MONASH University

Integration of Evidence-Based Practice in Undergraduate Nurse Education: A Grounded Theory Study

Gulzar Malik, RN, BScN, MN

A thesis submitted for the degree of *Doctor of Philosophy* at
School of Nursing and Midwifery, Monash University in 2016

Copyright notice

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature:

Print Name: Gulzar Malik

Date: 24/10/2016

Table of Contents

Chapter Two: Evidence-Based Practice in Nursing: A Review of Literature and Background

Chapter Three: Methodology- Why Grounded Theory Methodology?

Chapter Four: Applying Grounded Theory Methods to Investigate EBP Integration into Undergraduate Nursing Education

Chapter Five: Study Results

Chapter Six: The Theory

Chapter Seven: Contextual Determinants

Chapter Eight: Discussion and Recommendations

Chapter Nine: Conclusion

Appendices

List of Tables

List of Figures

Abstract

Considering the growing need to adopt an evidence-based practice (EBP) approach in response to increasing complexities in healthcare, nurses must be adequately prepared in their undergraduate degrees to implement EBP in clinical practice. However, there is a plethora of studies reporting that nurses' educational preparation for embracing EBP is consistently inadequate. EBP adoption by graduating nurses depends on the degree to which it is prioritised by academics and the extent to which it is integrated into the curriculum. Despite the existence of many studies on EBP, its inclusion in nurse education is limited, and therefore requires investigation.

The purpose of this study was to generate a substantive theory about the processes academics undertake when incorporating EBP in their teaching practices. In order to address the aims of the study, a constructivist grounded theory methodology informed by Charmaz was employed. In line with grounded theory approach, data collection and analysis were conducted simultaneously and continued until theoretical saturation was reached. Participant interviews, observations and document analysis were utilised to obtain data. In total, 23 academics across Australian universities participated in semi-structured interviews, and nine consented to be observed during their teaching with undergraduate students. Additionally, twenty unit guides shared by study participants were analysed to enrich data.

In response to the central problem of how undergraduate education prepares nursing students to be evidence-based clinicians, a core process utilised by academics to tackle with this problem is conceptualised as "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*". This theoretical construct helps to explain academics' actions and insights into teaching practices towards EBP integration in undergraduate education. A central aspect of this theory reflects meanings academics constructed around their

endeavours towards achieving a fully integrated curricula that engages students with the EBP framework, linking EBP theory to practice. The core process is evident in three transitional stages of theory comprising: *Embarking on a journey-Being prepared*, *Experiencing challenges*, and *Moving ahead-Linking EBP theory to practice*. However, this process was mediated by contextual conditions of academic settings and individuals, curricula and practice settings.

Four interrelated categories present the key activities academics were engaged with and are embedded in the core process. The first category, *Valuing and Engaging with EBP*, highlights academics' preparation towards EBP teaching and its integration across courses. The second category, *Enacting EBP Curriculum*, reflects academics' engagement with designing and enacting EBP and research units and working towards embedding EBP across units. The third category, *Influencing EBP Integration*, explores the teaching and learning strategies employed by academics to engage students with the EBP process, aiming to link evidence to practice in teaching units. The final category, *Envisaging the Use of EBP*, reveals how academics facilitated the use of EBP in theory and practice. Academics responses' and the processes they used were influenced by three contextual factors consisting of academic settings and individuals, curricula design and implementation, and practice settings. These factors played an important role in academics' endeavours to achieving a contextualised curricula, making EBP concepts relevant to practice.

Therefore, the generated findings and theory offer valuable insights to nurse education within Australia that are also relevant for global nursing education. The substantive theory raises awareness of social processes and activities undertaken by academics and highlights obstacles, which require attention at school and practice setting levels to ensure academics are prepared, engaged and committed to incorporate EBP concepts in their teaching practices.

Thesis including published/accepted/submitted works declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes three original papers published in peer reviewed journals and four submitted for publications. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the nursing and midwifery under the supervision of Professor Lisa McKenna and A/Professor Debra Griffiths.

In the case of *(chapter 1 and chapter 5)* my contribution to the work involved the following:

Table 1: Thesis including published/accepted/submitted works declaration

Thesis Chapter	Publication Title	Status	Nature and % of student contribution
1	An Analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs	Published	80% concept development, key ideas, development and writing up
5	How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study	Published	80% concept development, key ideas, development and writing up
5	Enacting the curriculum: Teaching and embedding evidence-based practice concepts in undergraduate nursing curricula across Australian universities	Under Review	80% concept development, key ideas, development and writing up

5	Using pedagogical approaches to influence evidence-based practice integration- processes and recommendations: findings from a grounded theory study	Published	90% concept development, key ideas, development and writing up
5	Envisaging the use of EBP: How nurse academics facilitate EBP use in theory and practice across Australian undergraduate programs	Revisions Submitted	90% concept development, key ideas, development and writing up
6	On a path to success: Endeavouring to contextualise curricula within an EBP framework- a grounded theory study	Under Review	80% concept development, key ideas, development and writing up
7	The interplay between academia, curricula and practice settings: Contextual factors influencing the integration of evidence-based practice in undergraduate nursing education	Under Review	90% concept development, key ideas, development and writing up

I have / have not renumbered sections of submitted or published papers in order to generate a consistent presentation within the thesis.

