of time to increase technological skill to the absence of adequate technological resources and support. Therefore, schools must focus on rectifying facility deficiencies, particularly in technology and other facilities that support instruction. Teachers and Educators must also be capable of judiciously utilizing available technology to implement simplified methods optimally.

Introduction

Revolutions are occurring in all parts of the world due to the rapid development of technology, which brings about changes and advancements in life. Technological characteristics and applications transfer labor trends from human to technological labor (Champa, 2019). The rapid development of technology in various spheres of life, including education, has transformed technology from a privilege to a necessity.

The education sector must adapt to the current trend of globalization and improve its standards by incorporating technology, which plays a significant role in promoting education. Technology integration in education can potentially enhance instructional creativity and practicality (Azadeh, 2015). Moreover, it is widely held that technology has the potential to enhance and broaden students' understanding and grasp of subject matter from various perspectives (Bilyalova, 2017). The integration of technology in education can facilitate the development of student's competencies, cater to their individual learning preferences, enhance the efficacy of the learning experience, foster greater involvement and active participation in the learning process, and stimulate students' imaginative and creative faculties, as well as their willingness to explore a wide range of information (Mai, 2020).

Then, the introduction of new terms and techniques from the disciplines of technology and science is extremely beneficial to education. Examples include *Computer Based Learning* (CBL), Modular Approach, *Web-Based Learning* (WBL), *Programmed Instruction* (PI), and *Computer-Assisted Instruction* (CAI). In the past, these terms were still considered

teaching tools; however, they are now acknowledged as teaching tool methods that provide the greatest flexibility for accomplishing learning objectives. Whereas *Computer-Assisted Instruction* (CAI) has been extensively adopted due to its flexibility, breadth, and capacity to provide students with direct feedback and positive results in various aspects of language learning (Balajthy, 2007).

Computer-Assisted Instruction (CAI) is an example of computer-based learning instruction. CAI facilitates the provision of a learner-friendly environment, individualized instruction, prompt student feedback, and student motivation. This CAI method generates numerous activities that facilitate the shift from a teacher-centred to a student-centred approach. In this instance, *Computer-Assisted Instruction* (CAI) can also be utilized to train and instruct students in a scientific field. CAI includes models in the form of drills, tutorials, practices, and problem-solving. CAI media focuses students' attention and motivates them to study so that the provided information can be transmitted. CAI media also provides user-friendly and high-quality learning aids to engage students in learning and enhance learning outcomes (Cahyaningrum, 2020).

In Addition, *Computer-Assisted Instruction* (CAI) is also an evolution of multimedia technology, which includes communication, video, audio, and image display (Purwani, 2016). CAI media are computer-based media that interact directly with instructors and students. Then, the application method began to evolve alongside the increasing sophistication of technology. Multimedia is typically one of the most prevalent technological applications in English classrooms. Utilizing technology, audio, animation, and visual effects typically play a significant role in English classes.

As an academic discipline, the English language must utilize technology in teaching and learning. In the 1960s, instruction in English as a foreign language began to incorporate technology (Habib, 2019) significantly. English as a foreign language and technology in language instruction is no longer a novel trend in EFL, as technology continues to develop and be adopted in various educational contexts. The same can be observed in the context of EFL teaching and learning in Indonesia. Implementing Computer-Assisted Instruction (CAI) has begun at multiple educational levels. Beginning with the lowest level of education, namely Kindergarten and continuing through the university level. Prior research conducted by Gentha Lestari (2013) on applying Computer Assisted Instruction (CAI) to English vocabulary mastery in kindergartens in Bogor revealed a significant increase in English vocabulary mastery to a high level. In contrast, it was previously at a low level. While Ajam (2021) conducted research at the higher education level on using Computer Assisted Instruction (CAI) to increase students' understanding of syntax, the results were positive, as students' understanding of syntax increased before and after applying this method.

The effectiveness of CAI in teaching from multiple perspectives, including English reading comprehension, has been demonstrated. This assertion is supported by numerous scientific studies demonstrating the positive impact of Computer-Assisted Instruction (CAI), such as Tozcu (1998) and Al-Mansour and Al-Shorman (2012), who discovered a significant impact of CAI on pupil literacy performance. In addition, Al-Mansour, and Al-Shorman (2009) discovered that combining CAI and conventional teaching methods can enhance student achievement. Similar to this study, Naba'h et al. (2009) discovered that CAI is an effective teaching instrument for grammar and literacy.

