ENHANCING HIGHER ORDER THINKING SKILLS THROUGH CLINICAL SIMULATION: A STUDY ON DESIGN, IMPLEMENTATION PROCESS AND OUTCOME

ELENGOVAN VARUTHARAJU

THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

FACULTY OF EDUCATION & HUMAN DEVELOPMENT
UNIVERSITI PENDIDIKAN SULTAN IDRIS

ABSTRACT

The study aimed to explore, describe, and interpret the effectiveness of clinical simulation as pedagogical tool in bridging the deficiency of higher order thinking skills among Medical Assistant students and make recommendations on incorporating clinical simulation as a pedagogical tool in enhancing thinking skills and aligning the curriculum. Qualitative approach using *interpretative-descriptive* case study design was utilized in framing the research study. Purposive sampling using twenty (20) final year Medical Assistant students and five (5) teaching staff participated in this study. Data was collected through direct and participatory observation, interviews, and documents analysis. Thematic analysis using Stake's Countenance Model was utilized to analyze and present the findings. The study revealed a positive outlook in supporting the theme that (i) clinical simulation design facilitates the infusion of higher order thinking skills; (ii) clinical simulation that uses thinking pedagogy nurtures the development of higher order thinking skills; and (iii) clinical simulation that uses higher order thinking modality promotes learning for understanding and transfer of learning. Facilitators played a crucial role in engaging learners with higher order thinking modality and making students' thinking visible by utilizing the use of meta-cognition and self-regulation abilities, while learners became more autonomous, strategic, and motivated to apply effort and strategies in a variety of meaningful context. Clinical simulation justifies the means and the end for the development of higher order thinking skills among Medical Assistant students and warrants the incorporation across the curriculum to nurture professional knowledge and clinical competence. The findings of this study provided a thick description in assisting curriculum managers, college administrators and educators on the inclusion of clinical simulation as an instructional approach in enhancing higher order thinking skills among Medical Assistant students.

ABSTRAK

Kajian ini bertujuan untuk meninjau, menghurai, dan menginterpretasi keberkesanan simulasi klinikal sebagai alat pedagogi dalam merapatkan jurang kemahiran berfikir aras tinggi dikalangan pelajar Pembantu Perubatan dan mencadangkan pembangunan simulasi klinikal sebagai alat pedagogi dalam memantapkan kemahiran berfikir dan penjajaran kurikulum. Pendekatan kualitatif dengan rekabentuk kajian kes *deskriptif-interpretasi* digunakan dalam merangka kajian penyelidikan. Persampelan p*urposive* digunakan dengan melibatkan seramai dua puluh (20) pelatih Pembantu Perubatan tahun akhir dan lima (5) tenaga pengajar sebagai peserta kajian. Data dikumpul melalui pemerhatian secara langsung dan penyertaan, temu bual dan analisis dokumen. Analisis tematik menggunakan *Stake's Countenance Model* digunakan untuk menganalisis dan membentangkan penemuan. Kajian ini menyumbang pandangan yang positif dalam menyokong tema umum bahawa (i) rekabentuk simulasi klinikal memudahkan infusi kemahiran berfikir aras tinggi; (ii) simulasi klinikal yang menggunakan pedagogi berfikir memupuk pembangunan kemahiran pemikiran aras tinggi; dan (iii) simulasi klinikal yang menggunakan modaliti pemikiran aras tinggi meningkatkan pemahaman yang lebih mendalam dan pemindahan pembelajaran. Fasilitator memainkan peranan penting dalam melibatkan pelajar dengan modaliti berfikir aras tinggi, dan menjadikan pemikiran pelajar lebih telus melalui penggunaan meta-kognisi dan kebolehan kendiri, manakala pelajar menjadi lebih kendiri, strategik, dan bermotivasi untuk meneruskan usaha dan strategi dalam pelbagai konteks yang bermakna. Simulasi klinikal menjelaskan kaedah dan penghasilannya dalam memantapkan kemahiran berfikir aras tinggi dikalangan pelajar Pembantu Perubatan dan menggalakan integrasi pendidikan simulasi merentasi kurikulum bagi memupuk pembangunan pengetahuan profesional dan kompetensi klinikal. Penemuan kajian ini menyumbang penghuraian terperinci dalam membantu pengurus kurikulum, pentadbir kolej, dan pendidik menggunakan simulasi klinikal sebagai pendekatan pengajaran dalam memantapkan kemahiran berfikir aras tinggi dikalangan pelajar Pembantu Perubatan.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Clinical competence, confidence, intellectual integrity and social cognition are integral components that underpin the provision of quality healthcare to the society. In the era of health consumerism that focuses on quality necessitate healthcare providers to be equipped with relevant knowledge, skills, attributes and values to be competent and functional in rendering safer care (WHO, 2009). Competence relates to the ability of transferring knowledge, skills, and attitudes that ties to personal abilities in performing a task (Carraccio, Wolfsthal, Englander, Ferentz, & Martin, 2002; Kak, Burkhalter and Cooper, 2001). This requires the ability to use mental processes to think about and articulate problems, churn ideas and opinion; infer from context; generalizing ideas and information from one context to another; information synthesis and evaluation, understanding differences of opinion among individuals and working ethically which involves higher order thinking (Baron & Sternberg, 1987; Gardner, 2008; Pogrow, 2005).

