ABSTRACT

Integrating literacy, technology, pedagogy, and content is challenging for secondary education teachers. The authors propose remix as a useful representation of the lesson composing practices that teachers engage in as they combine and manipulate digital resources to create Internet-based learning experiences. This study examines 34 teachers’ lesson designs composed with a free authoring tool that scaffolds the embedding of Internet resources and pedagogical agents. Lessons designed for students in grades 6-12 and published to a public database are analyzed for design orientation, goals, reading strategies, and pedagogical agent use. Design orientations include immersing students in a multimodal experience to enhance content and literacy, providing access to primary documents, and developing Web evaluation skills and media literacy. The pedagogical focus of the authoring tool is reflected in teachers’ remix of strategy prompts and pedagogical agents, with a majority customizing coaching scripts to support online reading. Consistent with the results of Dalton and Smith’s 2012 study of lessons designed for elementary grade students, these findings provide additional support for the design and use of smart authoring tools scaffold teachers as designers who remix digital content and pedagogy to create productive online literacy and learning experiences for their students and for each other.
INTRODUCTION

Reading and communicating with technology and media is core to 21st century literacies (Common Core Standards, 2011; International Reading Association, 2009). Despite increased acceptance of the importance of digital literacies, studies continue to show a gap between curriculum standards and instructional practices (Grunwald Associates, 2009; Koehler, Mishra & Yahya, 2007; NEA/AFT, 2008). Much of teachers’ technology integration is in service of existing goals and practices, rather than to achieve new literacies or transform the culture of learning (Wallace, 2004). There are several possible explanations for the lack of deep integration. Research on teachers’ technology integration highlights the complex interaction of teacher, technology, and school contextual factors (Gerard, Varma, Corliss, & Linn, 2011; Lawless & Pellegrino, 2007; Mallette & Karchmer, 2002). Multiple barriers can derail even highly experienced teachers, such as inconsistency with the teacher’s goals and pedagogy, limited technical access, lack of support from the principal, and insufficient opportunities to collaborate with colleagues (Zhao, Pugh, Sheldon, & Byers, 2002).

The central role of the teacher as a change agent is the focus of an influential technology integration framework developed by Mishra and Koehler (2006), entitled TPACK (i.e., Technology, Pedagogy, And Content Knowledge). They expand Shulman’s (1987) conceptualization of teacher knowledge as comprising content, pedagogy, and pedagogical content knowledge to include technology as an additional factor interacting with pedagogy and content knowledge. Mishra and Koehler (2006) posit that successful technology integration takes shape at the various intersections of these factors, with more advanced integration involving a three-way interaction of technology, pedagogy, and content knowledge. However, this type of sophisticated integration is difficult to achieve (Ertmer & Ottenbreit-Leftwich, 2010; Hofer & Swan, 2008/09; Swan & Hofer, 2011). We suggest that technology integration involves another layer of complexity for secondary education teachers who are faced with the challenging task of integrating technology into the teaching and learning of their content, while also using technology to develop students’ print-based and multimodal literacy skills (Common Core State Standards, 2011).

Often termed content literacy or disciplinary literacy, the addition of this advanced literacy into the TPACK mix introduces additional potential barriers for integration. First, most secondary education teachers are subject-matter experts who are committed to teaching their content, rather than developing students’ reading and composition skills (Shanahan & Shanahan, 2008). They may assume that students have learned the necessary reading skills in elementary schools; or when faced with evidence that students are struggling with academic text, they may reduce the amount of text and rely on lecture and hands-on experience to develop students’ knowledge. This approach inadvertently limits students’ reading and academic achievement, since advanced reading depends on sustained engagement with challenging texts (Stanovich, 1986). Second, models of content literacy instruction have recently expanded to reflect the disciplinary nature of literacy (Moje, Overby, Tysvaer, & Norris, 2008; Shanahan & Shanahan, 2008; Shanahan, Shanahan, & Misischia, 2011). While teaching generic reading comprehension strategies (e.g., summarize, clarify, predict, etc.) improves students’ reading achievement (Biancarosa & Snow, 2004), such strategies are likely to be insufficient for advanced reading. A disciplinary literacies perspective calls for teaching strategies that are situated within the discourse and texts of a particular academic community (Alverman, Rezak, Mallozzi, Boatright, & Jackson, 2011; Shanahan & Shanahan, 2008). Third, reading in digital and online environments calls for strategies that are responsive to the affordances and challenges of multimodal, non-linear, and interactive text; processes for reading print overlap, but are not isomorphic with, online reading processes, and thus may call for different kinds of strategic