

## **Mobile Learning Delivery via Social Networks: What platforms do First-Year University Students Prefer?**

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### **Abstract**

Latest technology based distance learning and mobile learning delivery platforms include smartphone based SMS as well as Facebook based learning delivery technologies that provide access to learning materials without being limited by space or time. Ongoing up-to-date technological advances have upgraded learning delivery systems and have highlighted some psycho-pedagogical variables which contribute to higher levels of affective learner sensitivity in the learning process.

In the present study two groups of first year university students who studied historical and cultural Jewish concepts in a mandatory 15 week long (semester) course were exposed to two different modes of concept delivery. The first group of students received weekly lists of historical and cultural Jewish concepts sent via SMS messages to their smartphones and the second group received weekly lists of historical and cultural Jewish concepts sent via internet to the Facebook course homepage. The definitions of historical and cultural Jewish concepts studied via smartphone based SMS messages or via the course Facebook homepage were identical and the students received 30 historical Jewish concept definitions on a weekly basis for a period of 15 weeks. In addition identical relevant power-point presentations and other digitized learning materials, such as videos were sent to both groups of students on a weekly basis. At the end of this period the students in the two groups were tested on a cognitive standardized historical and cultural Jewish concepts achievement test and responded to a questionnaire that examined learner self-regulation, learner creativity and learner technological mastery, key affective psycho-pedagogical variables related to the learning process.

Results of the study indicate that there were no significant differences between the achievement scores on the standardized historical and cultural Jewish concepts achievement test attained by students in the smartphone based SMS delivery group or

in the Facebook course homepage delivery group. All participating students in both delivery groups passed the course with similar mean achievement scores. However, there were significant differences between the students in the delivery groups regarding their levels of learner self-regulation, learner creativity and learner technological mastery. The students who received historical and cultural Jewish concepts via SMS messages to their smartphones exhibited a significantly higher level of learner self-regulation, a significantly higher level of learner creativity and a significantly higher level of learner technological mastery than their counterparts who received lists of historical and cultural Jewish concepts via the Facebook course homepage.

The results of the study indicate the potential evident in up-to-date technological learning delivery platforms, and most especially a smartphone based SMS delivery platform, regarding enhancement of students' attitudes toward affective psychopedagogical variables such as learner self-regulation, learner creativity and learner technological mastery. Thus the smartphone based SMS learning delivery platform can in fact become a practical technological mobile delivery system in the university learning process and serve as a routine methodology for the delivery of relevant learning materials.

## **Introduction**

Distance learning is an increasingly popular solution to campus overcrowding and student requirements for flexible schedules. Changing the traditional environment of the university classroom has encountered enthusiasm from many groups of faculty and students but it has also met with pockets of resistance. A primary potential benefit for institutions is more efficient use of technology based resources, through which students may potentially benefit from increased critical thinking, leadership, communication, and problem solving skills (Spangle et al., 2002; Katz & Yablon, 2003). Hofmann (2002) confirmed that distance learning at the university level supplements and enhances traditional classroom-based learning because students are necessarily more active in distance learning than in face-to-face lectures. Since its inception distance learning has progressed through delivery systems such as television broadcasts, videoconferencing and email, and at present focuses on digital delivery systems such as internet, mobile and social network learning platforms. Katz (2013) noted that almost all of the existing distance learning delivery platforms are used in different educational systems throughout the world. The present study will focus on smartphone and Facebook based learning delivery systems and the cognitive and affective outcomes for students receiving learning content via the two delivery platforms.

