



## The impact of clinical simulation on learner self-efficacy in pre-registration nursing education

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### SUMMARY

Clinical simulation is becoming increasingly popular in pre-registration nursing education. Incorporating teaching and learning strategies that enhance learner self-efficacy will theoretically improve clinical competence (Bandura, 1986, 1997). This paper presents the findings of a study that aimed to explore the impact of clinical simulation on self-efficacy beliefs amongst pre-registration nurses. A preliminary study (Pike, 2008) used a pre- and post-test design to measure learner self-efficacy before and after a clinical simulation session. Qualitative responses to questions on the post-test questionnaire provided themes to explore in a focus group interview with a convenience sample of nine participants. Thematic content analysis of the interview highlighted two principal findings. Firstly, students described low levels of self-efficacy with regards to communication skills, an area identified as a priority within pre-registration nursing education (NMC, 2007a). Second, students highlighted the need for learning experiences within clinical simulation to be more authentic, to improve the theory to practice gap. It is argued by incorporating strategies within clinical simulation that enhance learner self-efficacy, overall clinical competence will be improved. Suggestions for how pedagogical approaches may be developed within clinical simulation are discussed, whilst acknowledging the limitations of the small scale nature of the study.

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### Introduction and literature review

The overarching aim of pre-registration nursing education in the UK is to develop qualified nurses who are safe competent practitioners (NMC, 2004). Intrinsic in this goal is to instil a sense of confidence in pre-registration nurses (Lauder et al., 2008a), a concept known as self-efficacy (Bandura, 1997). Clinical simulation is a component of pre-registration nursing education where learners develop skills required for practice in a simulated environment. It provides learning opportunities in a safe environment where learners can practise skills they may not be exposed to in the clinical setting, and from a safety perspective, may not be appropriate to practise first hand on real patients (NMC, 2007b; Broussard, 2008). Clinical simulation also aims to increase learner confidence in their ability to perform clinical skills in the clinical setting (Chlan et al., 2005; NMC, 2007b; Lauder et al., 2008a).

Perceptions of one's own competence, or 'self-efficacy' (Bandura, 1986, 1997), are considered to be the most important predictor of performance of all motivational constructs (Graham and Weiner, 1996). It is asserted that high self-efficacy beliefs will lead to

improved performance of any given activity (Bandura, 1986, 1997). Research has demonstrated positive correlations between clinical simulation and self-efficacy using mostly quantitative methodologies (e.g. Chlan et al., 2005; Ammentorp et al., 2007; Jarzemyk and McGrath, 2008; Lauder et al., 2008a). The current project aimed to add to this body of evidence using a qualitative methodology and through an inductive approach aimed to understand clinical simulation from the learners' perspective. This will allow nurse educators to enhance teaching and learning methodologies within clinical simulation to increase learner self-efficacy. It is perceived this will result in psychological benefits to the student (Farrand et al., 2006), and according to self-efficacy theory, improved motivation, decreased attrition rates, improved academic achievement and overall clinical competence (Bandura, 1986, 1997).

#### Social cognitive theory and self-efficacy

Social cognitive theory contends that learning occurs within a social context by observing others, and that individuals are not controlled by external stimuli (Bandura, 1986). At the core of social cognitive theory is the importance of self-efficacy beliefs, defined as 'people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performances' (Bandura, 1986, p. 391). It is not simply a matter of

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possessing appropriate skills and cognitive ability, self-efficacy acts independently from these factors in influencing success in any given activity. This point is key to self-efficacy theory, as 'people's level of motivation, affective states and actions are based more on what they believe than on what is objectively true' (Bandura, 1997, p. 2).

Bandura (1997) describes four sources of information from which self-efficacy beliefs are constructed. Firstly, enactive mastery experiences (the most influential sources of self-efficacy beliefs) involve performing a task or behaviour and the resultant success in this performance (Bandura, 1986, 1997). In general, successful outcomes increase self-efficacy beliefs and unsuccessful outcomes decrease them.

In contrast, vicarious experience involves observing others performing particular tasks (Bandura, 1986). In nursing education this may occur when students are on practice placements and observe their mentors performing clinical skills. It is argued that vicarious experiences are not as strong as mastery experiences in creating self-efficacy beliefs (Bandura, 1986, 1997). However if individuals have limited amounts of actual experience they may be more sensitive to the influence of vicarious experiences.

Self-efficacy beliefs are also created as a result of the verbal persuasions an individual receives from others (Bandura, 1986, 1997). Verbal persuaders are those which communicate confidence and faith in the individual's abilities. Telling a person that they can succeed in a given task improves their belief that they can achieve it, and self-efficacy beliefs are raised.

The final source of self-efficacy beliefs are physiological and emotional states such as feelings of anxiety. Individuals may interpret their physiological state in a stressful situation as signifying a likelihood of not succeeding.

