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IMPLEMENTATION OF ENGLISH LEARNING AT BATU AMPAR 02 EAST JAKARTA ELEMENTARY SCHOOL WITH INNOVATIVE ARTIFICIAL INTELLIGENCE TECHNOLOGY

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Abstract

The use of AI technology in education has grown rapidly in recent years. English language education in Indonesia, especially at the primary school level, has become one of the important focuses in the national curriculum. The main goal of this study is to evaluate the effectiveness of using AI in English language learning. This study uses a qualitative approach with a case study design to explore the implementation of artificial intelligence (AI) technology in English learning at Batu Ampar 02 Elementary School, East Jakarta. The results of this study show that the implementation of artificial intelligence (AI) technology in English learning has a very positive impact on students' English language skills. Data obtained through interviews, observations, and document analysis show that AI technology has succeeded in increasing students' confidence in speaking English. More than 70% of students who were initially reluctant to speak now feel more confident, and 75% of students report feeling more comfortable speaking in front of their peers after using an AI-based app that allows speaking practice with instant feedback. This proves that AI technology can overcome the social and psychological barriers that students often face in learning English, especially in speaking skills. In addition, students' motivation to learn has also increased significantly. About 85% of students revealed that they felt more motivated to learn English after using an AI application that integrates educational games and challenge-based exercises.

Keywords: AI, English, Learning, Elementary School, East Jakarta

INTRODUCTION

English language education in Indonesia, especially at the primary school level, has become one of the important focuses in the national curriculum. English language proficiency is currently seen as one of the basic skills that students need to have in order to face the challenges of globalization, the development of information technology, and the increasingly internationally connected world of work. However, even though English has been introduced early on, many primary schools still face challenges in implementing effective and enjoyable English language learning for students. Batu Ampar 02 Elementary School in East Jakarta, like many other elementary schools, is faced with this challenge (Xu & Margeviča-Grinberga, 2021). With a diverse student population, limited resources, and sometimes less appealing learning approaches, the school is looking for innovative ways to improve the quality of English language learning. One way that is considered potential is by utilizing artificial intelligence (AI) technology in the learning process. AI technology offers a variety of applications that can assist students in developing their English skills in a more fun and interactive way (Park & Kwon, 2024).

The use of AI technology in education has grown rapidly in recent years. This technology is not only limited to hardware or software-based learning, but also includes applications that can provide a more personalized and adaptive learning experience. In the context of English learning, AI technology can provide interactive exercises tailored to students' ability levels, provide live feedback, and offer various types of learning materials that suit the individual needs of students (Liu & Lu, 2023). Thus, this technology has great potential to improve students' English language skills at Batu Ampar 02 Elementary School. One of the key aspects of the use of AI technology is the ability to provide an adaptive learning experience. This means that this technology can adjust the difficulty level of the material based on the student's ability, providing appropriate challenges without making the student feel overwhelmed. With this approach, students can learn at their own pace, increase motivation, and obtain immediate and relevant feedback. This kind of personalized learning is expected to help students understand English in a more effective and in-depth way (Andika, 2024).

In addition, AI can provide a variety of interesting features for students, such as educational games, conversation simulations, and speaking exercises with systems that can understand and respond to students' voices. This can improve students' speaking skills in

English, which is often one of the most difficult aspects to master. Through this technology, students can practice speaking in a fun way and not feel pressured by social situations in class. Thus, AI allows students to practice more freely and without shame (Hamid et al., 2022). However, the application of AI technology in English learning at the elementary school level also faces various challenges. One of the main challenges is the readiness of school infrastructure, both in terms of hardware and software. Batu Ampar 02 Elementary School needs to ensure that they have adequate facilities to support the use of this technology, including stable internet access and sufficient computer or tablet devices for students to use. In addition, training for teachers is also very important so that they can utilize AI technology optimally in the learning process (Zhao & Nazir, 2022).

Not only that, there are also challenges in terms of acceptance from parents and students themselves. Many parents may feel worried about the impact of technology on a child's social and emotional development. Therefore, it is important for schools to provide a clear understanding of the benefits and how AI technology works in supporting English language learning. Good socialization can help create support from parents, which will ultimately support the successful implementation of this technology in schools (Zhai et al., 2021). In addition to infrastructure and admissions problems, there are also challenges in terms of curriculum and learning materials. AI technology can support learning that is more flexible and dynamic, but the materials used must remain relevant to the applicable curriculum. The development of English learning materials that are in accordance with national curriculum standards and can be accessed through AI-based applications is another challenge that needs to be overcome. Thus, collaboration between technology developers, teachers, and the government is urgently needed to create quality materials that suit learning needs (Rahayu, 2014).