Student signature: Date: 24/10/2016

The undersigned hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Lisa McKenna

Main Supervisor signature: *(Insert electronic signature)* **Date:** 24/10/2016

Conference Presentations

Table 2: Conference presentations during the course of candidature

Date	Conference Presentations
Sept 2016	Nominated for **Rising star in Research and Scholarship Poster Presentation** at Sigma Theta Tau International Honor Society of Nursing Leadership Connection, 17th -20th Sept 2016, Indianapolis, USA. Study Title: Integration of evidence-based practice in undergraduate in undergraduate nursing education across Australian universities: A grounded theory study.
April, 2016	Oral presentation entitled **On a path to success: Embedding evidence-based practice in undergraduate nursing education across Australian universities**, 6th International Nurse Education (NETNEP) Conference 4th-6th April 2016, Brisbane, Australia.
June, 2015	Oral Presentation on **An Analysis of evidence-based practice curriculum integration into undergraduate nursing programs,** 3rd Annual Worldwide Nursing Conference (WNC) 29-30 June 2015, Singapore.
April, 2014	Oral presentation entitled **Evidence-based practice in undergraduate nursing education: A curriculum analysis**, National Nurse Education Conference 30th April-2nd May 2014, Adelaide Australia.

Acknowledgements

First and foremost, I would like to acknowledge and convey my sincere gratitude to my two wonderful supervisors, Professor Lisa McKenna and Associate Professor Debra Griffiths. Thank you for your invaluable guidance and immense support during the course of my PhD. I appreciate the opportunity that you have given me to undertake a unique and challenging methodology. I have always enjoyed our supervision meetings and random discussions about this research. Under your mentorship, I have gained significant confidence and competence with manuscript writing and responding to reviewers. You are both an inspiration to me and I will always remember these four years of my life and cherish those moments.

Secondly, thank you to my family, my husband and two children, Mashal and Maheen, for their understanding, sacrifices and enthusiasm towards pursuit of my PhD. I remember Maheen was only 12 months old when I embarked on my PhD journey, and of course encountered countless challenges along the way. But immense support from my husband Malik, who I am eternally grateful to, for without him I would not have reached to this stage. Thank you for always believing in me and supporting me. I believe as much as I enjoyed my Saturday PhD times, Maheen and Mashal enjoyed your company. Also, my parents and siblings for their prayers and motivation which has given me strength and courage to move forward during hard times. This thesis is dedicated to us all.

Third, I would like to convey special thanks to Monash Graduate Education for offering me Australian Postgraduate Award and the School of Nursing and Midwifery for supporting me to take up my scholarship to complete the project. I would also like to acknowledge Pervaiz Kamnani, the graphic designer, who patiently made changes to the visual presentation of the theory a several times. Also, how can I forget to recognise the support and coffee catchup discussions with my friends and colleagues regarding my progress and whether I required any support. Thank you so much!

Fourth, I would like to acknowledge heads of schools of nursing and midwifery across Australian universities for expressing their interest and forwarding email invitations to potential participants. A sincere thanks to academics who agreed to participate in this study. Without their participation, this study would not have been possible.

Finally, the two authors and researchers Bernadette Melnyk and Ellen Fineout-Overholt, who have continued to inspire me to contribute in the area of evidence-based practice with persistence and dedication. I would like to acknowledge their inspiring quote:

Evidence-based practice is a wonderful thing,
Done with consistency, it makes you sing.
PICOT questions and learning search skills;
Appraising evidence can give you thrill.
Though you may want to practice the same old way
Oh no, that's not how I will do it" you say.
When you launch EBP in your practice site,
Remember to eat the elephant, bite by bite,
So dream big and persist in order to achieve
And know that EBP can be done when you believe.

(Melnyk & Fineout-Overholt, 2011, preface)

Glossary of Terms

Undergraduate nursing programs: Throughout the thesis, undergraduate nursing programs/courses are referred as Bachelor of Nursing programs.

Nurse Academics: In this thesis, they are referred to teachers/educators/faculty who are affiliated with educational institutions offering nursing programs. They are involved with teaching theoretical and clinical courses within the educational institutions.

