



Choice decision of e-learning system: Implications from construal level theory



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ABSTRACT

This study investigates user acceptance of a new e-learning system when users can choose between the old and the new systems. Drawing upon construal level theory and technology acceptance model, this study proposes that users' construal level of an e-learning system interacts with their perceptions of the system (i.e., PEOU and PU) and affects their adoption intention. Data collected from 131 participants in a laboratory experiment show that a higher construal level strengthened the effect of PEOU but mitigated the effect of PU on participants' attitude toward using the system, thus affecting adoption intention. Theoretical contributions and implications are discussed.

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1. Introduction

Electronic learning (e-learning) systems have attracted considerable attention from researchers and practitioners in recent years [29,49]. Basically, "e-learning system" is an inclusive terminology that describes various information systems that facilitate learning and teaching [20]. It helps organizations reduce costs and increase the availability of knowledge [3]. For example, massive open online courses (MOOC), as a recent innovation in distance education, allow unlimited participation and open access through the Internet, thus making higher education more accessible. Indeed, many universities such as Stanford and MIT are developing MOOC platforms to materialize the benefits of e-learning systems. The global e-learning market is expected to reach \$107.3 billion by 2015 [14]. The decision to adopt a specific e-learning system is typically made by the management of an organization or the instructors who deliver the courses or training. Therefore, the majority of e-learning system users, namely, students and trainees, may not be involved in the adoption decision. The extent to which

these users will accept the system and make good use of it determines the extent to which the value of e-learning systems can be materialized [20]. In this regard, investigating the factors that may affect users' acceptance of a new e-learning system is significant.

A plethora of studies has examined the antecedents of e-learning system acceptance. Literature on this topic can be categorized into two: studies that apply the technology acceptance model (TAM) and its extension theories to understand user acceptance (e.g., [20,21,27,29]) as well as studies that examine the acceptance issue by investigating the psychological processes of users (e.g., [49,50]). A review of the literature indicates that scant research has assessed how the constructs suggested by TAM (i.e., perceived ease of use [PEOU] and perceived usefulness [PU]) interact with psychological factors to affect users' acceptance of e-learning systems. Furthermore, limited research has investigated how psychological factors may affect users' acceptance decision when they have alternative e-learning systems. In view of the fact that it is becoming common for organizations to introduce a new e-learning system before they phase out the old one, research on this area will extend our current understanding of the factors that may influence users to embrace a new e-learning system adopted by their organization. Findings of such research will also shed light on how users with different psychological characteristics would accept a specific e-learning system among a number of alternatives.

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The current study aims to address these issues. Specifically, we draw upon TAM and the construal level theory (CLT) to develop our research model. TAM suggests that PEOU and PU are the most critical factors affecting users' acceptance of a technology. CLT also posits that different individuals can represent an event or object at different levels of concreteness or abstraction [37,39]. Furthermore, the way by which individuals construe an object considerably affects their judgment and decision making in relation to that particular object [21,38]. Building on TAM and CLT, we reason that an e-learning system can be represented at a relatively low, concrete level (e.g., a tool that performs file uploading or downloading) or at a relatively high, abstract level (e.g., a system that facilitates learning and teaching). In addition, we argue that PEOU is a low construal level perception of a system (e.g., how easy performing technical tasks is), whereas PU is a high construal level perception (e.g., how well learning and teaching are facilitated). More importantly, we argue that users' construal level of a specific e-learning system affects the salience of PEOU and PU in influencing these users' attitude toward using the system. Our research hypotheses are supported by data collected from a laboratory experiment that involves 131 students from a university where a new e-learning system has recently been adopted before the old one is phased out.

The rest of the paper is organized as follows. Section 2 presents the theoretical underpinnings of the research and the hypotheses. Section 3 describes the methodology and Section 4 reports the data analysis results. The final section discusses the findings and contributions of this research.

2. Conceptual background and hypothesis development

This research centers on the idea that individuals who construe an e-learning system at different levels of concreteness or abstraction differ in the way they evaluate the system and make adoption decisions. This section first explicates the concept of construal level in detail. Then we examine the literature on technology acceptance to elaborate how differences in construal level may result in users' differential evaluation processes in which they formulate their attitude toward using a new e-learning system and its adoption.

