# Chapter 19
# The Effects of a Knowledge Management–Based Model for Teacher Professional Development in Hands–On Approach

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## ABSTRACT

*The purposes of the study are (1) to examine the effectiveness of a teacher-training course based on a knowledge management model in blended learning environment; (2) to determine underlying factors that contributed to the success of the course. The employed knowledge management model, which consists of four processes: knowledge co-creation, internalization, sharing and evaluation. Thirty-one in-service secondary school teachers of Hoabinh province participated in a 24-hours teacher-training course for Hands-on approach. The repeated measure analysis of variance revealed that the course improved learners' knowledge and teaching skills for Hands-on approach. Moreover, the content analysed findings indicated that access, interactive activities, formation of learning community, flexibility, time and cost effectiveness, and involvement of administrators and school leaders were underlying factors that contributed to the success of the course. Further implications and suggestions for the courses are presented.*

## 1. INTRODUCTION

Hands-on approach (HOA), defined as an instruction approach based on science investigation. HOA plays a crucial role in today's education (Worth et al., 2009). It is generally agreed that HOA is an experience approach, and that the nature of this experience may be affected by school education and especially teacher behaviour (Ministry of Education and Training - MOET, 2011). Teacher behaviour is profoundly influenced by a teacher's professional knowledge (Borko et al., 1995) and teaching skills (Albion, 2001). In order to apply successfully HOA in instruction practice, therefore, teachers' knowledge and teaching skills need to be improved.

Recently, the integration of knowledge management (KM) in instructional design has become an important pedagogical element in teacher education. KM involves knowledge sharing, creation, validation, presentation, distribution, and application (Ungaretti et al., 2011). Although KM has integrated into various teacher education programs such as Biology Education (Saunders et al., 2003), Human Services Education (Adcock et al., 2006), Science Education (EL-Deghaidy et al., 2008) and several studies have investigated the effects of integrating KM into curriculum design (Kinney et al, 1998), however, the studies of KM on a teacher-training course of HOA for secondary school teacher education are limited (Author, 2013).

To present, the interest in and research on blended learning (BL) in the context of teacher education have increased and developed respectively. According to Means et al. (2009), a meta-analysis and review of online learning studies conducted from 1996 to 2008 identified that the outcomes for BL to be significantly better than either face-to-face or fully online modalities.

From these trends, therefore, two questions have emerged. First, can KM based course in BL environment enhance the teacher learners' knowledge and teaching skills in HOA? Second, if such course is effective, what are underlying factors that contributed to the success of the course? The purposes of this study, therefore, were to develop a KM model-based course in BL environment for HOA and examine its effectiveness on in-service secondary school teachers in Vietnam context. Further, this study sought to explore the underlying factors that contributed to the success of the course.

The rest of the paper is organized as follows. Related literature is presented in Section 2. Section 3 reviews the KM-based model for teacher professional development (TPD). The aims and methodology of the study are presented in Section 4 and Section 5. Section 6 presents the findings of the study. Finally, discussions and conclusion are given in Section 7 and Section 8.

## 2. RELATED LITERATURE

### 2.1. Definition of KM

Numerous definitions of KM have been proposed, and two major approaches for studying KM (process, value chain) have been developed. According to the process viewpoint, KM involves the acquiring, capturing, utilizing, sharing, presenting, distributing and creating knowledge (Ungaretti et al., 2011). Similarly, Roknuzzaman et al., (2009) defined that KM is a dynamic and continuous social process that involves acquisition, organization, storage and retrieval, and dissemination of knowledge resources to user group with relevant feedback to achieve organizational goals. According to the value chain viewpoint, Shin et al., (2001) argued that knowledge management could be divided into four major steps: knowledge creation, knowledge storage, knowledge distribution, and knowledge application.

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