Clinical educators: are those people who are actively involved in clinical supervision for nursing students. Usually they are affiliated with clinical settings.

Unit of Study: A complete subject/unit/course outline comprising of subject aims and outcomes, teaching pedagogies, subject topics and content, assessment details, learning resources and relevant academic policies.

Abbreviations

ACE	Academic Centre for Evidence-Based Practice
ACE-ERI	ACE-EBP Readiness Inventory
ACSQHC	Australian Commission on Safety and Quality in Healthcare
AHPRA	Australian Health Practitioner Regulation Agency
ANMAC	Australian Nursing and Midwifery Accreditation Council
ARCC	Advancing Research and Clinical Practice through Close Collaboration
ARCC-E	Advancing Research and Clinical Practice through Close Collaboration & Education
BN	Bachelor of Nursing
CAS	Critically Appraised Summaries
CGTM	Constructivist Grounded Theory Method
CGT	Constructivist Grounded Theory
DEEWR	Department of Education, Employment and Workforce Relations
EBM	Evidence-Based Medicine
EBN	Evidence-Based Nursing
EBP	Evidence-Based Practice
E-FIT	Evidence-Based Practice Focused Interactive Strategy
GTM	Grounded Theory Methodology
I-DPTS	Innovation-Decision Process Teaching Strategy
IOM	Institute of Medicine
JBI	Joanna Briggs Institute
JHNEP	Johns Hopkins Nursing Evidence-Based Practice
NHMRC	National Health and Medical Research Council

NMBA	Nursing and Midwifery Board of Australia
PARIHS	Promoting Action on Research Implementation in Health Sciences Framework
PICO	Patient/Population, Issue/Intervention, Comparison Intervention, Outcome
RCT	Randomised Controlled Trial
RU	Research Utilisation
SEEDS	Simulated E-Health Delivery Systems

Chapter One: Setting the Stage

1.1 Introduction

In this chapter, the background to the study provides some insight into, and impetus for this research project. The research question and the research aim are then stated. This is followed by a brief account of how the outcomes of the study add to knowledge and clinical practice. Finally, an overview of the structure of the thesis is presented.

Evidence-based practice (EBP) is paramount to delivering and achieving the highest quality patient care outcomes. Findings from numerous studies support the notion that patient care based on the best evidence results in improved health, decreased morbidity and mortality, and cost effective outcomes (Melnyk & Fineout-Overholt, 2011). The impetus for EBP has come to healthcare systems from accrediting bodies, government agencies, professional organisations and increases in malpractice legislations (Institute of Medicine [IOM] report, 2003; Winters & Echeverri, 2012). When clinicians are confident in finding evidence, critically appraising it and using the best evidence to change clinical practice in consideration of patients' preferences, optimum outcomes are achieved for all (Majid et al., 2011; Melnyk & Fineout-Overholt, 2011).

The term 'evidence-based practice' (EBP) became familiar to healthcare services in the early 1990s and since then, the concept has become a benchmark for which practitioners should aim (Stube & Jedlicka, 2007; IOM, 2010). EBP is defined in the literature as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research" (Sackett, Rosenberg, Muir-Gray, et al., 1996, p.71). The movement towards including EBP in all aspects of healthcare was

started decades ago by Dr. Archie Cochrane. As an epidemiologist with a clear understanding and appreciation of evidence-based outcomes, he publicly criticised the medical profession for not providing reviews of evidence that would allow healthcare decisions by policy makers and organisations to be based on best evidence. His constant efforts and influence led to the establishment of the Cochrane Centre in 1992, and resulted in the evolution of EBP. Since then, the Cochrane Centre has been actively involved with international partnerships in advancing the creation of freely accessible systematic reviews targeting healthcare interventions (The Cochrane Collaboration, 2012).

Adoption of EBP is imperative in the current healthcare environment which continues to replace traditional knowledge sources to inform practice decisions. Almost a decade ago, the Institute of Medicine (USA), set forth a vision that all health professionals be educated in the evidence-based paradigm to be able to practise patient-centered care based on valid and reliable evidence, work within multidisciplinary teams, and use informatics (IOM, 2003). Since then, this concept has become the gold standard of care delivery, prompting healthcare organisations and educational institutions to invest in infrastructure for its implementation.

The evolution of nursing as a profession requires development of EBP outcomes and the ability of nurses to access and evaluate professional literature (Roberts & Ousey, 2011). There are reported benefits for the nursing profession in adopting EBP as it empowers nurses to form innovative learning partnerships with colleagues to nourish, and to strengthen critical thinking skills to be able to integrate research knowledge in leading best practice (Callister, Matsumura, Lookinland, Mangum & Loucks, 2005). Additionally, it offers opportunities for nursing care to be more individualised, effective, streamlined and have the benefits of clinical judgement (André, Aune, & Brænd, 2016).

