Transactional distance revisited: Bridging face and empirical validity

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ABSTRACT

Implementation of e-learning, whether in academic institutions or in the corporate world, is fast growing. While there has been a plethora of research in the field of e-learning, most empirical results remain inconsistent. One problem with such inconsistencies is the lack of clear takeaways that can guide practitioners on the best practices of e-learning. In this paper, we propose an overarching theoretical framework based on Moore's transactional distance theory to examine e-learning. While this theory has existed for some time and has face validity, it has not received empirical support. We re-examine the core tenets of the theory, and test them in a manner that is ontologically consistent with the focus of the theory on learners' perceptions, thereby bridging the gap between the theory's face and empirical validity. We find strong support for the influence of transactional distance factors on our outcome of interest, i.e. individuals' intentions to return for another e-learning experience. Our results help us arrive at contributions to research and practice, which include suggestions to enhance the success of e-learning initiatives.

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1. Introduction

Computer-mediated environments are increasingly being used as educational platforms. Various forms of e-learning, from online content distribution and testing to synchronous instructor-led sessions, are being adopted for training and education. Such learning is not bound by geographical and temporal boundaries. While the phenomenon of e-learning is not new, the acceleration towards developing and leveraging e-learning strategies is fueled by drivers such as globalization, technological advancements, and demand from learners that have grown up in a digital era. As the generation familiar with the use of technologies to gain information gets assimilated into the future workforce, technologies for learning and communication will reflect their needs. In keeping with the demand generated from the forces above, many higher education institutions have adopted e-learning in some form as part of their curriculum offering. Courses branded as online, distance, hybrid, or virtual, have some component which leverages electronic platforms for education. Given the inexorable move towards e-learning, it is important to look at possible factors that determine the success of e-learning initiatives at an individual level. Despite the number of empirical studies on e-learning, there remains a lack of an overarching theoretical model that successfully predicts individual intentions.

A particular factor of interest for educational institutions is the intention of learners to enroll in e-learning courses in the future. Intentions have been found to be highly correlated with future behaviors, and can hence be used as surrogates to predict behaviors (Ajzen, 1991). For educational institutions that provide e-learning offerings, such intentions can reflect the success of e-learning initiatives.

Early studies in distance education focused on comparing face-to-face or classroom instruction with technologically mediated instruction. However, the usefulness of such studies has diminished over the years (Saba, 2000). These studies gave way to the evolution of theories that explained how learning occurs in specific media. Cognitively, a learner evaluates his/her experience as encompassing both the content and the technological medium in which it is delivered (Moore & Kearsley, 1996). A theory proposed to explain such a cognitive experience is transactional distance theory (Moore, 1993). Though the theory has existed for a while, it has received mixed empirical support. A predominant problematic area has been the measurement of transactional distance and its components – dialog, structure, and autonomy. In this paper, we focus on core tenets of the theory, and arrive at a research model that predicts future intentions towards e-learning. Our operationalization, while different from prior studies, is faithful to the conceptualization of transactional distance as a cognitive phenomenon in the minds of the learner. We explore the notion of dialog as a central variable of transactional distance, and identify trait and state predictors that influence dialog. We use the concepts from transactional distance theory to predict individual intentions, thus successfully resolving the seeming inconsistencies between the theory and empirical findings thus far.

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Our contribution is threefold; we provide state and trait predictors of transactional distance; we suggest an operationalization of the concepts of transactional distance that are faithful to the theoretical conceptualization; and successfully employ them to test a model to predict individuals' intentions to partake in e-learning courses. The results from our study suggest recommendations for designing e-learning courses.

2. Literature review

2.1. Intention to return and the theory of transactional distance

The theory of transactional distance was proposed by Moore in 1973 based on the concept of transaction introduced by Dewey and Bentley (1949). Transactional distance was defined as the "psychological and communication space that exists between learners and instructors in distance education" (p. 22). The term "distance" was used to refer to the distance in the relationship between the instructor and student, rather than the geographic separation between them. Moore described three clusters of variables – dialog, course structure, and learner autonomy – as aspects of transactional distance. Based on the ideas offered by Moore (1972, 1989), transactional distance is inversely related to positive learning outcomes. To our knowledge, transactional distance theory has not been used to predict an individual's intention to return. However, past research has demonstrated a relationship between positive learning outcomes and an individual's future intentions (e.g. Zhang & Goel, 2011).