#### *Self-efficacy and education*

Bandura (1986) claims that fostering self-efficacy beliefs increases motivation, academic performance and overall interest in the subject matter. In nursing education there is evidence to support these assertions. For example, a large Scottish study demonstrated a moderate correlation between self-efficacy and self-assessed competence, although arguably not as strong as would be expected according to social cognitive theory (Lauder et al., 2008a,b). Jarzemyk and McGrath (2008) measured students' self-assessment of confidence (amongst other parameters) who were assigned to an experimental group (exposed to clinical simulation) or control group (no exposure to clinical simulation). A pre- and post-test analysis demonstrated significantly higher levels of self-confidence following participation in clinical simulation. The control group only completed the initial self-assessment and therefore the study can't conclude that the increase in self-efficacy was as a direct result of using simulation. However, participants in the experimental group appeared to be more motivated to learn, suggesting support for assertions that high self-efficacy equates to higher levels of motivation (Bandura, 1986).

There is evidence in the literature to suggest clinical simulation increases self-efficacy. For example, Chlan et al. (2005) examined the impact of an experiential education session on nursing students' self-efficacy beliefs in performing selected complementary therapy skills. A pre- and post-test analysis demonstrated the session (similar to clinical simulation) resulted in an increase in learner self-efficacy in performing these skills in practice. A mixed methods Canadian study compared a combined simulation/lecture format with a lecture only approach for teaching care of acute adults on learner self-efficacy (Sinclair and Ferguson, 2009). Paired *t*-tests demonstrated improved self-efficacy in both groups. However this was more prominent in the intervention group (combined lecture/simulation format). Qualitative comments also suggested

improved confidence. A UK multi-centre pilot study also reported that simulated learning increases learner confidence in practising skills in the clinical area (NMC, 2007b). A small qualitative study carried out in Tasmania investigated nursing students' perceptions of clinical simulation (Reilly and Spratt, 2007). Participants reported an increase in self-confidence as a result of clinical simulation and felt more confident on clinical placement, suggesting a transfer of learning.

A review of the literature suggests clinical simulation enhances learner self-efficacy. It is important to understand not only the relationship between clinical simulation and self-efficacy but also to explore the most effective approaches when teaching clinical simulation. If high self-efficacy beliefs equate to improved performance (Bandura, 1986, 1997), developing pedagogical approaches that enhance learner self-efficacy will ultimately lead to improved clinical competence.

#### *Clinical simulation*

Clinical simulation is a teaching and learning strategy that aims to replicate real-life experiences (Leigh, 2008). Methods employed in teaching clinical simulation vary from the use of low to high fidelity mannequins (Jarzemyk and McGrath, 2008) and methods such as role-play and actors (Lane and Rollick, 2007). Fidelity is a term often associated with clinical simulation. Maran and Glavin (2003) discuss the difference between engineering fidelity which refers to how realistic the simulated setting is compared to the real setting, and psychological fidelity which refers to how authentically the learner associates the simulated setting with the real setting. The results of a multi-site study in America suggested that learners place emphasis on the importance of simulation being realistic to facilitate their learning (Jeffries and Rizzolo, 2006).

Clinical simulation is becoming increasingly popular within pre-registration nursing education (Sinclair and Ferguson, 2009), particularly as a result of 'The Fitness for Practice Report' which highlighted problems with nurses' levels of competence at the point of registration (UKCC, 1999). This was attributed to Project 2000 curricula being too focussed on theory, leading to recommendations for a competency focus. A recent review of pre-registration education in the UK confirms a shift towards competency and skills based curricula (Roxburgh et al., 2008). Interestingly, Lauder et al. (2008c) argue that claims made questioning nurses' competency levels were unsubstantiated as evidence relied on the subjective views of qualified nurses.

However, concerns over competency levels have been partially attributed to the variable nature of practice placements resulting in different student experiences (LeFlore et al., 2007; NMC, 2007a). A multi-site pilot study demonstrated that clinical simulation was effective in addressing this issue, concluding that findings 'suggest strongly that simulated learning offers students opportunities to achieve practice outcomes which are not possible in the clinical setting' (NMC, 2007b, p. 3).

A focus on patient safety may have contributed to an increased use of simulation, allowing learners to practise clinical skills that should not be experienced first hand on real patients (Broussard, 2008). It also allows learners to engage in experiences without the distractions of the real setting, mastering skills at an individual pace where mistakes can be seen as a valuable learning opportunity (Broussard, 2008). Such advantages have resulted in the NMC recommending 300 of the required practice placement hours may be included within the clinical simulation laboratory. A pilot site that incorporated these hours into clinical simulation explored students' and mentors' views of simulation in a mixed methods study (Moule et al., 2008). Findings were on the whole positive towards simulation highlighting benefits previously discussed. However, there was some disagreement amongst mentors as to

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