Introduce Self-Paced Learning in Military Technical Trades Training

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ABSTRACT

Using a case study, this article identifies the factors that are important in the effective implementation of mixing self-paced and lock-step learning (a specific type of blended learning (BL)) in the context of training military technicians. Due to budget and time constraints, the training authorities in most worldwide organisations, and in military organisations in particular, face a challenge in the increase of training demand to deliver and sustain a qualified workforce. This study explored the advantages of this type of BL to address the challenge. The data was collected by group interviewing stakeholders, i.e. the course managers and instructors. The interview workshops identified the features of the designed course structure and trainee flow process that would impact on the effective operation of BL learning. The trainees’ data in training hours was analyzed to examine the BL impact on the training throughput. The management science concepts from, e.g. Lean thinking and Queuing theory, are used to recognize enabling factors that make this implementation work. This article concludes that the BL discussed here can help to address the training challenge for organisations to build workforce capability by catering to diverse learning needs, especially for motivated trainees in their career education. It is hoped that the lessons learned from this study will contribute to the knowledge in the field of adult education and workplace learning in the designing and implementation of more flexible training programs.

KEYWORDS
Blended Learning, Interview Workshops, Learning Needs, Training Programs,

INTRODUCTION

It has been a challenge for the training authority of the most worldwide organisations to provide effective workplace training under the rapid technological changes. For the Australian Army in particular, the training managers are always asked to deliver the required training throughput under a constrained budget, especially in the context of rapid technology development and large equipment acquisition, which require soldiers to update their knowledge and skills more frequently than ever before. Therefore, it can be helpful to investigate possible training delivery methods with sufficient flexibility to meet the training demand for the given capability requirement. This work investigates the implementation of Blended Learning (BL) – mixing of the self-paced and lock-step learning, in the individual training of the Australian Army.

There is established literature for BL which has several definitions (Graham, 2006; Willis et al., 2018). The original use of the phrase BL was often associated with mixing of the traditional classroom training to eLearning activities where information and communication technologies are used (Australian Flexible Learning Framework, 2011; Bath & Bourke, 2010; Singh & Reed, 2001; Willis

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et al., 2018). Over the years, the term BL has been further generalised to blend a much richer set of learning strategies, such as offline and online, self-paced and collaborative approaches (Singh & Reed, 2001; Willis et al., 2018). The Australian Army defines the BL approach as “…modularised courses that are a combination of delivery modes including face-to-face delivery, eLearning, simulation, distance learning, on the job training and assessments…” (Army Knowledge Management Group LWDC, 2009). A generic BL is defined as a learning program where more than one delivery mode is being used with the objective of optimizing the learning outcomes and cost of program delivery (Singh & Reed, 2001; Willis et al., 2018). We note that self-paced e-learning in the literature is also called asynchronous learning where the learner completes a pre-developed training course at their own pace in their own time (Singh & Reed, 2001; Willis et al., 2018), while live e-learning (or synchronous e-learning) is where learners complete the training at a given time at the same time as other learners (Singh & Reed, 2001; Willis et al., 2018).

While BL has emerged as a major trend in education and training context, there are identified challenges faced in implementation and needs for recommendations or lessons learned from practices (Ma’arop & Embi, 2016; The Oxford Group, 2013). There are reviews about the implementation of e-learning/online BL in the higher learning institutions (Ma’arop & Embi, 2016; Shivam & Singh, 2015), case studies for BL implementation in a developing university (Tshabalala, Ndeya-Ndereya & va der Merwe, 2014) and in a mining industry (Newton, Hase & Ellis, 2002). However, reports about self-paced/lock-step implementation especially in adult, military training are few. This paper attempts to fill the gap by investigating the effective implementation of BL where self-paced (supervised and time-constrained) and lock-step training is blended, using the example of Vehicle Mechanics (VM) training for the Australian Army. In the rest of the article, the BL only means the mixing of self-paced and lock-step.

METHOD

In order to answer the question “how to effectively implement the BL learning from the operations perspective?”, data was collected by several group interviews with the course managers and instructors. The purpose of these interviews focused on the features and rationale of the designed course structure and trainee flow process. The information collected from the group interviews and the training workshop covers: the process of trainee progress through various units of the course; allocation of instructors to units; trainee assessments (when, how to, and how often); infrastructures of workspaces and equipment; interactions between trainees and instructors; how often trainees start the course and graduate; and things that the course management controls. This information was used in the analyses of structure, process and the training hour statistics in the subsequent sections.

For the statistical analysis of training hours, the trainees’ data in calendar time was not used. This was because this type of data involved non-training activities and sickness. Moreover, the management science concepts from, e.g. Lean thinking and Queuing theory, are used to recognize enabling factors that make this implementation work.

VM BL COURSE

The VM BL is a residential course in the Army School of Electrical and Mechanical Engineering. The characteristics of this course are:

- Long course durations (e.g. nominal 18 months).
- Requiring training-aids (e.g. vehicle components)
- Very technical and practical in nature.
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