Chapter 6
AI as a Collaborative Partner: Fostering Peer Feedback and Cooperation for Higher Education Literacy

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ABSTRACT

Literacy education aims to develop students' reading, writing, speaking, and listening skills. Collaborative learning and peer feedback can enhance literacy development, but effectively facilitating these in the classroom presents challenges. This chapter explores how artificial intelligence (AI)-driven tools can be leveraged to augment collaboration and peer feedback in literacy tasks. AI features such as machine learning, natural language processing, and sentiment analysis are examined for their potential to make collaborative literacy learning more engaging, equitable, and productive. Examples of existing implementations demonstrate the feasibility of these approaches. Risks such as over-reliance on automation and bias in algorithms are also discussed, emphasizing the importance of human oversight when integrating AI into education.

INTRODUCTION

Strong literacy skills in reading, writing, listening, and speaking are critical for students' academic achievement and career readiness (Graham & Perin, 2007). However, many students lack proficiency in key areas like reading comprehension,

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writing quality, and oral communication. Collaborative learning and peer feedback are effective instructional strategies that allow students to develop literacy skills together with scaffolded support (Graham & Perin, 2007). However, implementing these strategies effectively requires substantial teacher time and expertise. Collaborative learning activities like peer review of writing can support literacy development by providing authentic feedback and encouraging reflection on language use (Gielen et al., 2010). However, implementing effective peer review is challenging, as students may lack the skills to provide high-quality feedback (Cho & MacArthur, 2010).

Literacy involves complex cognitive and social practices encompassing reading, writing, speaking, listening, and critical analysis across digital and print media (Leu et al., 2018). While foundational literacy skills were traditionally conceived as basic decoding and comprehension, contemporary definitions recognize literacy as an evolving multidimensional capacity essential for full civic and economic participation (Gee, 2000). As social practices, literacies entail crafting messages tailored to purpose, audience, and context, not just absorbing information. Developing literacy in modern society also requires appreciating diverse perspectives, fostering cultural awareness, determining credibility, and synthesizing across multimodal sources (Coiro et al., 2014).

However, typical teacher-centered literacy instruction focuses on individual repetition of isolated skills disconnected from authentic reading and writing experiences (Allington & Cunningham, 2002). Opportunities for meaningful collaboration, peer feedback, and project-based learning are limited (Applebee & Langer, 2009). This misses chances to situate literacy as social knowledge construction. Literacy development involves gradually participating in collaborative disciplinary discourses while building genre awareness and rhetorical flexibility guided by more experienced mentors (Cook-Sather, 2016).

Emerging applications of artificial intelligence (AI) offer new possibilities for promoting collaborative and socially supported literacy learning at scale. AI presents new opportunities to scaffold collaborative literacy tasks. Natural language processing (NLP) can analyze student work to enable personalized feedback and peer matching. Machine learning (ML) algorithms help guide collaborative writing and peer review sequenced to ability (Grimes & Warschauer, 2010). AI tutoring systems and virtual peers show potential for modeling good feedback practices and facilitating productive student interactions (Ezen-Can & Boyer, 2015). Automated writing evaluation (AWE) shows promise for efficient diagnostic assessment and drafting support (Shermis, 2014). Educational data mining reveals patterns informing differentiated instruction and predictive interventions (Gibson & de Freitas, 2016).

This paper reviews state-of-the-art AI techniques applied in collaborative literacy tasks and peer feedback scenarios. First, we discuss the nature of literacy learning, collaboration and feedback. Then, we outline key theoretical foundations related to