1.2 Impetus for the Study

In my previous role as a nurse educator in one tertiary healthcare setting, I was confronted with everyday practice concerns by frontline nurses regarding the use of traditional versus evidence-based practice. Lack of knowledge and resistance to change based on evidence were common among nurses. For instance, when evidence-based practice projects were introduced, it took months to infuse through staff practice. I was concerned, as many of those nurses acted as preceptors for new staff and for undergraduate students that they were not ready to mentor them to embrace EBP. I examined the literature and found these issues were common globally, particularly among bedside nurses. However, I did not find a great deal of information about senior group of nurses including nurse educators and clinical nurse specialists, who were involved in mentoring students, as to their views regarding EBP. I believed this was important to investigate as nurse educators and other senior nurses were considered influential members of the team who could bring change in their clinical settings based on evidence.

Thus, as a part of my Master of Nursing research, I explored the perceptions of nurse educators, clinical nurse specialists and clinical coaches regarding EBP in a tertiary care Australian hospital. Findings from that study showed that nurse educators, clinical coaches and clinical nurse specialists relied heavily on personal experience and organisational policies and protocols as formal sources of knowledge. All three groups showed confidence in finding and reviewing organisational information, but did not demonstrate confidence in accessing, appraising and utilising evidence to change practice. All participants showed positive attitudes towards EBP, however, lack of resources, support and time were perceived as major barriers to EBP adoption. Facilitators identified included educational opportunities, a supportive culture and availability of resources. Participants strongly desired access to educational opportunities to enhance their knowledge and skills associated with EBP. The findings led to a number of

recommendations for education, clinical practice and research. One of the significant recommendations was that EBP needed to be ingrained in nursing curricula and incorporated as a component of the research process. It was identified from the research that nursing curricula needed to ensure that those graduating acquired necessary competencies to be able to apply into clinical practice. This should be introduced early in the academic experience and carried through into professional practice. Further research was recommended to investigate the degree of EBP inclusion in the curriculum and how well prepared graduates were in application of EBP (Malik, McKenna & Plummer, 2015a; Malik et al., 2016).

Additionally, in my education role as a lecturer in one Australian university, it came to my attention that research and evidence-based practice subjects were not offered to students. Basic concepts were covered in one nursing subject, however there appeared to be no explicit integration in other units. This stimulated me to examine if this was the case with other universities and if not, then how did they educate students about research and EBP concepts? Hence, the recommendations from my master's research and my teaching experience in undergraduate education, along with gaps in the literature, served as the stimulus for me to conduct the present study.

1.3 Study Background and Context

Nurses work in a constantly changing and evolving healthcare environment. They are expected to enter practice settings with competencies to embrace EBP in their practice regardless of their educational preparation (IOM, 2010). However, studies suggest the implementation of evidence-based care by nurses is typically very slow across the globe (Kohn & Lehman, 2008; Majid et al., 2011). Multiple factors reportedly contribute to the slow paradigm shift including limited time, inadequate knowledge and skills, insufficient resources within organisations, lack

of support from leadership and resistant culture (Adib-Hajbaghery, 2007; Bremaier, Halfens & Lohrmann, 2011; Majid et al., 2011; Barako, Chege, Wakasiaka, & Omondi, 2012; Malik et al., 2015a).

There is a plethora of literature supporting the premise that despite EBP being a familiar term for nurses, they still prefer to base clinical decisions on knowledge gained through peers, patients, intuition, and their own experiences, rather than journals and evidence gathered through studies (Eizenberg, 2010; Malik et al., 2015a). A survey conducted by Majid et al. (2011) with 1486 nurses from two public hospitals in Singapore reported that medical information provided by websites and hospital policies were the most frequently used sources for obtaining information about EBP. A general consensus expressed in nursing literature is that the key to educating future nurses about EBP lies with nursing schools where nurses are educated for their initial degrees (Moch, Cronje & Branson, 2010).

Evidence-based practice has emerged within nurse education and nursing practice as a necessity to influence patient care outcomes. All students and practising nurses are expected to provide patient care based on research and evidence (Nursing & Midwifery Board of Australia [NMBA], 2016a). To acquire EBP essential competency, nurses initially rely on their pre-registration nurse education (Chaboyer, Willman, Johnson, & Stockhausen, 2004). Heye and Stevens (2009) suggest that traditional ways of teaching research as a course taught in isolation should no longer be a teaching practice, rather it must embed the principles of EBP through curriculum integration. Embedding EBP into nursing curricula is perceived to facilitate graduates' knowledge and application of EBP in their practice (Brown, Kim, Stichler & Fields, 2010).

