

# Chapter 1

## Game–Based Writing Strategy Practice with the Writing Pal

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### **ABSTRACT**

*In this chapter, the authors consider the value of educational games to support students' writing strategy acquisition and practice. Sixty-five high school students participated in a summer program using the Writing Pal, an intelligent tutoring system designed to support adolescents' persuasive writing across multiple phases of the writing process. Overall, students who interacted with the full W-Pal intelligent tutoring system (i.e., animated strategy lessons, game-based practice, and essay-based practice with feedback) were better able to articulate new writing strategies than students who engaged in intensive essay-based practice by writing and revising twice as many essays with feedback. Importantly, performance within several educational games was found to be a significant predictor of strategy acquisition. The authors argue that these strategy benefits arise from the ways in which strategy-specific, game-based practice activities support the decomposition of task goals, clear operations for achieving those goals, compensation for individual differences, and motivation to practice.*

## GAME-BASED WRITING STRATEGY PRACTICE WITH THE WRITING PAL

Writing is a difficult process that involves the coordination of complex cognitive tasks and goals, and a central aim of writing instruction is to enable students to meet these myriad challenges (Breetvelt, van den Bergh, & Rijlaarsdam, 1994; Deane et al., 2008; Flower & Hayes, 1981). Increasingly, and as communicated by the contributors in this volume, researchers are exploring ways to enhance such instruction via technology. For example, automated essay scoring and automated writing evaluation systems (Grimes & Warschauer, 2010; Warschauer & Grimes, 2008) have become popular tools that allow teachers to assign more essays to students while providing feedback to the students on key problems and errors. Prior research has also explored how technology can support specific writing skills, such as summarization (Kintsch, Caccamise, Franzke, Johnson, & Dooley, 2007) and argumentation (Wolfe, Britt, Petrovich, Albrecht, & Kopp, 2009).

In this chapter, we consider the value of *educational games* to support the acquisition and practice of writing strategies. This research occurs within the context of the Writing Pal (W-Pal), an intelligent tutoring system (ITS) designed to support adolescent students' persuasive writing and strategy development across multiple phases and aspects of the writing process (McNamara et al., 2012; Roscoe, Varner, Weston, Crossley, & McNamara, in press). We first briefly describe the strategy instruction framework that informs W-Pal pedagogy and game-based practice. Subsequently, we examine changes in students' articulation of writing strategies after learning with W-Pal, and how such changes are related to students' performance within a suite of educational games.

## Benefits of Strategy Instruction and Practice

Strategies are effortful and purposeful procedures that a person can apply to achieve a goal or facilitate the accomplishment of a task (Alexander, Graham, & Harris, 1998; Healy, Schneider, & Bourne, 2012). Consistently, decades of research on writing education have identified *explicit strategy instruction* as a fundamental means of improving student writing across age levels (Graham, McKeown, Kiuahara, & Harris, 2012; Graham & Perin, 2007). In such instruction, students are provided background information about the processes and goals of writing, and then are taught concrete strategies for enacting those processes and goals. For example, de la Paz and Graham (2002) taught middle-school writers to use a PLAN and WRITE strategy. The *PLAN* mnemonic teaches students to consider the prompt, generate main and supporting ideas, and organize these ideas. The *WRITE* mnemonic instructs students to implement these plans and to vary their sentence structure and vocabulary. de la Paz and Graham found that students who were taught the PLAN and WRITE strategies generated more plans of higher quality ( $d = 1.17$ ), wrote longer essays ( $d = .82$ ), used more sophisticated vocabulary ( $d = 1.13$ ), and wrote better essays ( $d = 1.71$ ) compared to a control condition that received traditional writing instruction (i.e., grammar, spelling, vocabulary, idea generation, and organization). Thus, explicit strategy instruction facilitated adolescent students' development of writing proficiency.

We summarize the benefits of strategy instruction using three general principles. First, strategy instruction benefits learning and performance by *decomposing complex or challenging processes into manageable sub-goals* (Healy et al., 2012).

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