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Making the right call – the development and evaluation of holistic clinical reasoning in Occupational Health clinical nurse specialists.

Aim of the project

This project aimed to improve clinical reasoning (CR) in students registered for a clinical nurse specialist course in Occupational Health Nursing (OHN) at Durban University of Technology.

Clinical nursing environments in South Africa are dynamic challenging environments which require clinical nurse specialists who have excellent clinical reasoning competencies in order to manage complex health problems presented to them. The OH clinical specialist nurses are most often, practicing as independent practitioners and are in very responsible positions where they need to make the “right call” however there is a perception that they are not integrating their knowledge and are still thinking in silos. The specialist nurses that I teach are often not able to take the information they have learnt and apply it in different contexts` in order to come up with an appropriate intervention. Their ability to clinically reason is poor and the consequences for not doing this can be catastrophic for a patient. I believe it is related to the education strategies used in the programme and their basic education experience.

Clinical reasoning has been defined in a number of ways, but for the purposes of this project the following definition was used:

...a process by which nurses (and other clinicians) collect cues, process the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes and reflect on and learn from the process (Hoffman, 2007; Levett-Jones et al, 2010)

The South African Nursing Council competency requirements for an Occupational Health Nurse to be registered with them as such, includes elements which are developed through the practice of holistic clinical reasoning for example under the competence domain of clinical practice – care provision and management are a number of specific competencies which are embedded in holistic clinical reasoning.

Clinical reasoning requires the clinician to gather information, recall knowledge, review information, interpret, make inferences, predict, analyse, synthesise and evaluate – all higher order thinking (HOT) (Hoffman et al 2011). This HOT needs to be developed in specialist nurses through a deliberate, structured programme that fosters these competencies in the student. The development of the online content together with the strategies applied in the face to face facilitation using scaffolding to encourage the student to improve their clinical reasoning competence should provide the student with opportunities to practice the mindfulness required for clinical reasoning. The online content is developed using authentic occupational health case studies and tasks. Principles of online learning design have been considered in the design of the case studies and tasks (Hugo & Fakude, 2016).

Processes and methods

This project is premised on an action research methodology, an appropriate methodology for the project because it allowed the researcher to reflect on a problem in her teaching, implement a change strategy, reflect on the change and evaluate the intervention and make further changes in a cyclical manner of action and reflection (Winter & Munn-Giddings, 2001).

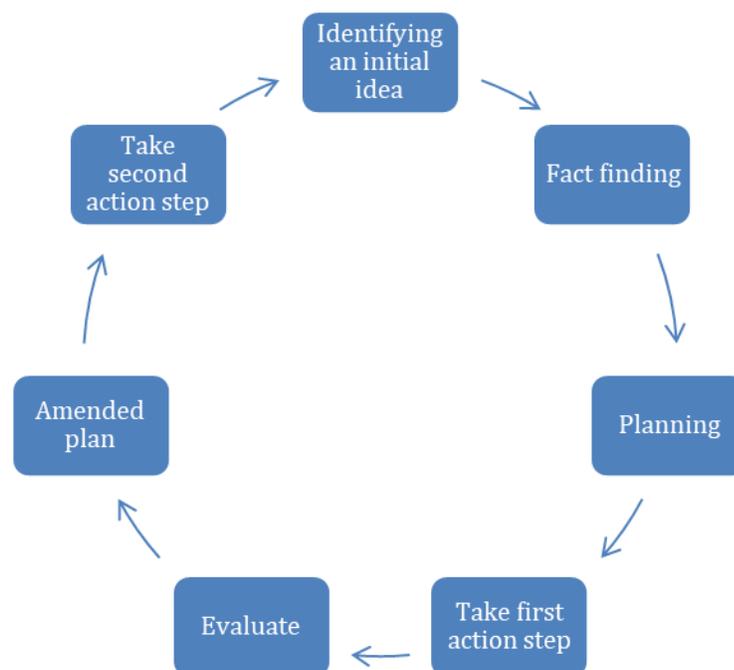


Figure 1 Lewin's "Action Research Model" (adapted from Smith 2001)

Fact finding included a variety of methods including questionnaires, focus group discussions, one on one interviews and reflective diaries. Students were assessed for their level of critical thinking at the start of the project using the Nursing Critical Thinking in Clinical Practice

Questionnaire (N-CT-4-Practice) (Zurigud-Perez, Falco-Pegueroles, Roldan-Merino, Agustino-Rodriguez, Gomez-Martin & Lluch-Canut, 2017) and perceived clinical reasoning competence using the Nurses Clinical Reasoning Scale (Liou, Liu, Tsai, Tsai, Lin, Chang & Cheng 2015 p707 – 717).