However, the potential of AI technology to improve the quality of English learning is huge. This technology can overcome many limitations that exist in traditional learning, such as limitations in time, resources, and material variety. With the use of AI, every student can learn in a more personalized way and according to their learning style. Additionally, AI can provide a more engaging learning experience, with a range of features that are not only educational but also entertaining. For example, AI-based apps can integrate speaking practice with speech recognition features, allowing students to practice speaking English in a more natural way. This technology can also provide automatic correction to students' pronunciation, as well as provide exercises that are tailored to the student's abilities and

development. This is of course very beneficial for students who may feel embarrassed or hesitant to speak in front of the class, as they can do it independently without fear. In addition to the technical aspects, it is also important to consider the psychological and social aspects of the use of technology in education (Chai et al., 2021).

Learning English with AI technology can encourage students to be more active in learning and more confident in communicating. With more fun and interactive learning, students tend to have a higher sense of confidence, both when it comes to speaking and writing. This is important, because confidence is one of the keys in learning a foreign language. Seeing this potential and challenge, the implementation of artificial intelligence technology in English learning at Batu Ampar 02 Elementary School East Jakarta is very relevant for further study. This study aims to analyze how AI technology can be integrated with existing English curricula, as well as its impact on student motivation, English language skills, and overall achievement. The main objective of this study is to evaluate the effectiveness of the use of artificial intelligence technology in improving students' English skills, as well as to identify the factors that support and hinder the implementation of this technology in primary schools. Thus, this study not only aims to test the effectiveness of using AI technology in English learning, but also to provide recommendations to schools, teachers, and education policymakers on how this technology can be optimally implemented. It is hoped that the results of this study can be an example for other schools in adopting technology to improve the quality of education in Indonesia (Marino et al., 2023).

METHODS

This study uses a qualitative approach with a case study design to explore the implementation of artificial intelligence (AI) technology in English learning at Batu Ampar 02 Elementary School, East Jakarta. The research subjects consisted of school principals, English teachers, students directly involved in the use of AI technology, as well as parents of students. Data were collected through in-depth interviews, participatory observations, and document analysis. Interviews were conducted with principals, teachers, and parents to obtain information about their experiences related to the application of AI technology, while observations were conducted in the classroom to see the interaction between students and AI technology during English learning.(Wang, 2023) In addition, documents related to the implementation of learning and the materials used were also analyzed to explore the

implementation of AI. The collected data will be analyzed using thematic analysis, by identifying the main themes that arise related to the benefits, challenges, and impacts of using AI technology in English language learning. To ensure the validity of the data, this study uses a source triangulation technique, comparing findings from interviews, observations, and documents. The main objective of this study is to evaluate the effectiveness of using AI in English language learning, as well as to identify the factors that support and hinder the implementation of this technology, as well as provide recommendations for other schools that want to adopt similar technology in their learning. This research process will be carried out from June 21, 2024, to December 22, 2024

RESULTS

The results of this study show that the implementation of artificial intelligence (AI) technology in English learning at Batu Ampar 02 Elementary School in East Jakarta has a positive impact on students' English skills, although there are several challenges that need to be overcome. Based on data obtained from interviews, classroom observations, and document analysis, the AI technology used in this school is in the form of an AI-based application that allows students to practice English interactively, such as word pronunciation, conversation, and English quizzes. The app is provided on tablet devices that students can access outside of class hours, allowing them to learn at a pace that suits their individual abilities. In terms of improving speaking skills, the results of the study show that students experience significant development. Based on observation data, more than 70% of students who were initially reluctant to speak English in front of the class now feel more confident to communicate in English. AI apps that have a speech recognition feature provide immediate feedback that allows students to improve their pronunciation independently. Additionally, the AI system that provides speaking practice in a conversational context gives students the opportunity to practice without fear or embarrassment. Of the 30 students involved, 75% of them admitted to feeling more comfortable speaking English in front of their peers thanks to more intensive practice with the help of technology.

Students' learning motivation also increased significantly after the use of AI technology. In interviews, about 85% of students stated that they felt more interested and motivated to learn English after using AI applications. This technology offers a more fun approach, such as educational games and challenge-based exercises that make the learning

process more engaging and less monotonous. The observation results showed that students were more active in learning English, they seemed more enthusiastic about completing the tasks given in the application and felt more motivated to continue practicing English at home. This success can be measured by an increase in student participation in each lesson session.

