



An embedded fuzzy analytic hierarchy process for evaluating lecturers' conceptions of teaching and learning



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ABSTRACT

This study evaluates the effects of Continuing Professional Development Programmes (CPDP) on the conceptions of lecturers in the teaching and learning processes in a higher education setting. An interpretive paradigm and mixed method of collecting and analysing data from participants was followed. Data for the study was gathered through survey among all the participants (N = 85) after which interviews were conducted among participants from the same population (n = 12). While interviews and observation served as the qualitative approach of gathering information from lecturers, Fuzzy Analytic Hierarchy Process (FAHP) was employed as a quantitative method to evaluate the impact of CPDP on conception changes in the teaching and learning processes of lecturers. The weights of the first four factors resulted in 73.16% rate (Buckley's method) and 67.33% (Chang's method). The results indicates that CPDP could be used to alter lecturers' conceptions of teaching and learning and evaluated through an embedded FAHP.

1. Introduction

The conceptions of lecturers in teaching and learning processes in higher education continue to draw several discussions across institutions all over the world (Lindblom-Ylänne, Trigwell, Nevgi & Ashwin, 2006). Studies by several authors (Dall'Alba, 1991; Gow & Kember, 1993; Pratt, 1992; Prosser, Trigwell & Taylor 1994; Samuelowicz & Bain, 1992) in the early 1990s revealed the importance of the conceptions of lecturers in teaching and learning processes. Building on the works of these authors, this study suggests that Continuing Professional Development Programmes (CPDP) could be used to alter the conceptions of lecturers in teaching and learning processes in Higher Education Institutions (HEIs).

Training programmes provide lecturers with information on emerging trends in teaching and learning processes (Blair, 2016; Camburn & Han, 2015; Clarke & Hollingsworth, 2002; Eley, 2006; James & McCormick, 2009; Stewart, 2014) across different countries. Arguably, little evidence shows that adaptation to the conceptions of lecturers is the result of accumulated experiences (Boud, 1989; Gibbs, 1995; Norton, Richardson, Hartley, Newstead, & Mayes, 2005; Richardson, 2005; Taylor & Rege Colet, 2009) rather than a CPDP. In order to explore the relationship between CPDP and changes in the

conceptions of lecturers in teaching and learning processes, an adapted conceptual model of Kember (1997) served as the theoretical underpinning of this study (see Fig. 1). Importantly, we provide justification for our argument in the theoretical background and discussion sections of this paper.

The first section of this article considers the theoretical background of the conceptions of lecturers in teaching and learning processes in higher education settings. The authors argue that the conceptions of lecturers in teaching and learning processes are drawn primarily from the constructivist and behavioural theories. The second section discusses the method of gathering and analysing data to give credence to the adoption of a CPDP in changing the conceptions of lecturers in teaching and learning processes. A mixed method of gathering and analysing data for the study is discussed in the third and fourth sections of the study. An integrated model of explaining lecturers' conceptions of teaching and learning by way of a CPDP (see Fig. 1) is evaluated following the analysis of the quantitative and qualitative data gathered. The last section discusses implications of the study under three main domains; implications for theory, practice and further research.

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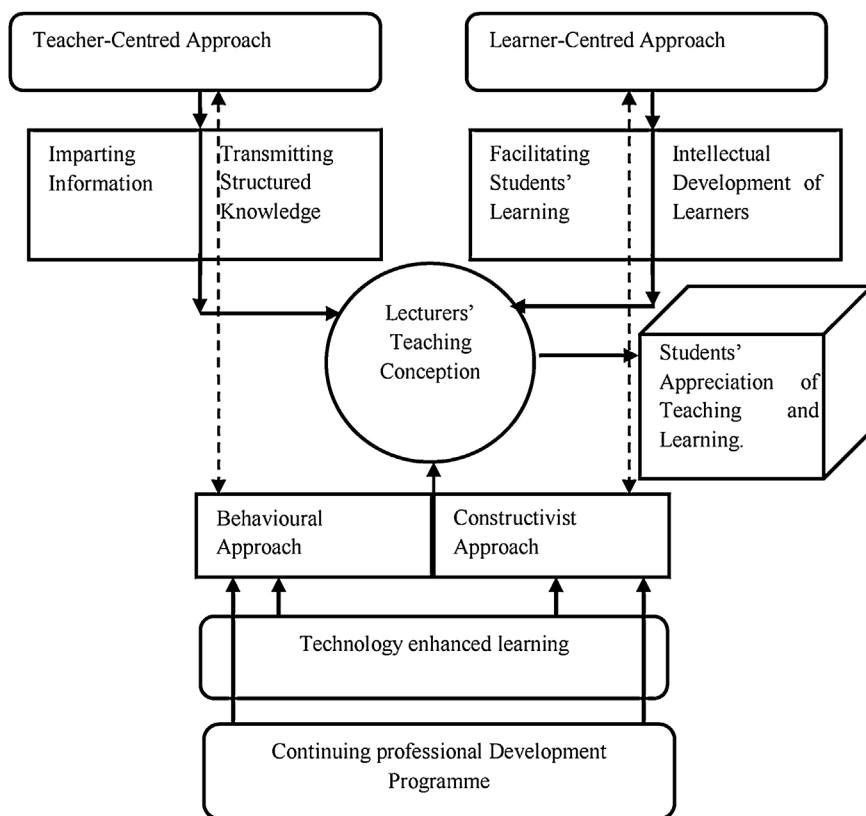


