

# Mobile Learning in Secondary Education: Teachers' and Students' Perceptions And Acceptance Of Tablet Computers

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## ABSTRACT

*This paper examines the school-wide introduction of the tablet computer as a mobile learning tool in a secondary school in Belgium. Drawing upon the Decomposed Theory of Planned Behavior, we question during three waves of data collection which factors influence teachers' and students' acceptance and use of these devices for educational purposes. The first wave indicated that attitudes towards the rollout are generally positive. Teachers and students are intrinsically motivated, welcoming it as an instrumental, and for students enjoyable, learning tool. However students do report feelings of social pressure. While after three months, the prior expectations hold up for both stakeholders, results of the third wave show a different pattern. Teachers' acceptance seems to be related to attaining a positive attitude, social influence and the sense to master the new technology while regarding students' results; only behavioral control remains significant. These results challenge teaching practices and invite manifold areas for further research.*

*Keywords: Behavioral Control, Decomposed Theory of Planned Behavior, Mobile Learning, Secondary Education, Tablet Computer*

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## INTRODUCTION

In the digital age, education and technology are inherently intertwined. In this respect, continuous efforts are necessary to improve and support computer-assisted learning, e.g. by involving mobile technologies such as tablet computers and smartphones (Alvarez, Brown, & Nussbaum, 2011). The growing interest in mobile technologies is obvious: they comprise flexible, personal devices that potentially support the learning process. These devices support learning, as they are detached from time and space constraints, while fostering wide access to a multitude of digital resources, not least the World Wide Web. As such, they offer novel possibilities for learning environments and serve as probable catalysts to facilitate constructivist practices (Melhuish & Falloon, 2010).

Still, despite ample interest, the implementation of mobile technologies in educational practice remains relatively scarce, despite indications of their prospective merits as learning tools in international educational research (Alvarez et al., 2011; Kinash, Brand, & Mathew, 2012; Zhang & Betts, 2012) and ample policy support. From the European Commission, a strong signal has been broadcast to indicate the importance of digital learning. With the goal: 'Every European Digital', Neelie Kroes, European Commissioner for Digital Agenda, stresses the need for funding and support to spread digital literacy (Kroes, 2011). A recent candidate for digital educational innovation – and a focal point of attention in this article – is the tablet computer. However, a widely supported acceptance of this device for learning is an indispensable prerequisite in order to proceed with studying its realized potential (Cheon, Lee, Crooks, & Song, 2012; Corbeil & Valdes-Corbeil, 2007; Keller, 2011). Importantly, in order to grasp its support, such acceptance should ideally be studied from a multi-stakeholder perspective. Unfortunately, to our knowledge, such research remains unprecedented.

For that reason, the present research focuses on the acceptance of a full-scale implementation of tablet computers by teachers and students in

a Flemish secondary school in 2012-2013. Up until today, this school counts as a pioneer, obliging both students and teachers to use a personal tablet in both class and home environments. However, this disruptive educational innovation still causes considerable scepticism, or even resistance. For example, opponents in the public debate point at the alleged hype-factor, financial burden, and questioned the actual motivational and supportive ability of tablet computers in education. To counter this often-subjective discourse in the media and among parents, students and teachers, it is important to empirically investigate this innovation from a sound theoretical perspective. Furthermore, research focusing on technology acceptance in education is useful to understand and manage technology initiatives (El-Gayar, Moran, & Hawkes, 2011).

Informed by the Decomposed Theory of Planned Behavior (Taylor & Todd, 1995), this study employs a three-wave longitudinal design to inquire both students' and teachers' expectations towards and experiences with the tablet as a mobile, personal learning device. As such, this study aims to illuminate the principal factors that explain support for actually using the tablet as a learning tool. Importantly, both intrinsic values (i.e. attitude) and extrinsic pressures (i.e. social norm) are juxtaposed and further explored.

## THEORETICAL FRAMEWORK

As depicted in Figure 1, this study draws on the Decomposed Theory of Planned Behavior as a guiding framework (Taylor & Todd, 1995). In essence, it entails a deconstruction of the original Theory of Planned Behavior (TPB; Ajzen, 1991), comprising an elaboration of the Technology Acceptance Model (TAM) (Davis, 1989), which is in turn based on the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975).

TAM (Davis, 1989) explains why users accept and use a technology. It posits the attitude towards a technology to originate in the

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