

AI-ENABLED DIGITAL PLATFORMS AND THEIR INFLUENCE ON READING AND WRITING SKILLS: A CRITICAL REVIEW

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Abstract—Artificial intelligence has quietly moved from the edges of educational technology into the everyday activities of reading and writing learning. Many learners are employing AI assisted applications for writing essays and teachers are also getting exposure to such tools. These platforms do not simply correct spelling. They diagnose patterns, propose revisions, create comprehension questions and even create reading tests. The prevalent instructional blocks will be attempted through individual feedbacks and brief revision intervals (Zawacki-Richter et al., 2019). The application of AI-based literacy supports can prove accurate writing, revision, and engagement increases among learners in the existing body of empirical research, psychometric research, and theoretical explanations (Burstein et al., 2013). The recent investigations of the Rasch-model suggest that AI-berated scales of reading comprehension could be as reliable as other scales developed by human hands (Khamrassamee et al., 2025). At the same time, the scholars also have concerns about the issue of cognitive offloading, overreliance on automated feedback, the absence of metacognitive control, and somewhat obscure authorship (Holmes et al., 2019). The synthesis of the existing work given in this review and the argumentative side of it is that AI educational worth does not rely quite on the technical savvy but rather on pedagogically centered incorporation and AI literacy of users.

Keywords: Artificial Intelligence, Digital platforms, Reading skills, Writing Skills.

Introduction

The use of artificial intelligence in the classroom did not have a turning point. It crept in slowly by way of grammar recommendations, automatic scoring platforms and adaptive learning interfaces. After that, practically overnight, learners were writing drafts with the help of AI and rewriting paragraphs with the help of a machine. This change has been experienced particularly acutely in reading and writing teaching since the language itself is what these systems have been designed to process (Zawacki-Richter et al., 2019).

Writing and reading are not just academic prerequisites. They are thinking practices. Reading comprehension refers to inference, activation of background knowledge, as well as continual construction of meaning (Kintsch, 2005). The processes of planning, translating ideas and developing the idea recursively through revision are needed in writing (Hayes and Flower, 1980). Role of feedback cannot be ignored. It is difficult for an individual teacher to assess seventy essays each week thoroughly. In this context, the AI assisted tools will reduce that limitation by producing personalized and instant answers (Holmes et al., 2019).

Current studies have extended AI-assisted teaching to AI-assisted measurement. According to the psychometric comparisons based on Rasch modelling, the AI-generated tests of reading comprehension can be employed to map with the accepted standards of measurement when the design is controlled (Khamrassamee et al., 2025). Though it leads to efficiency and personalization, issues like over reliance on technology and superficial learning cannot be ignored. It has to be critically reviewed.

Conceptual Foundations of AI in Literacy Learning

The AI literacy systems are usually based on the large language models and natural language processing systems which are trained on large text collections. Practically, they trace linguistic patterns, analyze structure and provide context-related proposals. Automated writing assessment, grammar and style feedback, adaptive reading support, automated question generation, and diagnostic assessment construction are some of the ways they are used in the classroom.

The didactic theory in these tools is related to the formative feedback theory. An effective process of learning is enhanced when learners are given clear and prompt instructions on how to bridge performance gaps (Holmes et al., 2019). The artificial general intelligence is unusually high in immediacy. It takes only a few seconds to provide a student with an opportunity to submit a paragraph and be provided with structured feedback.

This is useful grounded on cognitive theory. Reading has been conceptualized as a productive process where the readers construct mental images by interacting with the text and previously acquired information (Kintsch, 2005). Writing has been designed to be recursive with planning, drafting and reviewing being the cycles (Hayes and Flower, 1980). Artificial intelligence will focus on the reviewing and revising stages. That is useful, but perhaps not neutral. The process of revision in itself is a contributor to the development of skills. In the event that automation removes that effort to an excess, learning gains can suffer.

Previous studies on automated writing evaluation demonstrated that machine scoring was capable of achieving reliability levels similar to those of human raters in the cases of proper validations (Burstein et al., 2013). The feasibility was stipulated in that work, and feasibility is not a determination of instructional value.

Methodology

In this paper, the critical narrative review methodology has been employed instead of a rigorous statistical meta-analysis. This is because of methodological diversity. Studies of AI in literacy cover controlled experiments, design research, psychometric tests, and conceptual research. There is varied measures and outcomes and thus statistical aggregation is not that informative as interpretive synthesis.

Peer reviewed journals, major reviews, conference proceedings and sources covering approximately the period 2015-2025 were considered as sources. There were databases Scopus, Web of Science, ERIC, IEEE Xplore and Google Scholar. AI in education, automated writing assessment, AI reading assistant, adaptive literacy, and language models in assessment have been used as search terms.

First attention was paid to the studies that had clear procedures and tested systems of measurement. Psychometric research based on item response theory or Rasch modeling was considered as an especially important one, as it determines the functionality of AI-generated assessments as measurement tools (Bond and Fox, 2015). Broad trends were determined with the help of large systematic reviews (Zawacki-Richter et al., 2019).

