

Enhancing Reading Comprehension in Higher Education: Exploring the Role of Artificial Intelligence in Teaching Reading

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Abstract

This paper explores how Artificial Intelligence (AI) is transforming the way college teacher understand what they read. This research explores into the exciting world of AI-powered tools that help the teacher improve their competence in teaching reading comprehension skills teaching literal and inferential reading in this case. From personalized feedback to interactive learning platforms, AI is redesigning the landscape of higher education. This research is conducted in English Education Program Study at UIN Raden Mas Said Surakarta. The data is taken in Literal and Inferential reading class. This research is belonging to the qualitative research through interview and observation in three classes at first semester at 2024. However, while AI offers promising opportunities for enhancing teaching reading comprehension, there are also challenges to address, such as ensuring equitable access and training educators to effectively integrate AI into their teaching practices. This research provides an overview of the role of AI in pedagogy and its potential impact on reading instruction in higher education.

Keywords: *Artificial Intelligence, Teaching Reading, Literal Reading*

INTRODUCTION

Entering the 21st century has been accompanied by many radical changes in the educational system as far as learning inputs, processes, and outcomes are concerned. Intelligent machines as applications of AI contribute to changing the roles played by schools, teachers, and learners. They will also change the traditional and virtual patterns of interaction in the educational milieu. Teachers and learners will be dealing with interactive machines to share educational experience and achieve the required objectives. These machines will offer interactive educational platforms that conduct discussions with the students and respond to their questions and reactions. They will solve traditional classroom problems such as paying attention and motivation, caring for individual differences among learners, and supporting those with special needs. With feedback, improving the levels of student achievement, and developing positive attitudes towards teaching/learning, they will also provide solutions to the problem of interaction in large classrooms. These aspects will be directly and positively affected by employing AI applications in the teaching/learning process (Dickson, 2017).

Literal reading refers to the act of reading and understanding a text exactly as it is written, without interpreting or inferring additional meanings beyond the explicit content presented in the text. It involves comprehending the words, phrases, and sentences on a surface level, without delving into deeper implications, metaphors, or symbolism that may be present. Literal comprehension include reading and understanding the lines of text to recognise detail and sequence of events. Burns, Roe and Ross (1988) explain the literal level in terms of textually explicit meaning, which involves recognizing the sequence and facts that are explicitly stated in the text as well as answering factual questions.

Literal reading is often contrasted with inferential reading, where readers draw conclusions, make connections, and interpret the text beyond its literal meaning based on context clues, prior knowledge, and critical thinking. While literal reading is important for grasping the basic information conveyed by a text, inferential reading allows for deeper understanding and analysis.

One prevalent issue in teaching literal reading at higher education levels is the tendency for students to approach texts solely at surface level, rather than delving into deeper meanings or critical analysis. Literal reading, while important for comprehension, can sometimes limit students' ability to engage with texts on a more profound level.

In higher education, there's often an emphasis on critical thinking and analysis, yet some students struggle to move beyond literal interpretation. This can hinder their ability to grasp complex ideas, recognize underlying themes, or evaluate texts from various perspectives.

Another issue is the reliance on standardized testing, which often prioritizes literal comprehension skills over critical thinking and interpretation. This can lead to teaching practices that focus too narrowly on extracting information from texts, rather than encouraging students to question, evaluate, and synthesize what they read.

Moreover, the digital age has brought about new challenges, with distractions and shortened attention spans making it harder for students to engage deeply with texts. This can further reinforce a surface-level approach to reading, where students skim through material rather than fully digesting and analyzing it. Additionally, integrating multimedia resources and real-world applications can help students connect the text to broader contexts, fostering a more nuanced understanding of the material.

Teaching English as a foreign language is regarded as developing communicative competence, which is achieved through knowing how to use language elements and vocabulary to develop the skills of listening, speaking, reading, and writing. It also includes using language to produce texts, and how to use it to understand reading passages. The process of language development is based on communication as a goal and as a process. Therefore, using traditional and digital communication strategies in the teaching/learning processes and activities is necessary. It is required to use AI applications such as simulation and communication programs as they simulate real-life communication situations in English, introduce practical training in language skills, and educational games based on language. Communication tools based on AI help design situations for practicing the accurate pronunciation of letters and words through sound drills and visual media. Such devices provide exercises for describing and interpreting images and everyday situations, for listening, and for practicing guided pronunciation. They also allow learners to practice language skills and provide feedback for guidance.

