Chapter 1

Matthew L. Bernacki
Temple University, USA

Anita C. Aguilar
Temple University, USA

James P. Byrnes
Temple University, USA

ABSTRACT
Recent research suggests that technologically enhanced learning environments (TELEs) represent an opportunity for students to build their ability to self-regulate, and for some, leverage their ability to apply self-regulated learning (SRL) to acquire knowledge. This chapter reviews 55 empirical studies and interprets their findings to answer the following questions: (1) What is the theoretical basis for understanding the possible relations among SRL and TELEs? (2) What types of TELE have been used to study these relations? (3) When participants engage in SRL behaviors in a well-designed TELE, do they show greater learning than their peers who engage in fewer SRL behaviors? (4) How have TELEs been shown to promote SRL tendencies in learners? and (5) How do pre-existing SRL tendencies influence the ways in which learners interact with TELEs? Our review suggests that TELEs can promote SRL and are best used by those who can self-regulate learning. SRL training should occur before the task, or be embedded in the TELE. Knowledge acquisition in TELEs is supported by learner self-regulation and by design features that include immediate and adaptive feedback and tools which support SRL behaviors.

DOI: 10.4018/978-1-61692-901-5.ch001
INTRODUCTION

Technology-enhanced learning environments (TELEs) have become increasingly prevalent over the past 25 years. Although the growth in TELEs is due to a number of factors, the most influential include the widespread availability of relevant technologies (e.g., personal computers, wireless communication, teleconferencing, etc.; One Laptop Per Child, 2009; Pea, Wulf, Elliot & Darling, 2003), the need to serve large numbers of students who reside in locations that are far removed from brick and mortar institutions, (Sloan Consortium, 2006) increased appreciation for the fact that technology can present information and capture performance in ways that traditional instruction cannot (Mayer, 2005; Winne & Perry, 2000) and generational shifts in comfort levels with technology. In addition, the increased popularity of distance and online learning options have created opportunities for new courses that are motivating even the most reluctant faculty to offer at least some of their programs online (Waits & Lewis, 2003).

Each time a new form of TELEs emerges, it is usually promoted as holding considerable promise (Winne, 2005). However, the gap between such predictions and reality have forced many to acknowledge the role that students play in getting the most out of a TELE. Even a well-designed technology will only have its desired effects if teachers and students take advantage of what it has to offer. In what follows, we expand on this basic premise and examine the empirical evidence related to TELEs as we provide answers to the following five questions: (1) What is the theoretical basis for understanding the possible relations among SRL and TELEs? (2) What types of TELE have been used to study these relations? (3) When participants engage in SRL behaviors in a well-designed TELE, do they show greater learning than their peers who engage in fewer self-regulatory behaviors? (4) How have TELEs been shown to promote SRL tendencies in learners? and (5) How do pre-existing SRL tendencies influence the ways in which learners interact with TELEs? After providing answers to these questions in turn, we draw conclusions.

QUESTION 1: WHAT IS THE THEORETICAL BASIS FOR UNDERSTANDING THE POSSIBLE RELATIONS AMONG SRL AND TELEs?

As will become evident in subsequent sections of this chapter, researchers who have examined the linkage between SRL and TELEs have implicitly or explicitly adopted a particular theoretical stance to predict and explain the behavior of their participants. Some authors have also evaluated TELEs in terms of how well these environments support SRL as defined by particular theories (e.g., Zimmer & Tsikalas, 2005). As such, it is useful to begin our review by engaging in a brief theoretical and meta-theoretical analysis of the literature on SRL in TELEs prior to describing the findings of empirical studies. At the core of our analysis are three issues. The first is relevance—the (reasonable) presumption that SRL may be particularly germane to TELEs. The second is parsimony—the problem of multiple, partially overlapping theories in the literature, which generally explain the same phenomenon with slightly different terminology. The third is utility—specifically, the utility of an Opportunity-Propensity framework for understanding the relations between SRL and TELEs.

Relevance

It is important to note that environments differ in the extent to which students need to be self-regulated in order to be successful. If a learning environment is highly structured, engaging, and focused on the acquisition of a simple (non-demanding) skill or task, students need not be self-regulated in order to be successful in that environment. In contrast, self-regulation is par-