### ***Technology-Based Distance Learning***

Ismail et al. (2010) confronted the implications of university learning and instruction using technology based distance learning courses. They contended that technology based distance learning has moved formal instruction in these courses from the on-site setting of the university campus to the home of the student. Learning has become significantly more flexible and content sources more accessible. Creating, sharing and knowledge capitalization are all facilitated by distance learning. Wider sources of learning are provided in technology based distance learning courses and worldwide expertise can systematically be brought to the student's desktop. With the rapid development of distance learning courses for use in university level education, increasingly more research studies have been conducted in an attempt to evaluate different issues related to technology based distance learning. For example Abdallah (2009) found that distance learning courses contributed to improved quality of students' learning experiences and Chandra & Watters (2012) indicated that learning physics through the medium of technology based distance learning not only enhanced students' learning outcomes, but also had a positive impact on their attitudes toward the study of physics. Ituma (2011) confirmed that a large percentage of university

students who were enrolled in distance learning university courses had positive perceptions of the technology- based learning methodology and were in favour of joining additional distance learning courses that supplemented traditional face-to-face classroom instruction.

Valaitis et al. (2005) found that students who participated in technology-based distance learning courses perceived that the methodology increased their learning flexibility and enhanced their ability to process content, and provided access to valuable learning resources. Abdallah (2009) indicated that technology-based distance learning courses contributed to the enhancement of students' attitudes towards learning. Delfino et al. (2010) confirmed that student teachers who participated in technology-based distance learning teacher training courses developed self-regulated and motivated learning which provided them with the opportunity to flexibly cope with their academic assignments.

### ***Mobile Learning***

Many universities increasingly implement a variety of mobile learning methodologies as viable alternatives to traditional classroom instruction. Mobile learning via internet, email, regular cell-phones, smartphones and Facebook are increasingly penetrating the domain of academic learning and provide students with dramatically increased access to sources and subject matter relevant to their studies (Ward, 2010; Katz & Yablon, 2011; 2012; Back, 2013; Katz, 2013; Sela, 2013; Yang, 2013; Kee & Samsudin, 2014; Rui-Ting et al., 2014) confirmed that mobile learning contributes significantly towards a more comprehensive educational environment for learning.

Cell-phone and Facebook based learning has advanced rapidly and is becoming an integral part of the learning process in many universities throughout the world. Some research studies have indicated that the use of cell-phones as a delivery platforms for university learning is suitable for both cognitive and affective aims (Garner et al., 2002; Prensky, 2005) and other research studies have emphasized the suitability of Facebook for delivery of learning at the university level (Robbins-Bell, 2008; Isacson & Gretzel, 2011; Harris, 2012).

### ***Cell-Phone Based Learning***

One of the emerging learning strategies that has developed in technology-based distance learning in recent years and is receiving growing attention from both students and teachers is in the domain of mobile learning, and more specifically, focuses on cell-phone learning technology (Prensky, 2005). It should be noted that the use of cell-

phones is multi-dimensional and smartphone technology now provides technological possibilities including voice, text, still-camera, video, paging and geo-positioning capabilities. These tools provide a rich variety of platforms that enhance the learning process. Cell-phone based learning projects managed by several universities worldwide have indicated the positive outcomes of such learning methods (Garner et al., 2002; Seppala, 2002). Kiernan and Aizawa (2004) described how vocabulary transmitted via cell-phone based SMS messages in a spaced and scheduled pattern of delivery contributed to student proficiency in English and in other languages. Additional studies including Godwin-Jones (2011), Katz and Yablon (2011), Motallebzadeh and Ganjali (2011) and Zhang et al. (2011) confirmed the effectiveness of the use of cell-phone based SMS text messages for enhanced language and vocabulary learning.

### ***Facebook Based Learning***

Facebook has also become a learning resource within the domain of mobile learning. Harris (2012) indicated that university students who studied hospitality studies agreed that Facebook, as a learning delivery platform, is effective as well as stimulating for learning. Robbins-Bell (2008) indicated that Facebook provides students with benefits of open and collaborative learning beyond classroom and campus limits. Isacson and Gretzel (2011) noted that university students valued Facebook for providing an informal and motivating learning environment. Other research projects have indicated the positive potential of Facebook as a learning delivery platform at the university level (Stutzman, 2008; Madge et al., 2009; Limbu, 2011; Lateh, 2014). Card and Planas (2011) and De Villiers and Pretorius (2013) found that when used as a learning delivery platform, Facebook enhances innovative learning, collaborative learning, critical collaborative thinking and learning motivation. Facebook has also been seen to enhance student-centred as well as social learning at the university level (Duncan & Barczyk, 2013). Mitchell (2012) indicated that Facebook based learning facilitated language learning as well as cultural learning of foreign students spending time studying at a US university. Kassem (2013) found that the use of Facebook in the Egyptian secondary educational system as a major learning delivery platform led to the narrowing of social gaps between students studying in general (more elite) and technical (less elite) high schools.

