

Design & development of mobile learning in workplace training for the logistics industry

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ABSTRACT

As smartphones and mobile devices become progressively more ubiquitous, their usage is extending to support more than simply connecting people. Mobile learning (ML) is now being progressively employed by innovative organisations to offer alternatives to the more conventional methods of workplace training. This paper outlines how mobile learning systems (MLS) could be designed to replace traditional workplace training for remote workers within Fastway Couriers. The poster and article discuss the concerns facing Fastway Couriers and describes the current workplace training model and how mobile learning can help improve the facilitation of employee training. This paper provides an overview of a proposed system which will be developed to provide training support for couriers at Fastways. In addition, it provides a discussion of two frameworks (FRAME and ARCS model) adopted to help develop this prototype. In addition, the paper outlines the future steps that will be undertaken to trial and evaluate this proposed system.

Keywords: Mobile learning system (MLS), mobile learning (ML) remote workers, workplace training, Design-Based Research (DBR)

1. INTRODUCTION

All industries strive for competitive advantage and the logistics industry is no different. With vast technological advancement over the past few years, Fastway Couriers are now improving driver productivity by embedding systems that support effective route optimization, predictive analysis and navigation technology. New services such as enabling consumers to re-divert technology. New services such as enabling consumers to re-divert parcels automatically. Has introduced new technology into the industry and has required these workers to constantly upskill on how to effectively use new technology, techniques and tools.

It therefore crucial to ensure that these drivers are adequately educated to effectively utilise the technology made available to them to improve their output and become more efficient in their business. However, logistics industry is a demanding environment, and it does not leave much time for either initial

training for new recruits nor professional development for current drivers. Due to the constant demand to upskill the current workforce and the speed which new technology is introduced at Fastway, traditional training methods (face-to-face) is not adequate to best support these learners.

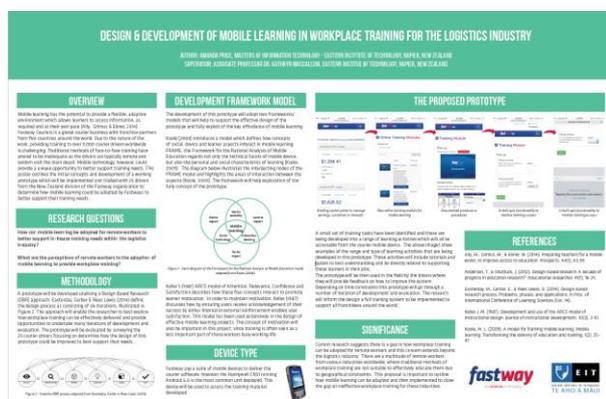
Therefore new approaches are needed to better facilitate training of the drivers at Fastways. Therefore this research project proposes the development of a prototype adopting mobile technology as a more effective way to provide on the job training of drivers. The overall outcome of this research will be to examine how mobile learning can be used to better facilitate and support training needs; for remote courier workers in the logistics industry, who have limited time for additional on-the-job training. In particular, the wider research will answer the following research questions:

1. How can mobile learning be adopted for remote mobile workers to better support in-house training needs within the logistics industry?
2. What are the perceptions of remote workers to the adoption of mobile learning to provide workplace training?

The aim of this research paper, however, is to describe the initial prototype which has been developed for the purposes of this research. Two theoretical frameworks have been adopted, namely the Framework for the Rational Analysis of Mobile Education (Koole, 2009) and Keller's (1987) ARCS model of Attention, Relevance, Confidence and Satisfaction. These frameworks provide the foundation to the development of the prototype proposed for this research. The following describes these two frameworks and then discusses how these have been applied in the initial development of the prototype.

2. THEORETICAL PERSPECTIVES

Transportable, multi-functional devices are mixing up the traditional ways that learning modules are delivered, and consequently the way we learn and work (Burden, Kearney & Schuck, 2017). Opportunities are quickly transforming as



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virtual capability and constant technological improvements inspire educators to evaluate their pedagogical approach (Burden, Kearney & Schuck, 2017). This highlights how fast, portable devices are able to incorporate into traditional contexts to alter how we learn and when we learn.

