



Exploring mobile tablet training for road safety: A uses and gratifications perspective



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ABSTRACT

Traffic injuries are predicted to be the fifth leading cause of death and injury by 2030 if no further action is taken. Generation Y, who are growing up with technology and Internet, are among the most vulnerable road users, so it is crucial to provide effective road safety training for them. In the light of the Uses and Gratification Theory (U&G), we propose a conceptual research model to measure how users' different needs and gratifications with mobile technologies impact their learning outcomes. A field study with 182 young drivers who participated in a mobile road safety training program was conducted just before they took their license exam on site. A structural equation modeling (SEM) approach was utilized to test the research model. Perceived information needs, user preference, and innovativeness were found to have significant mediating relationships with user perceived multimedia enjoyment, and effectively promoted higher-order learning outcomes. The discussion focuses on the importance of designing multimedia content with the latest mobile technologies to effectively engage young users.

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1. Introduction

New technologies and digital media have significantly impacted learning (Gee, 2009). Recent mobile technologies such as Apple's iPads have started to revolutionize educational field as 'game changers,' and many K-12 schools and higher education institutions have adopted iPads for teaching and learning, however, more attention should be paid to instructional content and App design that affect student learning pathways (Falloon, 2013; Ihaka, 2013). The use of new digital technologies in education has been shown to increase cognitive engagement and enhance learning (Ellis & Barrs, 2008). Generation Y refers to a generation spanning in age from 18 to 32 (Fox & Jones, 2009), who grew up with technology and the Internet at a very early age. According to the Kaiser Family Foundation (2010), "without question, this generation truly is the media generation, devoting more than a quarter of each day to media." Given this, educators should harness the power of cutting-edge digital multimedia technologies to enhance training and learning outcomes.

Although emerging mobile devices, including tablet technologies, are gradually becoming integrated into teaching and learning, little is known about the impact of these technologies on learning outcomes (Park, Parsons, & Ryu, 2010) and how they can be effectively used to support learning (Kukulska-Hulme & Shield, 2008). Ryu and Parsons (2012) suggested that mobile learners could benefit beyond the traditional learning experience. Due to the high injury and death rate of young drivers on the road worldwide, it is crucial to allocate resources and conduct effective road safety training programs for digital natives (Longo, Hewett, Ge, & Schubert, 2005). This study was designed to test the impact of mobile technologies on road safety training. It draws on the Uses and Gratification Theory (Blumler & Katz, 1974), which posits that individuals use particular forms of media to meet specific cognitive, affective, personal integrative, social integrative, and tension-free needs. According to Bryant and Miron (2004), if these needs are fulfilled, people are more likely to repeat the experience. We thus examine whether user interactions with a multimedia training program accessed via tablets provide more motivation to learn, and eventually help users to achieve higher-order learning outcomes. Further, study results may inform more mobile training design and delivery.

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This article is organized as follows. This paper begins with an exposition of the importance of road safety training programs among Generation Y. Following the theoretical background, we propose a research model to investigate how user information needs for training, innovativeness, new and cool perceptions of using mobile technologies, user preferences, and user perceived enjoyment affect training outcomes. A structural equation model (SEM) analysis was run to test the research model. The majority of the hypotheses were significantly supported. Lastly, future research directions are discussed.

2. Road safety background

2.1. The importance of road safety training for motorcycle riders

Internationally, motorcyclists and scooter riders constitute an approximate population of 313 million (Haworth & Rowden, 2010), and are among the most vulnerable road users, accounting for 46% of road traffic deaths (Krug, 2012). A recent United Nations Road Safety Collaboration report (2011–2012) indicates that over 30% of road crash victims are young people under the age of 25. In Israel, 43% of the young drivers are involved in a crash which they are responsible for. Further, although there is a 30% decrease in road crash fatalities in the last decade, the percentage of motorcycles users that die increased by 17%. This trend is similar within the world population (Houston et al., 2011).

The lack of experience of many motorcycle riders has been cited as a potential cause of motorcycle crashes (Haworth & Rowden, 2010; Winn, 1987). Thus, the training of motorcycle riders has been identified as an important countermeasure for reducing both the number of crashes and the severity of injury (Noordzij, Forke, Brendicke, & Chinn, 2001). Pre-license motorcycle rider training courses have been made compulsory in several countries (Haworth & Rowden, 2010). However, riding a motorcycle continues to be associated with a high risk of fatal collisions, particularly in new riders.

2.2. Road safety education

Road safety education (RSE) is viewed as a means of improving the safety of young road users. The design and delivery for RSE education is often based on the assumption that young road users lack the skills, knowledge or both to operate safely in traffic environments, and that addressing these deficits will reduce their risk of being injured or killed while on the road (Houston et al., 2011). Hence, road safety education for young road users has become a priority for countries associated with the Organization for Economic Co-operation and Development (OECD) countries (OECD, 2004), including the United States, Canada, Australia, France and the United Kingdom.

In general, "Road Safety Education" programs encompass a large range of activities and methodologies for addressing road safety issues, such as risk awareness, one-time interventions (e.g., police or fire services using shocking imagery or exhibitions to portray crash consequences), and driver training, amongst others.

3. Theoretical background

3.1. Uses and Gratifications Theory

User needs are considered as an important aspect of personal psychology that shapes new media behavior. The Uses and Gratifications theory (U&G) of media use assumes that audiences are aware of their social and psychological needs, and actively seek the media to fulfill them (Palmgreen, 1984). Scholars have started to recognize the importance of applying the U&G to new media and digital technologies (Grellhesl & Punyanunt-Carter, 2012; Ruggiero, 2000) and Internet-related research (Chua, Goh, & Lee, 2012; Ko, Cho, & Roberts, 2005; LaRose & Eastin, 2004; LaRose, Mastro, & Eastin, 2001). Ruggiero (2000), meanwhile, argued that "as new technologies present people with more and more media choices, motivation and satisfaction become even more crucial components of audience analysis" (p. 14). In this regard, the U&G is seen as beneficial in exploring these questions, because its principal elements include people's psychological and social needs, as well as how media can gratify the needs and reasons for communicating (Rubin, 2009). The U&G holds that multiple media compete for users' attention, and that audience members select the medium that best meets their needs, such as information, emotional connection, or status (Tan, 1985).

3.2. Mobile learning

Mobile learning has extended learning beyond traditional classroom environments to those spaces where learners desire to learn in the workplace, at home and any other convenient places at any time (Traxler, 2010). Today's mobile technologies have liberated learners from being constrained to a fixed location and time, while still connecting people with each other (Motiwalla, 2007). This is because mobile devices have redefined the learner's perception about the enactment of anywhere, anytime.

Previous studies have defined mobile learning as being "just-in-time" situated learning, which is mediated through digital technology in response to the needs of the user (Laurillard, 2002). However, what makes mobile learning different from other forms of technology-supported learning is the way it can mediate and facilitate the learning experience (Peters, 2009). Based on a review of the literature, Melhuish and Falloon (2010) identified the following mobile learning advantages:

- (1) *Portability*: because of its light weight, mobile devices are easy to carry anywhere, anytime, and can potentially change our way of learning and work;
- (2) *Affordable and ubiquitous access*: due to increasingly affordable prices, many people have their own mobile devices, which also offer ubiquitous access to the web and many other functionalities for learning;
- (3) *Situated, "just-in-time" learning opportunities*: mobile technologies can be used to access and process information anytime and anywhere (VanT Hooft, 2008);

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