Table 1. Data on Increasing Student Motivation and Participation

Aspects Observed	Percentage of Students Who Show Positive Change
Students who feel more confident speaking English	75%
Students who feel more motivated to learn English	85%
Students who actively participate in learning	80%

Source: Interview and Observation Data, 2024

Based on Table 1 above, it can be seen that the majority of students experienced positive changes in several important aspects. About 75% of students feel more confident speaking English, and 85% of students feel more motivated to learn after the use of AI technology. This shows that AI technology is able to increase students' confidence in communicating, as well as have a positive impact on their motivation to continue learning English. In addition, 80% of students reported that they became more actively participating in English language learning after the implementation of this technology. However, despite the positive results, there are several challenges in the application of AI technology. One of the main challenges is the readiness of school infrastructure. The school still faces limitations in terms of the number of devices available to students. Of the 30 students involved in learning using AI, only 20 had full access to the tablet device, while the rest had to share. This has led to some students not being able to fully utilize the potential of AI technology. In addition, even though internet access in schools is readily available, internet speeds are sometimes unstable, which affects smooth access to AI applications. On the other hand, although most teachers feel that AI technology is very helpful in learning, there are around 40% of teachers who admit that they still have difficulty operating the application to the fullest. These teachers stated that they need further training in order to optimize the use of technology in learning. In fact, some teachers are worried that the reliance on technology can reduce direct interaction with students, which has been their main method of teaching. This

shows that although AI technology can improve the learning experience, additional skills are still needed for teachers to use this technology effectively.

Table 2. Infrastructure Challenges and Teacher Readiness

Factor	Percentage Affected
Students who have full access to tablet devices	66.7%
Teachers who need further training to operate AI	40%
Students who are having problems with internet speed	30%

Source: Interview and Observation Data, 2024

Based on Table 2 above, it shows that 66.7% of students do not fully have access to tablet devices individually, which can affect their learning effectiveness. In addition, 40% of teachers reported that they still need further training to be able to operate AI-based applications optimally. This indicates that while AI technology is beneficial, training for teachers and better infrastructure fulfillment are still major challenges that must be solved. In addition, about 30% of students experience problems with unstable internet speeds, which hinders the smooth use of the app during learning. Nonetheless, AI technology has managed to provide a more enjoyable and effective learning experience for most students. The English teacher at Batu Ampar 02 Elementary School revealed that this technology has helped them provide additional exercises that are more structured and according to students' abilities. More than 70% of teachers feel that the use of AI allows them to facilitate more personalized learning, where students can practice according to their needs. Additionally, the instant feedback feature provided by AI technology allows teachers to track the progress of each student more effectively.

The use of AI technology also has a positive impact on the development of students' writing skills. Observational data shows that students who frequently use AI applications for English writing practice show improvements in grammar and vocabulary aspects. Although students' writing skills still need further improvement, nearly 60% of students involved in the study admitted to feeling more confident writing in English after using AI technology on a regular basis. Some students who previously struggled with the writing aspect began to show significant improvements, especially in terms of sentence structure and vocabulary mastery.

Table 3: Improvement of Students' Writing Skills

Aspects Observed	Percentage of Students Who Show Positive Change
Students who feel more confident in writing English	60%
Students who show improvement in sentence structure and vocabulary	55%
Students who regularly use AI applications to write	65%

Source: Observation and Interview Data, 2024

Based on Table 3 above, it can be seen that around 60% of students feel more confident in writing in English after using AI applications regularly. In addition, 55% of students showed improvements in their sentence structure and vocabulary. This shows that the use of AI-based applications has a positive impact on students' writing abilities, although there is still room for further improvement. This improvement in writing skills results from structured exercises and hands-on feedback provided by AI applications, which help students understand and correct their mistakes more quickly. In addition, the results of this study also show that the use of AI technology plays an important role in building more independent learning habits among students. With the practice feature accessible at any time, students are no longer completely dependent on class time or teacher instructions to practice English. As many as 70% of students admitted that they practiced English more often outside of school hours after being introduced to this technology. This creates a greater sense of responsibility for their own learning, which is one of the important factors in improving language skills. Further, this technology allows students to get more flexible learning, according to their individual pace and needs, which often cannot be met in traditional learning systems. However, another big challenge that needs to be considered is the readiness of parents to support the use of AI technology at home. Some parents expressed concerns regarding students' reliance on technology and lack of supervision in device use. In interviews, 50% of parents stated that they did not feel they understood enough about how to monitor their children's use of AI technology. Therefore, further efforts are needed to involve parents in this process, both through training on how to accompany children in the use of technology, as well as counseling on the benefits and potential of AI technology in supporting the development of their children's language skills. This will ensure that AI technology is used

to its fullest, not only in schools but also in home environments that support learning (Yufei et al., 2020).