Fig. 1. An adapted multiple-level categorisation model of lecturers' conceptions of teaching.

Source: Kember (1997)

2. Theoretical background

The conceptions of lecturers in teaching and learning processes could be viewed from two dominant theories; the constructivist (Barkely, 2009; Keating, 2015) and behavioural (Light & Cox, 2001; Mayes & De Freitas, 2004) theories. A number of authors (Camburn et al., 2015; Eley, 2006; Kember, 1997; , 2009; Minott, 2010; Postareff, Lindblom-Ylänne & Nevgi, 2008; Pratt, 1992) have shown that conceptions of lecturers in teaching and learning processes could be analysed through teacher-centred and learner-centred approaches. While the constructivist theory espouses the importance of learner-centred approach, the behavioural theory considers the teacher-centred approach as essential to the teaching and learning processes. This study however identifies technology enabled learning as an important factor that should be considered when using a CPDP to alter the conceptions of lecturers in teaching and learning processes.

Using an adapted multiple-level categorization model (Kember, 1997) as shown in Fig. 1, the authors discuss the various categories of evaluating the conceptions of lecturers in teaching and learning processes through a CPDP. The impact of CPDP on lecturers especially where it involves short courses have been espoused by several authors (Van den Bergh, Ros & Beijaard, 2014, 2015). Additionally, Opfer and Pedder (2011) and Van den Bergh et al. (2015) consider CPDP as important because lecturers learn to incorporate new methods and techniques of teaching in their practice. Paradoxically, other studies (Lieberman & Pointer Mace, 2008) have also shown that lecturers considered CPDP programmes as not impactful. The authors suggest in this study that the conceptions of lecturers in teaching and learning processes in higher education could be discussed under three main categories; teacher-centred approach, learner-centred approach and technology enhanced learning (see Fig. 1).

2.1. Learner-Centred approach to teaching

The learner-centred approach to teaching and learning could be

described as engaging students in the knowledge sharing processes (Barkely, 2009; Ho et al., 2001; Kember & Kwan, 2000; Kember, 2009; McCabe & O'Connor, 2014). Through engagement with students, lecturers provide the necessary resources and direction to students to enable them develop their intellectual abilities (see Fig. 1). In amplification of the learner-centred approach to teaching and learning, Boud (1989) posit that it defines the real self which is integrated into the process of observing, reasoning, feeling, and acting in a way that provides meaning to the actor. Learning theories such as: *constructivism* (Barkely, 2009; Keating, 2015; Loureiro & Caria, 2013; Sackney & Mergel, 2007; Yilmaz, 2008); *humanism* (Fasokun, Katahoire & Oduaran, 2005; Tennant & Pogson, 1995); *transformative learning* (Keegan, 2009; Mezirow, 2009; Taylor & Cranton, 2013) and *experiential learning* (Blair, 2016; Boud, 1989) support the learner-centred approach to teaching and learning.

An important component of the learner-centred approach to teaching and learning is reflection among learners. Importantly, reflection explains the construction and reconstruction of theoretical and professional knowledge that are drawn from real life experiences and then transformed through engagement (Gibbs, 1995; McGarr & McCormack, 2014; Minott, 2010; Nicol & MacFarlane-Dick, 2006; Thorsen & DeVore, 2013; Usher, 2009). Similarly, Camburn and Han (2015) show that lecturers who reported on the effect of reflection were likely to improve on their teaching methods and skills over a period.

Some post modern theorists (Biesta, 2012; Tennant, 2009) contend that the concept of learner-centred approach to teaching and learning only promotes the self as individualistic, unitary and promoting rational reflection that draws on the reasoning of the learner. While the debate on what theory is most suitable for teaching in higher education continues to linger on, no single theory provides all the answers to the burgeoning questions that arise from the pedagogic processes in the lecture hall. What more, the conceptions of lecturers' in teaching and learning processes only serve as philosophical underpinning that could be altered momentarily depending on the method a lecturer would

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