Key barriers addressed by Levin and Feldman (2006a) to advancing EBP were consistent in many educational institutions across the world. Teaching staff were reluctant to teach research courses underpinned by EBP principles and framework. Lengthy article

critiquing processes continued to be an approach for teaching critical appraisal skills and research proposals with an aim to develop evidence generators instead of evidence users, appeared common practices among teaching staff. As a result, these approaches failed to create theory-practice links and attracted negative attitudes by students. The authors suggested teaching staff reflect on the following questions when designing content and teaching approaches: "How best can we embed EBP into nursing curricula?, How best can we facilitate our students' learning?, What are attitudes and values inherent in this approach, and What are important tools in teaching and learning EBP to students?" (Levin & Feldman, 2006a, p. 15, 162, 167). The purpose for these questions was to shift the mindset of academics so that EBP became everyday language in nursing curricula and students could successfully incorporate EBP approaches in their daily practice (Levin & Feldman, 2006b). However, it is important to first investigate academics' perceptions about EBP and how valuable they consider EBP to be for their teaching practices.

A pilot study conducted by McInerney and Suleman (2010) investigating knowledge, attitudes and barriers toward the use of EBP among senior lecturers, associate professors and professors from medicine, nursing, pharmacy, optometry, physiotherapy, occupational therapy, speech language pathology, audiology and sports sciences in their teaching in a South African university, found that eighty percent strongly agreed there was a need to incorporate EBP into their teaching. In total, 73% used EBP in their teaching, yet 60.9% felt this was an additional workload on already overloaded faculty members. Obstacles reported were insufficient time (39%), lack of EBP knowledge (30.4%), inadequate resources to access information (17.4%), and difficulty in theory to practice integration in South African culture. In spite of this, they showed positive attitudes towards EBP by expressing interest in attending further education on EBP (McInerney & Suleman, 2010).

Similarly, Stichler, Fields, Son Chae and Brown (2011) explored perceptions of 125 nurse academics from two nursing schools in the south western region of the United States of America (USA). The researchers found traditional research knowledge and skills among faculty members did not translate knowledge of EBP into teaching practices. As a result, EBP competencies were not reflected in students' assignments and their clinical practice. Teaching staff identified poor understanding of statistical analyses, lack of generalisability of research findings to specific clinical contexts, insufficient time to read research, and lack of clear implications for teaching EBP as influencing factors. The study findings suggested a need for continuing education in EBP for academics, both in acquisition of knowledge and in curriculum design and delivery. These findings have been supported by a couple of other studies which reported teaching staff have been slow to adopt the paradigm shift from teaching traditional research methods to EBP concepts mainly due to lack of time and limited knowledge in EBP. Additionally, misconceptions about EBP, lack of frameworks for curriculum, lack of mentorship, poor information literacy skills, insufficient administrative support, and scant resources were identified as confounding barriers among academics (Al Hadid & Al Barmawi, 2012; Hussein & Hussein, 2014).

Evidence-based practice demands practitioners develop the capability to ask pertinent clinical questions, search for relevant information/evidence, skills to critically appraise evidence and make thoughtful decisions about practice in considering patient preferences and values (Melnyk & Fineout-Overholt, 2011). If educational settings are to produce health practitioners who are research-focused and prepared to embrace EBP in their practice, then students should be exposed to learning opportunities. Conversely, studies indicate that concepts of EBP have been incorporated in education programs either in isolation or merged with research courses, mainly focusing research content and outcomes (DeBruyn, Ochoa-Marín, & Semenic, 2014; Hung, Huang, Tsai & Chang, 2015). In a study of how Turkish nurses used

research findings to implement EBP, the researchers found an increase in experience and appreciation of evidence was associated with better education of EBP (Ozdemir & Akdemir, 2009). Most participants identified lack of research knowledge and skill as barriers to EBP implementation, while many reported their research education unsatisfying due to limited opportunities to practise, insufficient content, and poor quality of instruction (Ozdemir & Akdemir, 2009).

Clinical practice reflects that nurses utilise evidence-based approaches to patient care when it is sufficiently emphasised during their educational experience (Moch et al., 2010). Nursing schools across the globe have integrated EBP education in many different ways. In Europe, Finotto, Carpanoni, Turroni, Camellini and Mecugni (2013) designed a three-year EBP laboratory course and integrated clinical experiences. In Korea, Geum Oh et al. (2010) embedded EBP in a six-day clinical practicum where lectures on core knowledge of EBP were provided before the practicum, and post-clinical conferences were offered to enhance students' EBP skills. Additionally, in a teaching hospital in China, Zhang, Zeng, Chen, and Li, (2012) adapted self-directed learning, workshops and clinical practicum strategies to include EBP education. In Taiwan, EBP has been reportedly offered in standalone courses and incorporated into clinical placements (Hung et al., 2015).