Koole (2009) introduces a model which defines how social, device and learner aspects interact in mobile learning. FRAME, the Framework for the Rational Analysis of Mobile Education regards not only the technical facets of the mobile device but also the personal and social characteristics of learning (Koole, 2009). Koole (2009) explains the intersecting areas where the main aspects have overlapping attributes; device usability, social technology and interaction learning and how these areas can be employed within a mobile learning environment to increase the efficacy of mobile learning capability. A

The ubiquitous nature of mobile technology has introduced numerous platforms to deliver education, uprooting the traditional learning environment (Jantjies & Joy, 2016) this is relevant not only to improving conventional education but extends to how we learn in the workplace. Regardless of the increasing services accessible by handheld devices, mobile learning is still juvenile in its pedagogical considerations and technological boundaries (Park, 2011). Leypold, Nolting, Roser, Tanvangarian & Voigt (2014) support this, emphasising that although the conception and usage of e-learning have been in existence for some time it is still in the early stages of technological advancement. Utilising a framework like Koole's FRAME model can help to overcome these areas of concern by ensuring that all aspects of mobile learning are considered in the design stage.

Keller's (1987) ARCS model of Attention, Relevance, Confidence and Satisfaction describes how these four concepts interact to promote learner motivation. Keller (1987) discusses how by ensuring users receive acknowledgement of their success by either internal or external reinforcement enables user satisfaction and motivation. Bae, Lee & Lim (2005) describe how they implemented Keller's model to a mobile learning system for children by creating several program factors to align with the ARCS prongs. This case study depicts how the ARCS model can be utilised in a mobile learning system and supports the use of Keller's model for this proposal.

3. THE PROTOTYPE DEVELOPMENT FRAMEWORK

The prototype will be developed using a design based research (DBR) methodology whereby an iterative design method will be adopted. The prototype will be developed utilising the FRAME and ARCS concepts focusing on how workplace training can be effectively delivered to remote workers.

DBR offers an iterative approach, designed to impart credibility from the evaluation of a practical project in a real-world scenario (Anderson & Shattuck, 2012). DBR is fundamentally associated with education research and the adoption of a DBR approach allows the researcher to propose and analyse interventions; to resolve real-world problems and generate valuable solutions and models to guide design (Easterday, Gerber & Rees Lewis, 2014).

The DBR approach was selected as it has embedded in the approach a focus on evaluating the prototype throughout the design process. This research paper only outlines the initial development of the prototype, however, in the near future, this working prototype will be evaluated using a descriptive method via a survey of those selected to participate in the trial.

The practice of design, irrespective of the type; typically involves multiple iterations. This allows for continuous refinement of a product. Anderson & Shattuck (2012) describe this as "research through mistakes". For the purpose of this proposal, we will only be designing the first iteration of this project focusing on a small subset of the wider system focusing on two modules. This approach will be used to test the overall concept of the prototypes and provide a foundation to test the concepts introduced in this project

4. THE PROTOTYPE

The development of this prototype is still in its early stages. However, the following outlines how the two frameworks have been adopted to support the design of the prototype.

Insert a bit about your prototype. What platform, what you will be creating (what Learning Outcome etc)

5. CONCLUSION AND FUTURE WORK

There are several significant opportunities that can be achieved by redeveloping the current training module Fastway employs which are clunky and historic. Fastway drivers are predominantly owner-operated as opposed to wage-earning employees. This means they are responsible not only for managing the collection and delivery of parcels; but also for preparing business plans, sales strategies and following the company's marketing concepts as part of their day-to-day business processes. Equipping these drivers with the skills and knowledge to both effectively and confidently carry out these processes is vital, not only to their own business but the success of the whole organization.

Successfully trialing a mobile learning system will help the business to understand whether this is the best way to provide workplace training for remote workers. Awareness in this area will futureproof the solution moving forward as to whether an mobile learning system or more traditional approach is preferred. The proposal aims to increase driver satisfaction by offering diverse learning methods; grow driver profitability and productivity by encouraging continuous learning and understanding of technology, sales and marketing processes. Educating drivers about new technology and operational requirements will become streamlined as the National Master office will have the ability to add and update modules instantly via a simple user interface.

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