Some programs have language drills that give training in communication through using language skills to guarantee that learners reach proficiency levels (Barnes-Hawkins, 2016).

Borge, (2016) analyzes the importance of AI applications in the results of student evaluation processes at the university and pre-university stages. AI makes it easy for instructors to measure their students' level precisely, which is something often difficult to achieve. It enables university teaching staff to assess the status of the educational processors and determine deficiencies in the lectures, scientific content, and the educational material introduced to students. AI helps meet the needs of each student according to their abilities and needs by submitting home assignments and monitoring the scores obtained by each student because it has intelligent programs that identify common mistakes. It gives the instructors hints as to what the problems are and introduces instant feedback in a file designed separately for each student. Furthermore, AI tools and programs can cope with classroom density

This research provides an overview of the role of AI in pedagogy and its potential impact on reading instruction in higher education. So, the objective this research will explore the process of teaching literal reading by using AI and investigates the responses from teacher and students in utilizing AI in the classroom of literal reading.

LITERATURE REVIEW

Reading as a concept

Reading is a process shaped partly by the text, partly by the reader's background, and partly by the situation the reading occurs in (Hunt, 2004). Reading an academic text does not simply involve finding information on the text itself. Rather, it is a process of working with the text. When reading an academic text, the reader recreates the meaning of the text, together with the author. In other words, readers negotiate the meaning with the author by applying their prior knowledge to it. Reading English is an important skill that students need to learn. When reading a text, the goal is to understand its content. Students reading a text at school often have difficulties to understand and comprehend its meaning. So, teachers of reading must have good techniques to teach reading to students to help them get good results.

Teaching reading is not easy because the teachers not only have to get the students to read the text but also, they have to think how the students can comprehend all the aspects of English. The objective of teaching reading in high school is to develop the students' reading skills in order to read texts effectively and efficiently. Ariwiyati (1997) asserts that the specific objectives of reading are: (a) to enable the students to develop basic comprehension skills so that they can read and understand texts of a general nature, (b) to use reading to increase their general knowledge, (c) to decide about reading purpose, (d) to adapt their strategies of reading, and (e) to develop their ability to read critically. Based on these, a teacher must have a good technique to build the motivation of students to learn and memorize vocabulary.

Teaching literal reading in higher education

Reading is the process of getting information from the written text; from the writer to the reader. The goal of all reading is the comprehension of meaning that is conveyed in the

written text. According to Dean (2013), reading is more than seeing words clearly, more than pronouncing printed words correctly and more than recognizing the meaning of isolated words. Reading requires you to think and feel. Reading is not just looking and pronouncing words in the text but comprehending all the components of a text.

In teaching reading, a teacher may use many different strategies. In order to use any instructional technique effectively, anyone who teaches must understand the principles and assumptions upon which each specific technique is based. There is certainly no shortage of descriptions or labels for activities that may be classified as pertaining to instruction.

Harmer (2007) has said that a strategy is an action that the teacher takes to attain one or more of her teaching-learning goals. The strategy can also be defined as a general direction set for the teaching process. The teacher should use many strategies in teaching reading such as applying various methods, media and games in order to keep the students interested. Brown (2004) has noted that the fundamental feature of teaching strategies is to make it easier to implement a variety of teaching methods and techniques. The key is to create learning environments that are more interactive to apply technology where applicable into the learning experience, and to use appropriate collaborative learning strategies

According to Oakhill et al. (2015), is associated with the ability to process a single word while being supported by linguistic understanding. Comprehension refers to pupils' capacity to comprehend a text or material, which includes predicting what will happen next, checking their understanding, clarifying unclear parts, and relating what they read to their experiences or past knowledge. Because academic growth in school is based on understanding, evaluating, and applying knowledge, pupils' reading comprehension deficiencies might impede their advancement.

While the demand for high-level readers, such as university students, is increasing, many university students are unable to meet the requirements. They are still struggling with lower-level skills that should have been mastered in previous stages. The preliminary study was conducted in three levels of reading comprehension classes: interpretative, critical, and creative. The study discovered that students with higher levels of reading comprehension still struggled with aspects that children with lower levels of reading comprehension should have no trouble with, such as determining the major concepts and topic of reading

Literal reading as a low level of comprehension encompasses behaviors in the learning process that are said to be crucial as the foundation of higher-level comprehension growth. According to Saadatnia et al. (2017), literal understanding necessitates students extracting specific information from a paragraph. This requires the capacity to process words individually and recognize individual words in order to derive meaning from a long string of words that includes propositions and sentences. Literal reading comprehension should contain the context, facts, and sequence that can exist in a text, according to research. The context can be defined as the entire image formed by the correlation of facts, where facts are information placed in a text and sequences are how the information is organized in chronological order of occurrences. This level of understanding also requires pupils to determine the correct and accurate meaning of words or terminology used in a book at the word or sentence level, to gather information from reading, and to paraphrase what they learn.