As previous research in India (Richa, 2016) has supported the incorporation of Computer Assisted Instruction (CAI) by teachers, the purpose of this study is to examine how learning by applying Computer Assisted Instruction (CAI) to students generally results in

better student learning outcomes than conventional teaching methods. Research conducted in Indonesia (Dwita, 2020) further supports this assertion. The findings of this study indicate that the use of Computer-Assisted Instruction (CAI) in education positively impacts student achievement and the learning experience.

However, the success of the Computer-Assisted Instruction (CAI) method in learning cannot be separated from the challenges encountered by English teachers, particularly high school teachers whose teaching of its application is more specialized. Historically, educational objectives could only be met using textbooks, traditional teacher activities, and a few audio-visual materials. In addition, as generations change and technology advances, various problems occasionally arise. Such as the paucity of technological devices such as computers, the poor quality of the internet network in educational institutions, and the dearth of technology-savvy educators. These are a few obstacles in the current education system, which can be surmounted by employing technology systems that make learning more applicable and efficient.

Numerous studies have examined the limitations of integrating technology in the classroom from the teachers' perspective. These previous studies focused on the tertiary, junior high, and even elementary school levels, while vocational high schools received little attention. According to the Directorate of Vocational High School Development (2017), vocational high schools are one of the levels of education designed to produce professional human resources in their respective fields nationally and globally. The reality, however, is that learning English has not been emphasized to attain professionalism, particularly at the international level. Consequently, based on this research gap, this study will specifically reveal the limitations and challenges English teachers face when implementing the Computer-Assisted Instruction (CAI) method at the vocational high school level.

Research Method

This study used a qualitative descriptive research method. This qualitative method was utilized to comprehend, explain, and investigate social phenomena experienced by a group or an individual (Creswell, 2014). This method was classified as qualitative because the results of this study were interpreted in the form of sentences, which descriptive term is intended to describe circumstances, conditions, and events. This method was applied to the original object following the current state of affairs without influence. This approach considers social reality, one of which will be the challenges teachers confront in teaching and learning English, particularly in vocational high schools. Then this approach was based on the facts conveyed by the informants so that the results obtained are as they are. In addition to demonstrating the usefulness of the qualitative method, the purpose of this study's approach is to identify the challenges encountered by English teachers in the classroom, particularly those in vocational high schools.

This study was conducted at one of Mandailing Natal, North Sumatra's vocational high schools. This State Vocational High School is a large Vocational High School known as the Agricultural Vocational School. It is located a considerable distance from the city centre of Panyabungan, the district capital of Mandailing Natal. This study's participants were English instructors at a vocational high school. There are six English instructors at this institution. Each has a Bachelor's or Master's degree in English Language Education. There were three male and three female participants. The teachers at the Vocational High School were chosen for this research based on several criteria. First, they have received training both inside and outside the classroom, and second, they have taught English at the State

Vocational School for more than five to eight years. To better comprehend this research, in-depth Indonesian-language interviews were conducted.

Table 1. Participant's Information

No	Participant	Gender	Age (years)	Academic Degress	Teaching Experience (Years)
1	Participant 1	Female	39	S.Pd	8 years
2	Participant 2	Male	37	S.Pd	7 years
3	Participant 3	Male	33	S.Pd	5 years
4	Participant 4	Male	31	M.Pd	8 years
5	Participant 5	Female	31	S.Pd	6 years
6	Participant 6	Female	35	S.Pd	8 years

Interviews and observations were used to collect data. Both were conducted to obtain information to support and explain the data collected at the crime site. The interview phase consisted of asking the participants a series of questions, recording the sound of each interview, and transcribing the data acquired. Using coding techniques, the researcher then categorized each interview result based on similarity to other interview results. According to Charrmaz (2006), coding is a process carried out by researchers in which acquired data is categorized with data that is considered identical. Meanwhile, observation was conducted by travelling directly to the site to observe the school's facilities and the English teacher's instruction.

