Chapter IV
Motivation-to-E-Learn: A Quantitative Design Technique

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ABSTRACT

One of e-learning challenges is to promote effectiveness in order to fully get expected benefits. Achieving effectiveness will contribute to its establishment as a credible way to support educational endeavours. To address this complex and multidisciplinary challenge, development teams need proper design techniques to build effective learning experiences. The literature does not show solid quantitative approaches to support learning-centered design, where student needs and their immediate and broader contexts are taken into account. This work explores a variable called “motivation-to-e-learn,” a key component to design technology-supported learning experiences. Our goal is to identify what motivation-related variables are critical for student engagement in learning online. This will be the basis for a specific, bottom-up and quantitative design technique. To this end, we further explored the importance of a set of motivation-to-e-learn variables building on previous results in real instructional settings. From this activity, an exploratory two-factor structure emerged which explains 96% of motivation to e-learn construct. We discuss our results, together with their implications for learning-support design and future work. Our contribution is a step towards quantitatively understanding and cost-effectively improving the link among learning-design process, supporting systems and students into an effective and harmonious whole.
INTRODUCTION

Higher education institutions are concerned with technology-assisted learning experiences, since expected benefits are yet to come. Some institutions have implemented blended-learning initiatives to test the concept within their boundaries, though this has been done in a fragmentary manner with partial results and without proper monitoring mechanisms (Britain & Liber, 2005; O’Neill, Singh, & O’Donoghue, 2004). Consequently, building cost-effective and satisfying learning experiences supported by technology is still an art, and many factors are involved. Development teams are challenged to look at technology-supported learning in a holistic manner, taking not only usability of learning-support systems into account, but also context, content, and individual-related variables. This demands integrated approaches to evaluate. To this end, they must address the whole set of specificities by anticipating breakdowns or factors that can impair learner experience, specifically their motivation to learn and perform online.

Motivation is an individual variable, which is both shaped by internal factors and influenced by context (Organ & Bateman, 1991). It captures the impact of events that may take place within the individual’s immediate context. Such events may affect student efforts and results. Understanding what aspects could affect motivation-to-e-learn the most is critical to improve acceptance behaviours, and consequently to increase learning effectiveness. To this end, bottom-up and quantitative design techniques are needed to measure and improve learning-related aspects that can influence student motivation to learn. However, motivation to learn in a technology-supported learning context is difficult to measure and capture.

This chapter’s goal is to propose a design technique to capture potential motivating items that can guide development teams’ efforts on improving technology-supported learning experiences. To this end, we build on previous results and further analyse the underlying factors of this hypothetical variable by revising its identified content and using a larger student sample than that used in previous studies. Our main contribution here is to offer development teams a holistic view and a quantitative design technique to assist them in the adoption of technology-supported learning. In the remainder of this chapter, we present our conceptual framework, the study methodology, the results garnered and discussion and finally a general conclusion and future work.

CONCEPTUAL FRAMEWORK

The complexities associated to technology-assisted learning require holistic views that address context, process, system, and individual-related specificities. These holistic views could be supported by learning-centered design, which focus on students, instructors, institutions, and society needs (Andersen, 2004; Costabile et al., 2006). As can be seen in Figure 1, at operational level, tasks link learning-design processes to supporting systems. Learning tasks are performed by students to achieve goals. Further, the functional and non-functional characteristics of supporting systems reflect strategic and design options regarding skills and system development. The structure of the experience is given by the learning-design process and supporting system. This process-system fit influences the quality of interactions between students and systems thus influencing their motivation to engage and perform learning tasks (Walker, 1992; Organ & Bateman, 1991; Gagne & Deci, 2005). That is why a better understanding of motivation to e-learn could help development teams to structurally design cost-effective learning experiences.

The scope of this study is an individual-related hypothetical variable or construct called motivation-to-e-learn. In particular, we aim at exploring its underlying nature and its implications for de-
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