Overall, the results of this study show that the application of artificial intelligence technology in English learning at Batu Ampar 02 Elementary School has a positive impact on students' speaking, writing, and motivation skills. However, challenges related to infrastructure and teacher readiness remain factors that need to be considered so that this technology can be used optimally. Schools need to continue to make improvement efforts in providing adequate devices and providing further training for teachers to maximize the use of technology in learning. With the right support, AI technology has the potential to be a very effective tool in improving the quality of English learning at the elementary school level.

DISCUSSION

The implementation of artificial intelligence (AI) technology in English learning at Batu Ampar 02 Elementary School East Jakarta aims to improve the quality of learning that is more effective and fun. Learning English at the primary school level often faces challenges, both in terms of limited resources and monotonous approaches. Therefore, the use of AI technology offers the opportunity to create a more interactive and adaptive learning experience, adapting to the student's individual abilities. This is expected to overcome existing obstacles and improve students' English skills significantly. In its application, AI technology is used through an application that allows students to practice English interactively. The app provides a variety of exercises, including pronunciation, conversation, and English quizzes that students can access outside of class hours. In this way, students have the opportunity to learn at their own pace, so learning becomes more flexible and personalized. The use of this application also provides a fun learning experience through various features, such as educational games that attract students' attention. One of the significant positive impacts of using AI in English learning is the improvement of students' speaking skills. Based on the observation results, about 70% of students experienced improvement in their speaking skills. AI applications equipped with voice recognition features provide students with immediate feedback, so they can improve their pronunciation independently. Additionally, the in-app conversation exercises allow students to practice speaking without feeling pressured or embarrassed, which is often a barrier in foreign

language learning. Students' learning motivation also shows a significant increase with the application of AI technology. The results of the study show that the use of AI technology in English learning has succeeded in increasing student motivation. About 85% of students report that they feel more interested and motivated to learn English after using AI applications. More fun approaches, such as educational games and challenges built into the app, make the learning process more engaging and less boring, which in turn increases student participation in each lesson session (Schmidt & Strassner, 2022).

Learning supported by AI technology also has a positive impact on increasing students' confidence, especially in speaking English. About 75% of students reported feeling more confident speaking English in front of their peers after using AI-based apps. With more intensive practice and instant feedback provided by this technology, students feel better prepared to speak in English without fear of making mistakes. This increased confidence will certainly have a positive effect on their future learning. In addition to speaking, students' writing skills have also improved significantly thanks to the use of AI technology. The use of AI apps for writing practice helps students improve their sentence structure and English vocabulary. While there is still room for improvement, nearly 60% of students feel more confident writing in English after using AI technology on a regular basis. This shows that this technology provides the support needed to improve students' writing skills, although there are some challenges in grammar mastery that need further attention. One of the great advantages of using AI in English learning is its ability to encourage students to learn independently. With practice features that can be accessed at any time, students can practice English outside of class hours, creating more responsible study habits. As many as 70% of students report that they practice English more often at home after being introduced to this technology. This flexible and tailored learning enhances students' language skills without being limited by class time or the limitations of traditional teaching. However, the application of AI technology at Batu Ampar 02 Elementary School also faces several obstacles related to infrastructure. One of the main challenges is the limited number of devices available to students. Of the 30 students involved in AI-based learning, only 20 students had full access to the tablet device, while the rest had to share. The limitations of this device certainly affect the effectiveness of the use of AI technology to the maximum. The unstable internet speed is also an obstacle to smooth access to AI-based applications (Aravantinos et al., 2024).

In addition to infrastructure, teachers' readiness to utilize AI technology is also a very important factor. The results of the interview show that although most teachers feel

that AI technology helps them in learning, about 40% of teachers admit that they still have difficulty operating AI applications to the fullest. These teachers stated that they need further training to be able to use this technology more effectively. Without adequate training, the use of AI in English language learning may not have an optimal impact. Another challenge that needs to be considered is the readiness of parents to support the use of AI technology at home. Based on interviews, around 50% of parents feel that they do not understand enough how to monitor the use of AI technology by their children. Some parents are also concerned about students' reliance on technology and lack of supervision in the use of devices. Therefore, there needs to be further efforts to involve parents in the learning process with AI technology, including through training and socialization on the benefits and how to monitor the use of this technology (Efrizal et al., 2024).