In this paper, we seek to predict individuals' decision to return to an e-learning course after having undergone the experience of one. On the one hand, we believe this is an important variable for researchers and practitioners because intentions are highly correlated with future behaviors (Ajzen, 1991), and it is important to understand students' seeking to repeat e-learning experiences. On the other hand, the intention to return to e-learning is regarded as an important indicator of e-learning success (Goda, 2008; Siritongthawon & Krairit, 2004). As a result, studying intention to return could help educators to understand and improve this technological platform's efficiency. Furthermore, while other outcomes such as satisfaction with perceived knowledge gained, have been described in the literature (Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2005), learners' intent to return to an e-learning environment has yet to be empirically investigated.

There have been numerous empirical studies based on Moore's theory. Gorsky and Caspi (2005) provide a review of the empirical literature. Of the six studies they reviewed, three supported the theory but failed to demonstrate construct validity (Bischoff, Bisconer, Kooker, & Woods, 1996; Bunker, Gayol, Nti, & Reidell, 1996; Moore, 2007), and the other three found only limited support for the theory (Chen, 2001a, 2001b; Chen & Willits, 1998). Gorsky and Caspi (2005, 2009) have twice concluded that the theory was a tautology that, despite high face validity and philosophical impact, lacked empirical validation. Gokool-Ramdoo (2008) refuted this conclusion by suggesting that Moore's theory did have the basis to be a "global theory for further development of distance education" (p. 1), and required further research to validate the theoretical framework. Their review suggests that, though the theory of transactional distance has been around for a few decades speaking to its high face validity, its empirical validity is unresolved.

In this paper, we delve into the core tenets of the theory in an effort to find the gap between face and empirical validity.

2.2. The relationship between course structure, learner autonomy, and dialog

A criticism that emerged based on Gorsky and Caspi's reviews Gorsky and Caspi (2005, 2009) was that the theory of transactional distance proposes a tautology, where dialog represents understanding by the learners, and transactional distance, the misunderstanding. Hence, the theory can be restated as the more the understanding (dialog), the less the misunderstanding (transactional). A second criticism is that the three clusters are not uncorrelated. Dialog is the predominant determinant of transactional distance, with the other two variables affecting dialog. Hence, the level of course structure is related to the level of dialog facilitation, and the level of learner autonomy is related to the level of dialog engaged in.

While the tautology criticism may not apply in the case of empirical models since "transactional distance" itself does not appear as a variable in the theory, the second criticism does bear an effect on how the theory should be tested. Based on most empirical work in transactional distance, we see the emergence of "dialog" as central to the theory (Saba, 2000). Hence dialog is a central mediator between factors that affect the dialog, and learning outcomes. This is reflected in Fig. 1. Wheeler (2007) suggests that the examination of two sub-variables of dialog, social presence and immediacy, could yield a more valid construct; however, the present study does not directly measure these two variables.

These criticisms were meant to address the lack of empirical support for a theory that has seemingly high face validity. However, we suggest that the problem, in part, may lie with the approach to testing the theory, rather than the theory itself.

2.3. The role of learners' perceptions

There has been preponderance to measuring variables of transactional distance in an objective sense. For example, course structure has been variously operationalized as the organization of pace, sequence, feedback and content (Moore, 2007), instructional design (Bunker et al., 1996), activities, seating, number of students (Bischoff et al., 1996), implementation organization (Chen & Willits, 1998), and learner support, extent of online asynchronous interaction (Chen, 2001a, 2001b), and learner context (Benson & Samarawickrema, 2009). In the same vein, dialog has been operationalized as discourse analysis (Moore, 2007), and length and number of communications (Bischoff et al., 1996; Bunker et al., 1996; Chen, 2001a, 2001b; Chen & Willits, 1998). Types of dialog have also been explored. Jung (2001) identified three types of dialog (academic, collaborative, interpersonal), Similarly, through exploratory analysis, Chen (2001a, 2001b) proposes four dimensions of dialog: instructor–learner, learner–learner, learner–content, and learner–interface transactional distance. Learner autonomy has also been operationalized as an independent/interdependent trait of an individual (Chen, 2001a, 2001b; Chen & Willits, 1998; Chen & Willits, 1999).

While such approaches are certainly useful in providing a basis for instructional and course design, we feel that they do not conform to the ontological basis of the theory of transactional distance. An important, and somewhat overlooked, nuance of the theory of transactional distance is the emphasis of the learners' perspective as the unit of analysis. Moore (1993) has consistently emphasized the subjective nature of transactional distance as seen in the following quotes:

"It cannot be emphasized too strongly that transactional distance is a relative rather than an absolute variable." (p. 23)

"As with dialog, structure is a qualitative variable." (p. 26)