However, there is limited information available regarding how Australian academics embed EBP principles in curricula. Examples of studies reflecting EBP incorporation across curricula are scarce. Chaboyer et al. (2004) reported that in Australia, as internationally, EBP is often not addressed adequately within the higher education sector and nursing curricula. Fundamental to adopting an EBP approach in nursing is educating future practitioners about it. There has been limited discussion regarding inclusion of EBP concepts as an integrated approach in nursing curricula (Stiffler & Cullen, 2010). "Including EBP in the curriculum at

all levels of education for nurses is a paradigm shift that is long overdue" (Burke et al., 2005, p.359).

A significant challenge has been introducing and integrating EBP content in the curricula of nursing schools across theoretical and practical courses. Studies that have examined EBP inclusion in nurse education have identified the need for more interdisciplinary research to investigate ways to better integrate EBP in academia. They concluded that there is still much work to be done in this area (Chaboyer et al., 2004; Heye & Stevens, 2009). Moch et al. (2010) recommended partnership development between universities and clinical institutions that provide students with active and participatory experiences to adopt EBP. However, only a few nursing studies have directly discussed plans for implementing measures throughout the curriculum to give students practical experience of embracing EBP (Finotto et al., 2013; Brooke, Hvalič-Touzery, & Skela-Savič, 2015; Dotson et al., 2015). Commitment from educators is imperative, and one way to ascertain that is to examine and observe how they integrate current scientific evidence in teaching practices (Melnyk & Fineout-Overholt, 2011). Other aspects in evaluating commitment involve efforts in keeping current with research knowledge, willingness to discuss EBP and involvement with EBP initiatives. Preparing undergraduate students to practise nursing in the twenty-first century presents challenges to academics in implementing the most effective teaching pedagogies, and designing curricula that meet national and international needs and priorities.

1.3.1 Nurse Education in Australia

In Australia, the transfer of nurse education from hospital-based training to university has been consistent with international efforts to recognise nursing as a profession (Woods, West, Mills, Park, Southern & Usher, 2015). Reports across Canada and the United Kingdom (UK) have

regarded university educated nurses as better able to deliver quality care and demonstrate improved levels of critical thinking and sound decision-making skills (Canadian Nurses Association, 2004; United Kingdom Central Council, 1986).

In the mid-1980s, Australian nurses were trained in the hospital setting under an apprenticeship model, and awarded a certificate in general nursing. This course was of three years duration and during the entire course, students received stipends from parent hospitals, and thus were considered part of the workforce. Efforts from nursing leaders to raise the professional status of nursing resulted in transferring nurse education from hospital to university sector. In 1984, the Commonwealth Government authorised nurse education to be relocated under higher education. Gradually, in some jurisdictions, nursing started to shift to the tertiary sector. However, after almost a decade, the complete move to the tertiary sector occurred. Finally, the hospital training system was phased out, with the last intakes in the 1990s (Sellers & Deans, 1999; Moxham, 2010).

Some years later, a national survey undertaken by Sellers and Deans (1999) regarding university educated nurses, revealed that academics expressed their satisfaction with the move to the university sector, and believed curricula were largely driven by health workforce requirements and academic standards. Another review in 2001 by the Commonwealth Department of Health and Aged Care (Heath, 2001) highlighted that in response to increasing complexity in healthcare, exponential technology and financial constraints, contemporary nurses required knowledge and technical skills to work within fast-paced technological-driven environments. They needed to be consumers of evidence and generate evidence, be self-directed and continually updated with current information. They believed university educated nurses would be able to meet the needs of the Australian society moving forward (Heath, 2002). Hence, on the twentieth anniversary of tertiary graduates in nursing, Professor Dignam, Acting

Dean of the Faculty of Nursing and Midwifery Health at the University of Technology Sydney (2008) affirmed:

> There is little doubt that the nurses of today can be congratulated for bringing to practice not only the technical skills and clinical judgement required of an effective health practitioner but also the application of evidence for best practice and an ability to undertake clinical research to advance patient health outcomes (p.5).

The Australian Nursing and Midwifery Council [ANMC] (2009) further reaffirmed the transfer of nurse education to the higher education sector as a wise move by stating "the establishment of the Bachelor degree as the minimum qualification for RNs brings national consistency to nurse education in Australia" (p. 25). Since nurse education has moved into the university sector, key qualifications such as Bachelor of Nursing, Master of Nursing and Doctor of Nursing are offered through accredited universities. Undertaking a Bachelor of Nursing (BN), an undergraduate degree from Australian educational institutions, graduates develop knowledge and skills to work in diverse healthcare settings. Programs are accredited to prepare a generalist nurse who can work in any nursing context at a novice level (Australian Nursing & Midwifery Accreditation Council [ANMAC], 2012). Upon completion of a BN, graduating nurses are conferred with registration under a national scheme of registration.