Results and Discussion

Based on the findings of interviews with English teachers at the Vocational High School, several complaints and obstacles make it extremely difficult for English teachers to do their jobs effectively, which stem from technology and its use, as well as the school, even from the teacher's perspective. As examples of challenges teachers face when instructing in vocational schools, we can cite the lack of school facilities, the inflexibility of teaching methods, and the lack of human resource skills in mastering technology.

Lack of Time

Despite focusing on preparing learning materials, Learning Plans for one semester and evaluating and evaluating the learning outcomes already accomplished, teachers have immense responsibilities in the classroom. Due to their numerous responsibilities, the time devoted to their tasks is sufficient. Therefore, many instructors cite lack of time as one of the reasons for their teaching difficulties. Therefore, this factor is sometimes why teachers implement technology less frequently in the classroom because using technology requires a great deal of preparation time. As evidenced by the following citation:

Table 2. Participant's Quotes Regarding a Shortage of Time

Participant	Quote
Participant 3	*"It's difficult if you have to use infocus, it takes a lot of effort. Perhaps teaching students by displaying films or other media would be more engaging, but I do not find this method to be effective."*
Participant 1	*"Let's assume the school's computer lab has a few computers, but their use is contingent upon rotation with other classes. Evidently, they will waste a great deal of time waiting for their turn to use the school computer."*
Participant 6	*"To be honest, I'm not very good at using very sophisticated technology now, even though I want to implement a learning media system like that it will take a lot of time to prepare, because not all students are capable of using sophisticated technology"*

Incorporating Computer-Assisted Instruction (CAI) is difficult for teachers due to a dearth of time, as evidenced by the interview excerpts cited previously. In direct integration, there will be more obstacles, such as the provision of necessary materials and equipment and jammed computer equipment. Al-Alwani (2005) found in a previous study that the lack of time is a significant barrier to the application of technology in science education. Therefore, although many teachers have mastered technology, they choose only to implement this knowledge if they have time. Kozma also asserts that using technology in the classroom consumes much time (Bullock, 2004). A teacher is not only responsible for teaching but also plays an essential role in preparing lesson plans so that they can achieve the specified objectives. This means there is no spare time for the teacher if this technology continues without additional time to prepare all the requirements and tools to support the use of technology in the classroom. If the teacher wishes to implement the Computer Assisted Instruction (CAI) Method, he must install the projector, set up the laptop/computer, and provide Computer Assisted Instruction (CAI)-based learning materials, which will waste at least 15 minutes of class time.

According to Sicilia (2005), the issue most frequently cited by teachers is a lack of time to conduct technology-based classes, study educational support software, or conduct internet searches for various types of information. Due to their numerous responsibilities and other obligations, instructors will experience time constraints. Therefore, some teachers find Computer-Assisted Instruction (CAI) challenging to implement.

Limited accessibility and network connections

Integrating technology and media into the educational process is one of the current initiatives in Indonesia's education sector. Where educators and pupils must be able to combine the hardware and software supporting education factors. The Internet is a learning resource by supplying links to numerous educational websites. Earlier research conducted by Qomariyah (2016) demonstrated that the use of technological media, specifically the Internet, aids in enhancing the quality of learning, thereby increasing student motivation, and learning implementation. Therefore, it can be stated that the implementation of technology-based instruction significantly impacts student learning outcomes.

During the teaching process, it was discovered that there were obstacles, including network limitations in the school's vicinity. It is where the teacher should be able to access program materials that may have been prepared or locate additional teaching materials deemed inadequate for presenting content directly in class. Therefore, every school must have a dependable internet access network to support conventional and digital instruction methods. It was also conveyed by many school-based teachers who encounter difficulties with networking, which appears to be consistent with the quotation that follows:

Table 3. Participant's Quote of Limited Accessibility and Network Connections

Participant	Quote
Participant 4	*"It is challenging to obtain a telephone network in this area, let alone an internet network. Wi-Fi? This school does not have its own Wi-Fi network, so the internet connection is provided by the instructor."*
Participant 5	*"Alright, the school has provided a number of computers, but as instructors, we require more engaging Internet-based instructional materials." However, the internet network here is challenging, so what we need is not as complete as it should be."*
Participant 2	*"... sometimes when I'm in a rush to discover answers, I don't have time to teach, because it takes a long time due to network issues, and even opening Google is difficult"*

Based on the opinions of some of these instructors, it can be concluded that Internet access at their school is difficult. It cannot be denied that this is evident from the school's location in one of the most remote villages in the district. In addition, the school's location in a paddy field makes it challenging for the network to reach that location. Other researchers also conveyed this impediment in the findings of their study (Deksa, 2022); he stated that the internet network is a significant obstacle to education because the area is rural, remote, and behind the times. Even when using a network, the network is occasionally unpredictable. As a result, the implementation of the system remains ineffective (Ministry of Education and Culture, 2020). It is a problem faced by many teachers in disadvantaged areas.