AI-Enabled Platforms and Reading Skills

The research on AI and reading is growing, but it continues to lag behind writing research in terms of size. First applications were aimed on adaptive tutoring and automatic comprehension questioning. The newer systems create items to be assessed and analyze patterns in reading behavior.

Linguistic and semantic modeling can be used to generate comprehension questions based on automated item generation systems. Such systems would be able to correspond to the reading comprehension constructs when they are guided by cognitive design rules (Gierl and Lai, 2013). The advantage is scale. Whereas it used to take months to develop item pools with the help of experts, nowadays it can be developed much faster.

Better still, it is the shift toward the process of validation. Rasch-model comparisons have revealed that AI-generated reading comprehension tests can obtain reasonable item-fit and reliability statistics and in some instances even similar to those of human-created forms (Khamrassamee et al., 2025). Nevertheless, measurement theorists warn that statistical fit does not necessarily imply construct coverage and cultural fairness (Bond and Fox, 2015). An item that has a technically sound aspect does not necessarily have an instructionally sound aspect.

Difficulty and scaffold adaptive reading platforms modify their difficulty and scaffold. According to the reviews of intelligent tutoring systems, this kind of personalization facilitates engagement and persistence, but improvement in achievement depends on the quality of the instructional design (Holmes et al., 2019). Reviews on a large scale also point

out that a lot of AI reading studies are more focused on system performance than on long term growth of comprehension (Zawacki-Richter et al., 2019).

AI-Enabled Platforms and Writing Skills

The most persistent AI research has been on writing instruction. Now, automated writing assessment tools and AI feedback tools are common. Their virtue is speed and consistency. They mark grammatical problems, propose changes in words, and promote the revision processes. The studies are always found to have enhanced the surface-based accuracy and reduction of errors (Burstein et al., 2013).

Higher-order qualifications of writing are more of a mixed outcome. Automated feedback is not as reliable at improving argument strength as well as rhetorical depth (Zawacki-Richter et al., 2019). That makes sense. A comma splice is not as difficult to find as conceptual subtlety.

The picture is made more difficult with the help of generative AI tools. They are able to generate outlines, paragraphs and even entire essays. These outputs are scaffolds of ideas used by some learners. Some of them are accepted with slight modification. The two trends are manifested in classroom research (Holmes et al., 2019). It is a lesson of revision theory to us that the important revision is revision of meaning and revision of audience, rather than revision of form (Hayes and Flower, 1980). In case of AI feedback combined with reflective instructor prompts, metacognitive gains are stronger.

AI support also tends to boost the confidence of learners, particularly second language writers. However, confidence and independent ability are not always congruent when they are taken away. The presence of that gap implies potential over-scaffolding.

Prejudice also comes in the picture. Since language models are based on the prevailing usage styles in the training data, they can also consider dialect variation as an error. That brings about the issue of fairness to multilingual writers (Holmes et al., 2019).

Risks and Ongoing Debates

There are a number of risks that seem to be recurring in the literature. One is cognitive offloading. In cases where systems provide corrections at such an easy rate, the learners might decrease self-monitoring and decision making. The other one is the narrow boundary between scaffolding and substitution. A stimulus which activates thinking facilitates learning. It can be substituted by an already prepared paragraph.

The issues of academic integrity are becoming inevitable. Generative systems question normal authorship practices. It is claimed by many researchers that open transparency and AI literacy should be considered more reasonable than total ban (Zawacki-Richter et al., 2019).

Research imbalance is also another limitation. Numerous studies capture tool performance or user satisfaction as opposed to literacy development over a long period. The results of reading are underrepresented especially.

Pedagogical Integration

The AI literacy tools seem to be most efficient in the hybrid instructional models. Allow the system to do repetitive responses. Allow the teacher to deal with interpretation, quality of argument and rhetorical purpose. They match efficiency to expertise in that division.

This is where AI literacy is required. Students should be aware of the way AI suggestions are generated, where they miscarry, and how to challenge them. Students who are conditioned to judge AI feedback selectively would act more independently in the future (Holmes et al., 2019). Preparation of teacher is equally important.

Research Gaps and Future Directions

Longitudinal studies are still rare. There is a need of evidence across semesters and years, not just short interventions. Reading comprehension outcomes deserve more focused investigation. More psychometric validation across diverse populations is also necessary. Classroom experimental designs that test full instructional models would be especially useful. Multilingual and bias-related effects require deeper study. AI literacy training itself is an important emerging variable.

Conclusion

AI-enabled platforms are reshaping literacy education through scalable feedback, adaptive assessment, and automated revision support. Evidence shows benefits in writing accuracy and assessment generation reliability (Burstein et al., 2013;

Khamrassamee et al., 2025). Risks involving dependency, shallow processing, integrity, and bias are equally real (Holmes et al., 2019; Zawacki-Richter et al., 2019).

The technology is neither inherently transformative nor inherently harmful. Its value depends on how thoughtfully it is integrated. Guided, transparent, and critical use appears to offer the strongest path forward.

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