Registration Regulation

As of July 2010, under the national regulation scheme informed by the Health Practitioner Regulation Act 2009, nursing along with 13 other health disciplines are regulated by the Australian Health Practitioner Regulation Agency [AHPRA] (AHPRA, 2016). AHPRA, being an administrative authority, is supported by regulatory boards who are responsible for registering professionals and regulating professional matters relevant to each discipline. The

Nursing and Midwifery Board of Australia (NMBA), being a regulatory body for nurses since then, is responsible to:

1.   Register nurses, midwives and students;

2.   Set standards, codes and guidelines for the profession;

3.   Handle notifications, complaints, investigations and disciplinary matters related to inappropriate ethics conduct and/or breaches of law among nurses and nursing students;

4.   Assess overseas trained nurses who wish to practise in Australia;

5.   Approve accreditation standards and accredited courses of study for nursing (NMBA, 2016b).

1.3.2 Undergraduate Nursing Curricula

Australian undergraduate curricula are underpinned by the Nursing and Midwifery Board of Australia's Standards of Nursing Practice (NMBA, 2016a), Code of Ethics (NMBA, 2008), Professional Code of Conduct (NMBA, 2008) and Decision-Making Framework (NMBA, 2007). The overarching aim of these practice standards is to guide nurses to be person-centered and evidence-based clinicians incorporating aspects of preventative, curative, supportive, restorative and palliative elements (Andre & Barnes, 2010; ANMAC, 2012;). The practice standards have been recently revised in June 2016, enforcing nursing practice be based upon the revised standards and to further develop the scope of nursing. Additionally, these standards are not only applied to direct nursing care roles, but are equally relevant to non-clinical roles such as education, management and administration, and policy development to name a few (NMBA, 2016b). Seven standards containing a number of criteria have been developed to guide nursing practice are as follows:

1. Thinks critically and analyses nursing practice.

2. Engages in therapeutic and professional relationships.

3. Maintains the capability for practice.

4. Comprehensively conducts assessments.

5. Develops a plan for nursing practice.

6. Provides safe, appropriate and responsive quality nursing practice.

7. Evaluates outcomes to inform nursing practice (NMBA, 2016a).

To prepare nursing students for practice readiness in accordance with NMBA standards, each undergraduate program is expected to incorporate them in their curricula. Until now, NMBA National Competency Standards for Registered Nurses (2006) have underpinned nursing curricula, steering nursing practice in four domains including:

1. Professional practice: This domain relates to the professional, legal and ethical responsibilities nurses should undertake to protect rights of individuals and groups. Additionally, nurses are required to demonstrate safe practice in accordance with legislation and by adhering to the practice guidelines, set by the regulatory boards.

2. Critical thinking and analysis: The skills comprising critical thinking and analysis are paramount for self-appraisal, reflection, and in the use of evidence-based practice. Reflecting on practice is an important professional benchmark for nurses.

3. Provision and coordination of care: Provision, coordination and organisation of care are key foundations underpin nursing practice, which includes care assessment, planning, implementing and evaluating care across life span.

4.   Collaborative and therapeutic practice: This domain outlines the processes for developing, sustaining and concluding therapeutic relationships with individuals and groups. Emphasis is also placed on nurses working collaboratively within multidisciplinary teams (NMBA, 2006).

To ensure educational programs are of high quality and able to prepare nurses to practise safely, an independent authority to accredit nursing and midwifery courses was established. Under the national registration and accreditation scheme in July 2010, the Australian Nursing and Midwifery Accreditation Council (ANMAC) was established to assess programs for accreditation leading to entry to practice qualifications or endorsement, and monitor them periodically (ANMAC, 2016).

Under the accreditation scheme, ANMAC designed accreditation standards providing a framework and guiding educational institutions wishing to be involved in educating future nurses. Therefore, quality within the programs and safety of the public can be ensured. There are in total nine accreditation standards, against which education providers are assessed including: governance, curriculum conceptual framework, program development and structure, program content, student assessment, students, resources, management of workplace experiences, and quality improvement and risk management. Education providers are required to address each criteria specified within each standard to obtain accreditation. This process is considered comprehensive and usually takes many months to achieve course accreditation (ANMAC, 2012).