The importance of higher order thinking skills in Medical and Nursing education, especially the component of critical thinking, clinical reasoning and problem solving skills, and its relation to rendering quality care has been well supported by numerous studies (Banning, 2008b; Bridger, 2007; Salvage, 1993; Wong et al., 2005). Similarly, Elengovan (2009) have identified the need for higher order thinking skills in Medical Assistant education to produce clinically competent graduates who will be working in collaboration with medical practitioners and allied health professionals to render quality health care services. Infusing higher order thinking skills into the main streamline of the educational process requires a blend of technology and pedagogy that can accommodate a myriad of cognitive skills that can be defined, packaged, and consumed at various levels of student's maturity and readiness, and ultimately measured and assessed at individual basis. Current advances in the field of medical technology and artificial intelligence provides a broader scope in exploring ways and mean to blend technology with pedagogy to bring about thinking, learning for understanding, and transfer of learning. A breakthrough in Medical education is the introduction of clinical simulation as teaching and learning model for improving clinical competency.

Medical and Nursing education has placed increased reliance on simulation technology to boost the growth of learner knowledge, provide controlled and safe practice opportunities, and shapes clinical competencies (Alinier, Hunt, & Gordon, 2004; Gordon, Harder, 2009; McCaughey & Traynor, 2010). Simulation allows multiple learning objectives to be taught in a realistic environment that improves competence and confidence without harming patients and simultaneously offer students the opportunity to gain and improve their knowledge in a non-threatening, experiential environment (Medley & Horne, 2005; Moule, Wilford, Sales & Lockyer, 2008; Wilson, Shepherd, Kelly & Pitzner, 2005; Ziv, Wolpe, Small & Glick, 2003) as well as enhancing clinical reasoning

and decision making skills (Croskerry, 2000b; Issenberg, Mc-Gaghie, Petrusa, Gordon & Scalese, 2005). Clinical reasoning and decision making skills are important component of clinical competence that requires higher order thinking. The ability to frequently practice and manage clinical scenarios helps students to prevent medical error (McCallum, 2006); while detailed feedback promotes discussion and reinforces the learning process (Croskerry, 2000b). Although, most studies on clinical simulation focused on areas of clinical competence; the usefulness of clinical simulation in enhancing higher order thinking skills need to be explored. The question is how well does clinical simulation function to enhance higher order thinking skills among students of the Medical Assistant Program?

1.2 Background of Study

The importance of teaching higher order thinking skills in Medical Assistant Education to prepare its graduates for personal and professional competence is increasingly recognize as a primary function of training (Elengovan, 2009). The need for learners to critically appraise evidence and make clear clinical judgments in the prevention and management of diseases as well as in the promotion of health requires higher order thinking. Medical and Nursing education has placeed great importance and emphasis on engaging higher order thinking skills in diagnosing and managing clinical cases (Edwards, 2004; Vrahnos et al., 1998; Wong et al., 2005). The ability to engage in carefully with reflective thought that has been viewed in various dimensions and decisions of good choice requires effective thinking. Nurses have long talked about higher order thinking skills as an expected competency at all levels of education and practice (Reed & Procter, 1993). Higher order thinking skills not only develop confidence, open-mindedness, flexibility, inquisitiveness,