Aside from that, a decent internet connection will only be captured by adequate devices, and it is essential to note that the only students who attend this school are children of low-income parents who are primarily farmers. According to the findings of Yusi's (2021) study, it will be tough for students to provide adequate internet data, making it difficult for them to possess the latest fashion devices.

Therefore, whether they like it or not, teachers must prepare teaching materials before instructing in the classroom. Teachers must thoroughly understand the material they will impart, as they cannot obtain additional information due to the challenging network conditions. Vocational High School is the most advanced secondary school institution. Schools must have WIFI capabilities to facilitate all school-related matters for students. It remains obscure why schools continue to lack this facility. Given the school's remote location and difficult phone network, providing the institution with its own Wi-Fi is prudent.

Lack of Facilities

Febriani and Sarino (2017) state that learning facilities are educational infrastructure. Facilities are also cited as essential in facilitating knowledge transfer from instructors to students. Every learning activity in the classroom will necessitate using media for the subject explanation. Good achievement necessitates an efficient and effective learning process, so comprehensive facilities must support good teaching (Muhammad, 2019). Educators and pupils will benefit from participating in activities incorporating technological resources. These factors are consistently pursued to enhance the quality of education in each school. It follows RI Government Regulation No. 32 of 2013 relating to National Education Standards, which outlines the standard of educational facilities and infrastructure. However, the reality is that not all institutions can have adequate facilities, which hinders the advancement of education. Especially for institutions that are still far from the center, there are still many deficiencies, as the following quotes from teachers demonstrate:

Table 4. Participant's Quote Regarding Lack of Facilities

Participant	Quote
Participant 4	*"I am also the section leader for the computer laboratory. Personally, I do not believe that the school's facilities are adequate and sufficient. Comparing the number of pupils at this school to the number of computers in the laboratory, it can be seen that there are approximately 20 computers. As a result of a deficiency in computer equipment, the instructors make extensive use of this laboratory for official purposes."*
Participant 1	*"I do not know if the paucity of facilities is due to the fact that this school is a vocational high school, which is more specific to an agricultural school. We cannot utilize technological facilities whenever we adore."*
Participant 5	*"Surely we require a projector. If I want to use PowerPoint to teach, for instance, I cannot be certain that I will have enough time to use the school's projector due to the possibility of other instructors using it at the same time. Therefore, I believe it is preferable not to use technology and multimedia to educate here."*

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Participant 2	*"Students here are delighted when invited to study while viewing English-related media. This should be my instructional system, but there are no available school speakers here, so I must bring my own. Due to the fact that I only have standard speakers, my learning experience is not optimal due to the low intensity of the speakers in comparison to the noise in the classroom."*
Participant 3	*"The school genuinely expects teachers to provide maximum instruction despite inadequate infrastructure. It is challenging for teachers to consider how to make learning effective and engaging because there is no supporting material."*
Participant 6	*"Students are not prohibited from carrying cellphones to this school, but their presence is not conducive to learning. Beginning with a difficult internet connection, when we allow students to use their handsets, they may access content that we did not authorize."*

Based on the information provided by all participants, it can be concluded that the description of school conditions in terms of technical facilities in schools is incomplete. Like other schools, the Vocational High School has a computer laboratory with approximately 20 computers. However, the school has only one projector for all school activities, no speakers, and no internet access.

Like Tazrin (2015), while discussing the availability of computers in schools, he stated that there are also challenges posed by the infrastructure, such as the computer. Indeed, computers and all technological equipment are expensive. According to an additional study conducted in Gabon by Holloway (2015), computers are so expensive that most individuals and institutions cannot afford them because they are considered luxury items and are more expensive than televisions. In addition, according to Quest (2014), poor institutions cannot experience the use of technology and its programs, and repairing computers damaged during the teaching and learning process is extremely costly. Therefore, this is also an impediment to schools providing inadequate technological facilities.