2.1. Construal level theory

CLT states that the same event or object can be represented at different levels of concreteness or abstraction [37,39]. An event construed at a relatively high level is represented by abstract, holistic, superordinate, and decontextualized features that convey the general core information. By contrast, an event construed at a relatively low level is represented by concrete, piecemeal, subordinate, and contextualized features that convey specific details of information. For example, "studying" can be seen as an act of "gaining knowledge" (a high construal level representation) or an act of "taking notes" (a low construal level representation). Transcending from a concrete representation to a more abstract representation involves retaining the central and core features of an object or event and omitting features that are incidental or irrelevant to the abstraction. For instance, when we represent the act of studying as "gaining knowledge" rather than "taking notes," we retain the core value of studying (i.e., to gain knowledge) but omit the incidental details of how or the means of achieving it (e.g., taking notes in class). In this sense, a high construal level also focuses on the "why" aspects of an event or the end-state of accomplishing an event, whereas a low construal level focuses on the "how" aspects of an event or the means of accomplishing it. Since high-level representations omit the irrelevant details of an

event, they are more abstract, schematic, and goal directed than low-level representations [8,30].

CLT indicates that the extent to which an object is construed at a high or low level can significantly influence what aspects of the object individuals focus on, and this focus can in turn influence individuals' judgment and evaluation of it. For example, the construal level influences people's attention to the global versus local features of an object [22]. People generally perceive a global, broad overview of an object (e.g., a forest) when they are far away from the object, whereas they can view the constituent details of the object (e.g., trees) when they are close to it. Therefore, a high construal level drives people to attend to the global features of an object, whereas a low construal level facilitates attention to the local features. In support of this argument, Liberman and Förster [22] presented participants with global letters that are made of local letters (e.g., a large L made of 20 small Hs). They found that the participants primed with a high construal level identified more global letters than local letters, whereas the participants primed with a low construal level identified more local letters than global letters. To the extent that a high construal level drives participants to focus on the global features, the participants may pay less attention and cognitive resources to process the local features [32], thereby facilitating global processing and impairing local processing, vice versa.

In addition, it has been shown that construal level can influence individuals' idealistic versus pragmatic concerns related to an object. Kivetz and Tyler [17] argue that a high construal level encourages the expression of an idealistic self and thus increases the attention to identity, intrinsic benefits, whereas a low construal level encourages the expression of a pragmatic self and thus increases the attention to instrumental, extrinsic benefits. In support of this claim, many studies have found that people focus more on the identity-related benefits of an object (e.g., a course in which the professor treats students with respect and dignity) than its instrumental benefits (e.g., a course that looks good on one's CV) when the object is construed at a high level. This trend is reversed when the object is construed at a low level [11,17].

A high construal level can also direct individuals to focus on the desirability features of an object, whereas a low construal level can direct them to focus on the feasibility features correspondingly. Desirability concerns the core value or benefits of an object or explains the "why" in relation to the purpose of existence of the object, whereas feasibility concerns the costs associated with using the object or the "how" of using the object. Desirability features are related to a high construal level, whereas feasibility features are related to a low construal level. Consistent with this conceptualization, many studies have shown that people focus more on the desirability features than the feasibility features of an object as the construal level increases (e.g., [24,25,34]).

However, recent research has found that the effects of construal level noted above may not always prevail. For example, the effects of construal level on attention to desirability versus feasibility features have been consistently demonstrated in contexts where desirability or feasibility tradeoff information is explicitly given [24,25,34]. In situations where such tradeoff information is not explicitly given, individuals may not be aware of the difficulty of making such comparisons [2] and fail to compare between desirability and feasibility features when they make a choice. Particularly, in their investigation of people's preference between a small and large choice set, Goodman and Malkoc [12] demonstrate that when individuals are not instructed to focus on the desirability or feasibility tradeoff, priming a high construal level does not result in a preference of a large choice set (a desirable option with more choices) over a small choice set (a feasible option in which decision making is easier). They claim that a high construal level increases the perceived similarity of the options within a set and thus results in a null preference in the size of the

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