

**Student Perceptions of Self-Regulated
Learning with Reference to
Transactional Distance in a Location-
Based Mobile Learning (LBML)
Environment**

By

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Abstract

Mobile learning is defined as “learning across multiple contexts, through social and content interactions, using personal electronic devices” (Crompton, 2013, p. 4). Mobile learning is unique in that students are constantly in motion. This activeness affects the way they behave in various contexts, which change continually according to the location of the individual (E. Brown, 2010). This is known as *location-based mobile learning* and differs from *distance learning* in that the student’s physical environment is an essential component. The student must learn *about* the environment *in which* he or she is performing. In a sense, the physical environment is utilized as a significant aspect of mobile learning and not merely as a facility for it.

When it is not implemented by a teacher in person, location-based mobile learning is considered a distance teaching and learning activity, since the teacher (teaching activity) and the students (learning activity) are separated geographically and even, in the case of asynchronous learning, by time (Benson & Samarawickrema, 2009; Traxler, 2010). According to Moore (1993a), this distance, besides its geographical reality, is experienced by teachers and students pedagogically and emotionally as a platform that may lead to confusion, misconceptions, and negative learning experiences. In order to bridge this distance, which is referred to as *transcational distance*, as much as possible, students need a great deal of self-regulated learning, amongst other things. Many studies have shown that the application of Feuerstein et al.’s (Feuerstein, Rand, & Hoffman, 1981; Feuerstein, 1980) principles of the Mediated Learning Experience (MLE) is associated with improvement in students’ self-regulated performance (De Guerrero & Villamil, 2000; Pena, Iglesias, & Lidz, 2001; Shamir & Lazerovitz, 2007; Tan, 2004; Tzuriel, 2013). However, the effect of mediated instruction has not been studied to date with reference to location-based mobile learning (LBML) in instances when the teacher cannot mediate the physical environment for students.

In this study, we examined how the instructor’s teaching method and the student’s thinking style relate to students’ perceptions of self-regulated learning and technology acceptance—and how these perceptions are related to transactional distance in the framework of location-based mobile learning. In the first two hypotheses, the independent variable was teaching method (MLE versus traditional instruction) and the dependent variables were perceptions of self-regulated learning in the first instance and perceptions of technology acceptance in the second. In the third hypothesis, the independent variables were teaching method and student’s thinking style (Sternberg, 1997) and the dependent variable was the

student's transactional distance. The fourth hypothesis investigated the interaction between variables: self-regulated learning and technology acceptance were tested as mediator variables in the relationship between the student's thinking style/instructor's teaching method and the student's transactional distance.

Two hundred and sixteen ninth and tenth graders from five schools (a total of sixteen classes), aged 14-17, participated in the study as part of an educational field trip to the Ben-Zvi Institute's school for Jerusalem studies. The students were divided into two groups: a comparison group and an intervention group. Before the field trip, the comparison group received the institute's usual preliminary instruction and the intervention group received preliminary instruction adapted to the principles of MLE. Both groups then took part in the trip, which lasted about eight hours, during which participants used a computer tablet on which a widget for a location-based learning activity was installed.

The study was based on self-reporting using seven questionnaires: a demographic questionnaire (Pre) and an assessment of students' thinking styles (Pre) (Sternberg & Wagner, 1992; Sternberg, 1997); the OSLQ, or Online Self-regulated Learning Questionnaire (Pre + Post) (Barnard, Paton, & Lan, 2008); assessments (Pre + Post) of perceptions of technology acceptance (H.-R. Chen & Huang, 2010); and an assessment (Post) of transactional distance (A. Zhang, 2003).

The findings were subjected to repeated MANOVA analysis as well as structural equation modeling (SEM) using the AMOS20 software (Arbuckle, 2011). A Concurrent Transformative Strategy was selected for the purposes of confirming the study's hypotheses and in order to explain and establish the quantitative findings in a manner consistent with a mixed methods research. Quantitative and qualitative data were collected simultaneously and qualitative methods were used—in analysis of photographs that were generated by the students as a product of their learning and in categorical analysis of candid written feedback received from them—in order to help explain the quantitative findings (Creswell & Clark, 2007; Creswell, 2009).

It was found that in a location-based mobile learning environment, the relationship between a student's thinking style/an instructor's teaching method and transactional distance can be explained through perceptions of self-regulated learning and technology acceptance. Participants who received preliminary instruction that was adapted to the principles of MLE reported improved perceptions of self-regulated learning and technology acceptance. They subsequently experienced reduced transactional distance, as expressed by feelings of achievement and satisfaction. The pattern of results for male students differed from the pattern

for female students. The gender differences were discussed and analyzed according to social construction theories (Fritsch, 2011; Grint & Woolgar, 1992; MacKenzie & Wajcman, 1999) and emphasized the need for mediated learning in order to make appropriate adjustments for subjective social norms and varied thinking and learning styles.

These findings may have important implications for the pedagogical, technological, and systemic aspects of the implementation of new mobile technologies in education as part of the trending change pursuant to Offir's innovative model (Offir, 2010). This approach proposes to break away from current decision-making patterns and to adopt patterns based on personal and pedagogical factors and on perceptions and reasoning that account for pedagogical aims when weighing the advantages and limitations of every learning environment.