### **Research Issues in the Present Study**

Recent research studies have indicated the existence of a robust relationship between learning delivery platforms and the intensity of students' attitudes including learner motivation, learner curiosity learner autonomy, learning flexibility, learner control of

learning, learner self-confidence, learner locus of control and learner technological self-confidence at the university level (Katz & Yablon, 2011; 2012; Katz, 2013). However issues such as the relationship between cell-phone and Facebook delivery of learning on the one hand and learner self-regulation, learner creativity and learner technological mastery on the other, has not been adequately researched and will be addressed in the present study. In addition possible similarities or differences between learning via cell-phone and Facebook learning delivery platforms and levels of academic achievement will be examined in this study.

## **Method**

### ***Research Population***

The research sample consisted of 116 first year students enrolled in a 15 week semester-long mandatory historical and cultural Jewish concepts foundation course offered at one of the seven chartered universities in Israel. The students were randomly assigned to the two different research groups that were provided with lists of definitions of historical and cultural Jewish concepts as follows:

1. 62 students received their historical and cultural Jewish concepts lists via smartphone based SMS messages, power-point presentations and relevant videos
2. 54 were sent their historical and cultural Jewish concepts lists, power-point presentations and relevant videos via internet to the Facebook course homepage.

### ***Instruments***

Two research instruments were administered to the students in this research study. A standardized historical and cultural Jewish concepts test was administered to the participants in order to assess students' mastery of definitions of basic historical and cultural Jewish concepts. The test scale ranged from 0-100, the higher grades indicating higher levels of achievement on the historical and cultural Jewish concepts test. The second instrument administered was a 25 item Likert type response scale questionnaire (students responded to a five point scale with 1 = totally disagree and 5 = totally agree) designed to examine the students' perceptions of the affective psycho-pedagogical attitudinal research factors as follows: The first factor, learner self-regulation, contained nine items (Cronbach  $\alpha = 0.84$ ), the second factor, learner creativity, consisted of ten items (Cronbach  $\alpha = 0.80$ ) and the third factor, learner technological mastery, was made up of six items (Cronbach  $\alpha = 0.85$ ).

### **Procedure**

Students who were graduates of the Israeli state secular and religious school systems and who were enrolled in the mandatory historical and cultural Jewish concepts foundations course and possessed personal smartphones were eligible for participation in this study. Following the selection of the students who met the above criteria, they were randomly assigned to the two delivery platform groups. Students in the first group received historical and cultural Jewish concepts via smartphone based SMS messages and those in the second group received historical and cultural Jewish concepts via the Facebook course homepage.

The students in the two groups were sent weekly lists that contained concise definitions of the historical and cultural Jewish concepts studied in the course, each list containing definitions of 30 historical and cultural Jewish concepts delivered via the two respective learning delivery strategies. Thus each of the students received definitions of 450 historical and cultural Jewish concepts during the 15 week long course. On completion of the course the students in the two groups were administered a cognitive standardized historical and cultural Jewish concepts achievement test in order to assess their level of knowledge of the 450 historical and cultural Jewish concepts taught in the course. In addition they were administered the attitudinal questionnaire which examined their scores on the three affective psycho-pedagogical research factors, namely learner self-regulation, learner creativity and learner technological mastery.

### **Results**

The main aim of this study was to examine the efficiency and effectiveness of two different digital social network learning delivery platforms. Two research issues were pinpointed: the first examined the acquisition by students of knowledge concerning historical and cultural Jewish concepts and the second investigated students' perceptions of psycho-pedagogical attitudes connected with the two learning platforms. The mean scores of each of the psycho-pedagogical factors were standardized in order to allow for a comparison between the factor scores. Standardized means and standard deviations of students' scores on the achievement test and on the psycho-pedagogical factors are presented in Table 1.