Teaching reading and artificial intelligence

In recent years, the integration of artificial intelligence (AI) into various facets of education has sparked considerable interest and debate. One area where AI shows significant promise is in teaching reading skills. As literacy remains a fundamental aspect of education and lifelong learning, leveraging AI technologies to enhance reading instruction can potentially revolutionize how individuals acquire and improve their reading abilities.

One of the key advantages of AI in teaching reading lies in its ability to provide personalized learning experiences. Through sophisticated algorithms, AI systems can analyze individual learning styles, preferences, and progress to tailor instructional content and activities accordingly. This personalized approach enables students to receive targeted support and practice, addressing their specific needs and challenges in reading comprehension, fluency, and vocabulary development.

AI-powered reading programs offer adaptive assessment tools that continually evaluate students' reading skills and comprehension levels. These assessments are dynamic, adjusting difficulty levels based on students' performance and providing immediate feedback on strengths and areas for improvement. By offering real-time feedback and targeted interventions, AI helps students track their progress and facilitates more effective learning outcomes.

Furthermore, AI enhances reading instruction by creating interactive and engaging learning experiences. Through multimedia elements, gamification, and immersive storytelling techniques, AI-powered platforms captivate students' attention and stimulate their interest in reading. Interactive features such as voice recognition, natural language processing, and virtual tutoring enable students to engage with text in innovative ways, fostering deeper comprehension and critical thinking skills.

AI-driven reading tools also promote accessibility and inclusivity in education by accommodating diverse learning needs and preferences. For students with disabilities or learning differences, AI technologies offer customizable settings, such as text-to-speech, dyslexia-friendly fonts, and audio descriptions, to facilitate equitable access to reading materials. Additionally, multilingual support and translation features enable English language learners and students from non-English speaking backgrounds to access educational content in their native languages, promoting linguistic diversity and inclusion.

Beyond supporting individual learners, AI in teaching reading provides valuable insights and analytics for educators and administrators. By collecting and analyzing data on students' reading behaviors, comprehension levels, and learning outcomes, AI systems generate actionable information that informs instructional decision-making and curriculum development. Educators can identify trends, patterns, and areas of improvement, enabling them to implement evidence-based strategies and interventions to support student success.

Despite its potential benefits, the integration of AI in teaching reading also raises certain challenges and considerations. Privacy concerns regarding the collection and use of student data, algorithmic bias in personalized learning algorithms, and the digital divide in access to AI technologies are among the key issues that educators and policymakers must address to ensure ethical and equitable implementation of AI in education.

In conclusion, artificial intelligence holds great promise in transforming reading instruction and literacy development. By offering personalized learning experiences, adaptive assessment and feedback, interactive engagement, accessibility, inclusivity, and data-driven insights, AI empowers educators and learners to unlock new opportunities for improving reading skills and fostering lifelong learning. However, it is essential to navigate the ethical, privacy, and equity implications of AI integration in education to realize its full potential in advancing literacy and educational equity.

METHOD

In this study, researchers used qualitative research methods. According to L. J. Moleong (2013) qualitative research is a study using a natural background, with the concern of interpreting the recent phenomena by involving various methods such as interviews, observations, and literature review.

This qualitative is conducted with a library study approach and interviews. The method of literature review aims to collect and take the essence of previous research and the results serve as a foundation for various types of research because it provides an understanding of the development of knowledge, sources of policy-making stimulus, triggers the creation of new ideas and is useful as a guide for research in certain fields of research

(H. Snyder, 2019). While the interview method we use is an in-depth interview, digging deeply into one topic that has been determined (based on the purpose and purpose of the interview) using open-ended questions. This excavation is done to find out their opinions based on the perspective of respondents in looking at a problem. In this study, the researcher has the aim to know the perspective of informants on the role of AI in supporting English

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FINDINGS

The timeline of literal reading

Literal and inferential reading course is held in 14 meeting in one semester. Every meeting is held approximately 100 minutes or 2 credits courses. This course is held in Odd Semester 2022/2023. This teaching activity is in person form, it means between teacher and students face each other in the classroom directly.