The online intervention uses scaffolding to gradually increase the complexity of cases presented to students and attempt to call on their experience, previous knowledge and critical thinking to manage complex problems in their clinical occupational health practice. The face to face facilitation uses strategies such as problem based learning, case based education and the development of learning contracts and portfolios of evidence in an effort to encourage clinical reasoning. The students were exposed to a collaborative online international learning (COIL) project over 4 weeks with Master`s of Nursing students at Empire State College in the State University of New York. This project was an integral component of the online intervention giving students an opportunity to develop higher order thinking (HOT) through the application of knowledge and experience to authentic problems related to the Sustainable Development Goals and abject poverty. The online classroom is being developed on an ongoing basis with topics being released to coincide with the face to face schedule.

A combination of theoretical frameworks are being used – Carpers patterns of knowing in nursing and the Clinical Reasoning Cycle (Levett-Jones et al., 2010) are guiding the development of the online content and facilitating the Occupational Health module via a blended learning approach.

The Clinical Reasoning Cycle is at the centre of the sort of mindfulness that will be coached in the occupational health nursing student. Carpers patterns of knowing in nursing include the empirical knowing, aesthetic, ethical and personal meaning (Carper, 1978). Students will need to incorporate these aspects of knowing into their mindfulness when working through the clinical reasoning cycle to manage complex problems in occupational health.

Outcomes

This project is currently underway with the first round of data collected and the students exposed to a blended learning strategy for Semester 1 2019. They are currently engaging in the online classroom, attending face to face sessions for a full day every week and developing

learning contracts. Students have completed the baseline pre intervention questionnaires. A sample realization of 91% (N=29) was achieved.

The N-CT-4 Practice questionnaire was used to measure the student's level of critical thinking. The total scores on the instrument ranges between 109 and 436 (Zuriguel-Perez et al, 2017). The results of the baseline questionnaire indicated total scores ranging between 305 and 429, M= 367.55 SD 34.30 which indicated that students agreed that they often to always or almost always, in their nursing activity, behaved as per the statement (see annexure 1 attached). This indicated that those sampled had generally high levels of critical thinking. The breakdown as per the four dimensions which were tested are as follows: Personal Dimension (39 items) possible total scores 39 to 156, actual results 77 to 153, M =126.60, SD 18.30; Intellectual and Cognitive Dimension (44 items) possible total scores 44 to 176, actual results 126 to 173, M= 151.88, SD 13.40; Interpersonal and Self-Management Dimension (20 items) possible total scores 20 to 80, actual scores 41 to 79, M= 67.16, SD 8.63 and the Technical Dimension (6 items) possible scores 6 to 24, actual results 15 to 24, M=20.07, SD 2.70.

The total Cronbach's Alpha for the N-CT-4 Practice instrument was .973 indicating excellent reliability in this sample. It ranged from .959 for the Personal Dimension to .831 for the Technical dimension.

The students perceived clinical reasoning competence was assessed using the Nurses Clinical Reasoning Scale (Liou et al, 2015). The students perceived clinical reasoning competence was high with total scores on all the items between 45 and 74 with a mean of 65.35 SD 6.37. The total scores for this instrument range between 15 to 75 with higher scores indicating a higher level of clinical reasoning ability (Liou et al, 2015). The Nurses Clinical Reasoning Scale Cronbach Alpha was .926, also indicating excellent reliability in this sample.

At the start of the 2nd semester the questionnaires will be administered again to test for any shift in critical thinking and perceived clinical reasoning skill. Focus group discussions and one on one interviews will be conducted with students and an analysis of their reflective diaries and learning contract portfolios of evidence will take place. The blended learning strategy will be modified based on the findings of this project.

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