A limited number of projectors is one of the most significant obstacles regarding facilities based on participant identification. That is because the projector is an essential component of Computer-Assisted Instruction (CAI) integration in the classroom. There is only one projector owned by the school, even though many classes and activities require a projector. Therefore, each teacher must use the projector in turn and notify the school before using it. It becomes a barrier for instructors attempting to implement Computer-Assisted Instruction (CAI) in the classroom.

Lack of Human Resource Expertise

In this age of globalization, technological advancement has occurred at an accelerated rate. For this reason, all sectors of society must initiate quality improvement. By beginning to master technology, especially for teachers and educators, the function of teachers will become more complex, such as mentors, trainers, facilitators, and even learning companions. Therefore, all instructors should expand their understanding of technology.

Table 5. Participant's Quote Regarding Lack of Human Resource Expertise

Participant	Quote
Participant 1	*"I'm experiencing problems, for instance, the government will require all teachers to use a technology system to teach. Because I am not adept at using such technology. In fact, I only use a laptop to enter essential information. I still favour conventional methods of instruction over modern ones."*
Participant 6	*"If we hope and expect to acclimatise them to the use of technology, the problem stems from both the teacher and the pupils. Due to the fact that their parents are only labourers or farmers, there are still a significant number of pupils who have not mastered and do not have the most fundamental technological skills. Therefore, if*

| | *they are not accustomed to technology and do not have learning aids, it will be difficult for instructors to instruct."* |

When attempting to incorporate the Computer-Assisted Instruction (CAI) method into their teaching, teachers face many obstacles, including a lack of skills, beliefs, and knowledge. Teachers who are aware of the benefits of incorporating technology into the classroom will prefer to do so because they are aware of its positive effects. According to Basak and Govender (2015), the attitude of some teachers from various education levels regarding the use of technology in the classroom is one of skepticism.

Following the statements of the interviewed participants, they acknowledged that some were still afraid to use technology to instruct and became anxious when asked to do so. A significant number of instructors still lack expertise and knowledge regarding the use of technology and technology in education (Mirzajani, 2016). If teachers do not master and have a solid comprehension of the potential benefits of using technology in the classroom, they will not be motivated to incorporate technology into their teaching activities.

The following recommendations will be made after investigating how technology is utilized in teaching English at the vocational high school and determining the challenges encountered by English teachers there, particularly in teaching English as a foreign language to vocational school students. In conclusion, even though the English instructors have been educators for more than five years, the school will not function optimally if existing technology is not used. However, existing technological facilities in schools are still inadequate, preventing the use of certain materials that should be compatible with CAI-based technological facilities.

Consequently, the situation has improved with the disclosure of the numerous obstacles teachers face, particularly English teachers. Consequently, this is a responsibility for which the school must enforce accountability and make prudent corrections. Starting from completing learning support infrastructure, improving network access for schools, or providing WIFI to increase the effectiveness of internet access for all parties, the school can help teachers increase their knowledge about how to use various technologies, the benefits obtained by involving technology in learning in their classrooms, so that no teacher is hesitant or fearful to implement Computer Assisted Instruction (CAI).

Conclusion
The findings of this study conclude that English teachers continue to confront numerous obstacles and difficulties in their instruction, particularly regarding the use of technology. This difficulty arises for several reasons, spanning from the need to invest a substantial amount of time to increase technological skill to the need for adequate technological resources and support. Therefore, schools must focus on rectifying facility deficiencies, particularly in technology and other facilities that support instruction. Educators must also be capable of judiciously utilizing available technology to implement simplified methods optimally.

Recommendation
Based on the findings, even though the incorporation of Computer-Assisted Instruction (CAI) into language instruction can produce better results in terms of improving the quality of students' English knowledge, it would be preferable if its application was also supported by various aspects and parties that could encourage this method to be implemented effectively in terms of facilities and educational programs. For example, the school administration should

continue to develop and address the school's remaining deficiencies. Teachers of English as a Foreign Language (EFL) are advised to continue learning about the use of technology, as technology will develop over time and become very useful in the teaching process.

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