No	Meeting	Teaching material Description
1	I	Introduction and Learning Contract
2	II	Pre-Test
3	III	The principle of literal reading
4	IV	Reading strategies (Skimming and Scanning)
5	V	Topic and main idea
6	VI	Drawing conclusion 5 W 1 H

7	VII	Practice of literal reading
8	VIII	The Principle of inferential reading
9	IX	Inferring main idea
10	X	Inferring character
11	XI	Inferring prediction
12	XII	Inferring the conclusion 5 W 1 H
13	XIII	Practice of inferential reading
14	XIV	Post-test and Review Material

Table.1. *Teaching Material*

The process teaching literal reading by using Artificial Intelligence

Teaching literal reading with the aid of Artificial Intelligence (AI) involves focusing on skills that help students understand the explicit or "literal" meaning of the text. Literal reading comprehension includes recognizing facts, details, and straightforward inferences. Here's a simplified and structured approach to achieve this:

1. Initial Assessment of Reading Skills

- Diagnostic Tools: Use AI-based assessments to determine the student's current level of literal reading comprehension. Tools like Lexile measures or diagnostic apps can be used.
- Data Collection: Gather baseline data on the student's ability to understand and recall factual information from texts.

2. Develop a Personalized Learning Plan

- Customized Paths: Based on the assessment, AI creates a personalized learning path tailored to the student's needs, focusing on literal comprehension.
- Goal Setting: Establish clear, measurable goals for improvement in literal reading skills, such as identifying main ideas, details, and sequences.

3. Select and Implement AI Tools

- Reading Applications: Use AI-powered reading tools that provide structured exercises targeting literal comprehension.
- Adaptive Platforms: Choose adaptive learning software that adjusts content difficulty based on the student's performance
- Digital Libraries: Access AI-curated digital libraries that recommend age-appropriate and level-appropriate reading materials.

4. Conduct Structured Reading Sessions

- Guided Reading: AI tools can guide the reading session, highlighting text and assisting with difficult words.
- Literal Questions: Include questions that focus on literal comprehension, such as "What is the main idea?", "What happened first?", "Who is the main character?".
- Instant Feedback: AI provides immediate feedback on the student's responses, helping them understand their mistakes.

5. Monitor and Adjust Learning Plans

- Regular Assessments: Conduct regular assessments using AI tools to track progress in literal comprehension skills.
- Data Analysis: Utilize AI analytics to review the student's progress and identify specific areas needing improvement.
- Plan Adjustments: Modify the learning path based on assessment data to better support the student's development.

6. Enhance Engagement and Motivation

- Interactive Content: Use AI to provide interactive reading experiences that make learning engaging, such as interactive e-books and quizzes.
- Personalized Recommendations: AI recommends books and reading materials that align with the student's interests to increase motivation.
- Gamified Learning: Implement AI-driven gamified elements to make reading practice more enjoyable and engaging.

7. Involve Parents and Educators

- Parent Dashboards: Provide AI-powered dashboards for parents to monitor their child's progress and support their learning at home.
- Teacher Reports: Generate detailed AI reports for teachers to help them understand the student's progress and tailor their instruction.

8. Support for Struggling Readers

- Targeted Interventions: Use AI to identify students who are struggling with literal comprehension and provide additional, focused practice.
- Multisensory Tools: Employ AI tools that incorporate visual and auditory elements to help reinforce reading concepts.
- Speech Recognition: Utilize AI-powered speech recognition to aid in pronunciation and fluency, which can support better understanding of literal content.

Examples of AI Tools for Literal Reading

- Amira Learning: Provides real-time feedback and corrections as students read aloud, helping with literal comprehension.
- Lexia Core5: Offers personalized reading instruction that adapts to the student's level, focusing on literal comprehension skills.
- Epic!: Curates reading materials based on the student's level and interests, helping them practice literal comprehension.
- ReadTheory: Adaptive reading comprehension tool that provides passages and quizzes focusing on literal understanding.
- Diffits for teacher: Diffit is a tool designed to help teachers quickly generate differentiated instructional materials. It uses AI to create various versions of educational content tailored to different learning levels and styles.

By following these steps, educators can effectively utilize AI to enhance students' literal reading comprehension, making the learning process tailored, engaging, and effective.

