

Algorithmic Literacy: Integrating AI Tools in the Teaching of English Language and Literature

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Abstract—Artificial Intelligence (AI) is changing the way teaching and learning take place across the world. In English Language and Literature classrooms, AI tools such as writing assistants, chatbots and text generators are now being used to support students in reading, writing and analysis. This paper explores the idea of algorithmic literacy, which refers to the ability to understand how AI systems work and to think critically about the content they produce. The study explains how AI tools can be used in English teaching to improve language skills and deepen literary understanding. At the same time, it highlights the risks of over-dependence on AI and the importance of maintaining originality and critical thinking. The paper uses a qualitative and conceptual approach to show how algorithmic literacy can be included in English classrooms. It also explains how critical thinking and Bloom's Taxonomy can guide the use of AI in learning. The study concludes that AI should be used carefully and thoughtfully so that it supports, rather than replaces, human thinking and creativity.

Index Terms—Algorithmic Literacy, Artificial Intelligence, English Language Teaching, Literature Teaching, Critical Thinking, Digital Learning, Educational Technology

I. INTRODUCTION

Researchers have noted that modern education must move beyond basic digital skills and include critical engagement with technology (Facione, 1990). Therefore, integrating algorithmic literacy into English teaching is not optional but necessary.

In recent years, Artificial Intelligence has become an important part of education. Many students and teachers now use AI tools to complete tasks such as writing essays, checking grammar, summarizing texts and analyzing literature. These tools are fast and

efficient, but they also create new challenges. Students may begin to depend too much on AI and they may not always understand how these tools produce answers.

In English Language and Literature, this shift is especially important because language is closely connected to thinking and expression. When AI tools start generating text, students need new skills to evaluate and understand that content. Algorithmic literacy addresses this need by helping learners understand how AI systems work and how to judge their outputs critically.

II. UNDERSTANDING ALGORITHMIC LITERACY

Algorithmic literacy goes beyond knowing how to use technology. It involves understanding how AI systems generate responses based on patterns in large datasets. These systems do not think like humans; instead, they predict likely answers based on previous data.

Because of this, AI tools can sometimes produce incorrect or biased information. Students who lack algorithmic literacy may accept such responses without questioning them. This can affect their learning, especially in subjects like English, where interpretation and originality are important.

Algorithmic literacy also includes ethical awareness. Students must understand issues like plagiarism, bias and data privacy. According to Paul and Elder (2008), critical engagement with information is necessary for responsible learning. This idea is highly relevant in AI-supported classrooms.

III. USE OF AI TOOLS IN ENGLISH LANGUAGE TEACHING

AI tools are widely used in English Language Teaching to improve grammar, vocabulary and writing skills. Writing assistants provide immediate feedback, helping students correct mistakes and learn better. This supports the development of language accuracy.

Chatbots and conversational tools allow students to practice speaking and listening skills. These tools simulate real conversations and help learners build confidence. AI can also assist in reading by summarizing texts and explaining difficult words. However, the use of AI must be balanced. If students rely too much on AI, they may not develop their own skills fully. Anderson and Krathwohl (2001) emphasize that learning should involve active engagement, not passive dependence. Therefore, teachers must guide students in using AI as a support tool rather than a replacement.

IV. AI IN TEACHING LITERATURE

AI tools can support literature teaching by providing summaries, themes and interpretations of texts. This can make complex literary works easier to understand. However, literature requires personal interpretation and deep thinking.

If students depend only on AI-generated interpretations, they may lose the ability to think independently. Algorithmic literacy helps students compare AI outputs with their own ideas and develop deeper understanding.

AI can also be used creatively in literature classes. Students can rewrite stories, explore different endings or experiment with styles. This makes learning more interactive and engaging while still encouraging originality.

V. ROLE OF CRITICAL THINKING AND BLOOM'S TAXONOMY

Critical thinking is essential in AI-based learning environments. It helps students question information, analyze ideas and make informed decisions. This is especially important when working with AI-generated content.

Bloom's Taxonomy provides a framework for understanding different levels of learning, including remembering, understanding, applying, analyzing, evaluating and creating (Bloom, 1956; Anderson & Krathwohl, 2001).

At the basic levels, AI helps students remember and understand information by providing summaries and explanations. However, higher levels of learning require active student involvement. At the analysis stage, students examine AI-generated content to identify patterns and errors. At the evaluation stage, they judge whether the information is accurate or reliable.

At the creation level, students use AI as a tool to support their own ideas. For example, they may generate a draft using AI and then improve it with their own thinking. This ensures originality and deeper learning.

Facione (1990) explains that critical thinking involves evaluating information and making reasoned judgments. Similarly, Paul and Elder (2008) argue that critical thinking is essential for understanding complex issues. These ideas highlight the importance of combining algorithmic literacy with critical thinking.

VI. CHALLENGES AND ISSUES

The use of AI in education also creates challenges. One major issue is over-reliance, where students depend too much on AI and reduce their own thinking. This can limit creativity and originality.

Plagiarism is another concern. AI can generate complete essays, making it easy for students to submit work that is not their own. Teachers must create clear guidelines to prevent misuse.

There are also ethical concerns related to bias and data privacy. AI systems may reflect biases present in their training data. Students must learn to recognize these limitations.

Many students in rural or economically weaker areas may not have access to reliable internet or advanced digital devices, which limits their ability to use AI tools effectively. This digital divide can widen the gap in learning outcomes, making it harder for disadvantaged students to compete with those who have better technological resources.

VII. DISCUSSION

AI is changing English education in many ways. It offers new opportunities for learning but also requires careful use. Algorithmic literacy helps students understand and evaluate AI, making learning more effective.

Teachers play a key role in guiding students. Instead of avoiding AI, they should teach students how to use it responsibly. When combined with critical thinking and Bloom's Taxonomy, algorithmic literacy supports deeper learning and independent thinking.

VIII. CONCLUSION

Algorithmic literacy is an important skill in modern education. It helps students use AI tools effectively while maintaining their creativity and critical thinking. In English Language and Literature, this skill ensures that students remain active learners rather than passive users of technology.

AI should support human thinking, not replace it. By integrating algorithmic literacy into teaching, educators can prepare students for the future while preserving the true purpose of education.

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