Table 1: Standardized Mean Scores and Standard Deviations of Students in the Smartphone and Facebook Learning Delivery Groups for Achievement, Learner Self-Regulation, Learner Creativity and Learner Technological Mastery

Factor / Group	Learner Self-Regulation Factor		Learner Creativity Factor		Lerner Technological Factor		Achievement	
	M	S.D	M	S.D	M	S.D	M	S.D
Smartphone Delivery N=62	3.64	0.71	3.28	0.45	3.50	0.96	84.17	7.71
Facebook Delivery N=54	2.92	0.75	3.06	0.30	3.01	1.02	83.89	8.16

Four one-way ANOVA tests were conducted in order to compare students' achievement and psycho-pedagogical attitudes as related to the two learning delivery platforms. While there were no significant differences between students in the two groups regarding their achievement scores, with students from the two groups achieving similar grades on the cognitive historical and cultural Jewish concepts achievement test, significant differences were found between students in the two delivery groups for learner self-regulation [ $F(1,114) = 28.12, p < 0.001, \eta^2 = 0.198$ ], for learner creativity [ $F(1,114) = 8.83, p < 0.01, \eta^2 = 0.072$ ] and for learner technological mastery [ $F(1,114) = 20.77, p < 0.001, \eta^2 = 0.154$ ] In all cases students in the group that received their historical and cultural Jewish concepts via the smartphone SMS delivery platform were significantly higher on the affective psycho-pedagogical factors than students in the group that received their historical and cultural Jewish concepts via the Facebook delivery platform.

## Discussion and Conclusion

Results of the statistical analyses of the data collected in this study indicate that neither of the two delivery platforms, namely smartphone based SMS delivery of learning and Facebook course homepage delivery of learning, had any significant advantage regarding academic achievement of students on the standardized historical and cultural Jewish concepts test. Students who studied via both strategies attained similar grades on the test. Thus it appears that achievement is a factor that does not distinguish between delivery strategies with measured achievement outcomes. Although this result contradicts evidence presented by Efendioglu (2012) and Guzeller (2012), namely that SMS delivery of learning enhances academic achievement significantly more than other digital or traditional delivery strategies, it is congruent with similar results that confirmed that academic achievement is not related to a



particular mode of learning strategies or delivery platforms utilized to facilitate the learning process (Dyer & Osborne, 1996; Katz & Yablon, 2009; 2011; 2012). This result confirms those indicated in a number of research studies that indicated that, on the whole, different delivery platforms do not significantly contribute to differential academic achievement (Katz & Yablon, 2011; 2012; Katz, 2013; Chu, 2014).

However, the findings of the study indicate that the different learning delivery platforms employed in the present study to provide weekly lists of historical and cultural Jewish concepts to students are associated with significantly differential levels of learner self-regulation, learner creativity and learner technological mastery. Scores attained by students on the psycho-pedagogical research factors confirm that SMS messaging to smartphones is associated more significantly to students' learner self-regulation, learner creativity and learner technological mastery than delivery of learning via Facebook. It appears that students felt more in command of the learning process and more focused on the learning content delivered via SMS delivery than students who received their learning content via Facebook. It appears that SMS delivery of content is more goal-directed than Facebook delivery where flexible and less controlled posts and social interaction may have negatively affected the focus of students on the learning material.

It may be concluded that the results of the present study indicate the positive relationship of SMS delivery of learning to smartphones to key psycho-pedagogical variables such as learner self-regulation, learner creativity and learner technological mastery. The results also indicate that although Facebook delivery is as advantageous as SMS delivery regarding cognitive achievement, it does not have the same potency as SMS to smartphone delivery when considering the psycho-pedagogical aspects of the learning process. Further studies need to be conducted so as to further explore the potential of Facebook as a delivery platform that could perhaps enhance psycho-pedagogical aspects of learning when better configured and more controlled in its presentation to learners.

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