The Role of Artificial Intelligence in teaching reading

With AI, making media or teaching materials will become easier, teachers do not need to understand technology in detail. There are already many applications and platforms available, teachers just need to sort and choose according to their needs. In terms of assessment, With AI, teachers no longer need to spend a lot of time assessing student assignments. Assessment of student assignments can be done automatically, even item analysis can be obtained directly without the teacher having to do the analysis one by one. Students also get direct scores thanks to the application of AI in education. They don't have to wait long to find out their value. With the help of the teacher's task in minimizing the time in assessing, the teacher will have more time to focus more on the teaching and learning process.

With the application of AI, learning activities can be carried out at any time. The presence of AI-based applications provides opportunities to learn anytime and anywhere, not limited by space and time. In addition, students also have the opportunity to find teachers other than the teachers at the school. With this online education platform and the availability of "teachers" to choose from, students have the opportunity to communicate with other teachers, even with teachers from other countries. The learning experience and abilities of students will certainly be able to develop better.

With the implementation of AI in education, in a pandemic situation like today, where the learning process has been forced to use the online mode, it is very useful. Learning activities are changed from conventional to online to facilitate the delivery of information and communication between teachers and students, and so that learning can continue. With the presence of AI in education, education is expected to be better and able to develop according to the times.

The presence of AI technology is a breakthrough in the field of education to facilitate learning and can foster independence, it does not have to depend on the role of a teacher who is too dominant, but teachers can shift to a level that provides enlightenment with substantial keywords and more importantly, must be returned to the essential teaching is moral education that must be maintained. Changes in the demands of education require innovation and creativity in the learning process. With the development of artificial intelligence in the field of education to help process daily activities including teaching and learning.

The responses teacher and students

Researchers conducted interviews to find out how the role of AI (Artificial Intelligence) in learning English in the scope of students in the current situation. Based on the results of the interview analysis of informants, students obtained three subjects in this study. The three points of discussion are spelled out as follows:

1. Definition of AI (Artificial Intelligence) from the perspective of informants

The majority of informants (students) say that AI is artificial intelligence used to help human activities. Through AI humans will be helped and facilitate the activities they do. In addition, the use of AI can also minimize mobility between humans, so that it can shorten the time to be much more effective. The use of AI that is flexible and easy to reach by anyone makes AI continue to grow to support human life. All activities

began to be supported with the help of AI and then became a phenomenon of digitalization.

2. Things needed in the use of AI

AI (Artificial Intelligence) is closely related to digitalization. That's because the use of AI in people's lives will be the same as changing the activities carried out into digital activities to make it easier. The use of AI in everyday life needs to be supported by internet facilities. The respondents revealed that the internet became an important facility in the use of AI in people's lives. Through the Internet, people can connect from a long distance and make it easier for us to find all the information what the people required.

3. Reasons for using AI (Artificial Intelligence)

The use of AI (Artificial Intelligence) in English learning is needed. The informants say that the use of AI (Artificial Intelligence) has a positive impact on English language learning. That's because the fast and effective nature of AI can help them in the difficulty of learning English, such as searching for words they do not know. In addition, the informants revealed that the utilization of AI (Artificial Intelligence) is more used in writing tasks. Through the help of AI (Artificial Intelligence) respondents said they can do the task much faster than manually without the help of any digital tools. From this, it can be concluded that the use of AI (Artificial Intelligence) has a positive impact of English language learning.

CONCLUSION

Education is not just about acquiring knowledge. Education is a complex process in which we not only acquire knowledge of various concepts but also learn to apply them in daily life with our social skills. Machines cannot teach empathy, sympathy, and other emotions that are an important part of our personality development. This means that no matter how sophisticated AI is, no matter how many examples of using AI, this technology will not be able to replace the role of teachers or educators. The role of AI is limited to helping and empowering teachers in making the learning process a fun experience for students. The role of IT is also often used in supporting learning, either in schools or for self-learning. In the future, learning activities will apply more artificial intelligence.

AI can be used to present learning materials, conduct assessments, provide learning feedback. Artificial intelligence has been widely applied to various educational technology platforms. The existence of artificial intelligence may be able to provide knowledge to students, but developing character cannot be done. That is an educator's job. How to inspire, motivate, make students become good students." So the role of the teacher in providing motivation, inspiration, and developing character are what AI cannot replace because AI is not given feelings and emotions like humans in general. In the end, if we look at technological developments, we must be able to adapt as technology advances. If we do not adjust, we are an educator (teacher/lecturer) may be replaced by technology.

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