To overcome these challenges, collaboration between schools, teachers, parents, and the government is essential. Schools need to ensure adequate device availability and stable internet access to support the use of AI technology. In addition, teachers need to be given the right training to optimize the use of this technology in learning. On the other hand, parents must also be empowered to provide the necessary support and supervision so that AI technology can be used optimally both at school and at home. Overall, the application of AI technology in English learning has had a great positive impact. In addition to helping to improve speaking and writing skills, the technology also provides a fun and flexible learning experience. The features in AI applications, such as educational games and challenge-based exercises, make students more interested and active in learning. This more personalized, adaptive approach helps students learn in a way that is more in line with their abilities, which is often difficult to achieve in conventional learning. AI technology has great potential to be applied in education in the future, especially in English learning at the elementary school level. With the right support, AI can help create a more interactive, enjoyable, and effective learning experience. By addressing infrastructure challenges, teacher readiness, and parent involvement, this technology has the potential to be a very effective tool to improve the quality of education in Indonesia. It is hoped that the application of AI technology can be a model for other schools that want to improve the quality of their learning through technological innovation (Dwiaryanti, 2024).

Although AI technology provides many benefits, the challenges faced by Batu Ampar 02 Elementary School in East Jakarta in its application are still significant. One aspect that needs further attention is the development of learning materials that are in accordance

with the national curriculum. While AI-based applications can tailor exercises according to students' ability levels, it is important for technology developers to work closely with educators and curriculum experts to ensure that the materials provided remain relevant and in line with applicable educational standards. With close collaboration between technology developers and educators, the learning materials provided by the application can be more in line with the curriculum goals and student needs, thereby supporting the achievement of educational goals more effectively. Additionally, it is important to note that while AI technology can improve students' English skills, the use of this technology cannot replace the role of teachers in learning. Teachers still have a very important role in facilitating learning, providing direct guidance, and creating an environment that supports students' social and emotional development. AI technology can be used as a tool, but teachers remain a key element in creating a positive and inclusive learning atmosphere. Therefore, more in-depth training for teachers in integrating AI technology with the right pedagogical approach is needed so that the use of this technology really supports the learning process (Rofii & Syarifah, 2024).

In the future, it is important for schools and the government to continue to evaluate and update the application of AI technology in education. With the rapid development of technology, AI applications must continue to be adapted to the needs of students and the latest developments in the world of education. Further research on the long-term impact of the use of AI technology in English learning in primary schools is also needed to ensure that this technology truly provides sustainable benefits. With the right approach and continuous evaluation, the use of AI can be a very effective tool to improve the quality of education in Indonesia, especially in the field of English language learning which is increasingly important in this era of globalization (Zafrullah et al., 2024).

CONCLUSION

Based on the results of research conducted at Batu Ampar 02 Elementary School East Jakarta, it can be concluded that the implementation of artificial intelligence (AI) technology in English learning has a very positive impact on students' English language skills. Data obtained through interviews, observations, and document analysis show that AI technology has succeeded in increasing students' confidence in speaking English. More than 70% of students who were initially reluctant to speak now feel more confident, and 75% of

students report feeling more comfortable speaking in front of their peers after using an AI-based app that allows speaking practice with instant feedback. This proves that AI technology can overcome the social and psychological barriers that students often face in learning English, especially in speaking skills. In addition, students' motivation to learn has also increased significantly. About 85% of students revealed that they felt more motivated to learn English after using an AI application that integrates educational games and challenge-based exercises. The observation results showed that students were more actively participating in lessons, with 80% of students reporting an increase in their participation in English learning after the implementation of AI technology. This indicates that AI technology not only makes learning more engaging, but also increases overall student engagement in the learning process. However, despite the many positive outcomes, there are challenges that must be overcome, especially related to infrastructure and teacher readiness. The results showed that about 66.7% of students did not have full access to tablet devices that allowed them to make optimal use of AI technology, and 40% of teachers reported still needing further training to operate the application to the fullest. In addition, 30% of students experience constraints with unstable internet speeds, which affects the smooth use of AI applications during learning. Nonetheless, most teachers feel that this technology provides great benefits in providing student ability-based exercises and improving monitoring of student progress. Therefore, there needs to be continuous efforts to improve infrastructure and provide more intensive training for teachers to ensure that AI technology can be used to the fullest in learning. Thus, the implementation of AI technology at Batu Ampar 02 Elementary School in East Jakarta has been proven to improve students' English speaking and writing skills, as well as increase their motivation and participation in learning. Despite challenges related to infrastructure readiness and teacher training, AI technology has great potential to improve the quality of education, especially in English learning in primary schools.

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