Currently, 32 universities and three colleges of higher education are accredited to offer Bachelor of Nursing programs across Australia. This course is a three-year degree program involving theoretical and clinical courses with completion of a minimum 800 hours of clinical experience required in a variety of clinical settings, exclusive of simulation activities (ANMAC,

2012). Commonly, courses are offered in full-time mode using blended teaching approaches including face-to-face, online learning and clinical experiences. Each university has its own criteria for part-time study options (Milton-Wildey, Kenny, Parmenter & Hall, 2014). In accordance with accreditation criteria specified in the program content, the central element of programs is to equip students with nursing knowledge and skills which are evidence-based and can be applied across the lifespan. The content also emphasises providing exposure in areas such as health priorities, health research, policy and reform in the context of national and regional needs. The overarching objective is to prepare nurses who demonstrate national competency standards for registered nurses, and also embed best national and international perspectives to influence their practice (ANMAC, 2012)

It is well recognised that clinical placement serves as a crucial element of nurse education (Woods et al., 2015). Within Australia, clinical preceptorship and supervision by clinical facility educators are commonly used supervision models (Andre & Barnes, 2010). At times, these models widen the theory-practice gap when university academics are minimally involved in supervision of students (Haigh, 2009). Besides this, in Australia, increasing difficulties in obtaining student clinical placements and substantial increases in student numbers over recent years have presented challenges in the provision of quality clinical experiences (Andre & Barnes, 2010; Woods et al., 2015). However, in light of a predicted shortage of 110,000 nurses in Australia by 2025, education providers are under pressure to increase supply and to find ways to maximise clinical exposure for enrolled students (Health Workforce Australia, 2012).

According to the Department of Education, Employment and Workforce Relations (DEEWR, 2009), 39,659 students were enrolled in undergraduate nursing programs across Australia in 2009. At the end of 2010, the Australian Health Practitioner Regulation Agency (AHPRA, 2010) estimated that up to 30,000 graduates would be seeking registration nationally.

These figures indicate that a significant number of nurses obtain registration and join the workforce each year to meet demands of an ageing Australian population. With existing challenges, it becomes crucial to investigate if future nurses are practice ready and prepared to be evidence-based practitioners. Additionally, the transfer of nurse education from hospital to the tertiary sector presented disputes in relation to marrying the two arms of nursing, being academia and practice, therefore it would be interesting to understand how academics bridge the gap.

One of ANMAC's accreditation standard criteria under the section of 'program content' clearly states that "nursing research and evidence-based inquiry underpins all elements of curriculum content and delivery" (ANMAC, 2012, p.14). In reference to this standard, undergraduate curricula must reflect integration of research and evidence-based practice across all courses. However to date, limited literature is available addressing how this standard sits within Bachelor of Nursing programs across Australian settings. Additionally, in line with common perceptions among employers that graduates are not practice ready and not equipped with competencies due to limited clinical role models, crowded placements, and ineffective teaching methods (International Council of Nurses, 2009), it is important to investigate EBP status in nurse education and provide a comprehensive overview of research and EBP education within undergraduate programs of study across Australia.

1.4 Aims of the Study

The aims of the study were:

1. To understand how nurse academics incorporate evidence-based practice into their teaching and learning practices.

2. To explore integration of EBP within the undergraduate nursing curricula.

1.4.1   Research Questions

The following research questions guided the methodological approach to the study:

1.   What processes occur as nurse academics undertake to incorporate evidence-based practice into their teaching practices?

2.   What teaching and learning strategies do academics employ to teach EBP?

3.   How is evidence-based practice integrated in undergraduate nursing curricula**?**

1.5   Study Design

Constructivist grounded theory, a qualitative research methodology, was employed to explore nurse academics' activities and processes when incorporating EBP into their teaching and learning practices. Underpinned by symbolic interactionism, this methodology is appropriate when the researcher aims to develop a substantive theory to understand the area being studied (Charmaz, 2006). An important characteristic of this methodology is that it permits data collection using a variety of sources to understand how research participants construct and define their realities through interactions (Charmaz, 2014). The choice of data collection methods for this study was guided by the research questions and the chosen methodology which are discussed in greater detail in chapters three and four of this thesis.

Participants for the study were academics teaching undergraduate student nurses across educational institutions within Australia. Data were collected through:

1.   In-depth interviews with 23 nurse academics across various Australian universities and colleges.

2.   Classroom teaching observations with nine academics across four Australian states.

3.   Twenty unit guides/subject outlines shared by study participants.

1.5.1 Data Analysis

In keeping with the tenets of grounded theory, data collection and analysis were embedded in the entire research process and continued until theoretical saturation was reached. Data were analysed using open, focused and theoretical coding as proposed by Charmaz (2006; 2014). NVivo 10 was used to organise data. Memos were written throughout the research process which helped the researcher to conceptualise concepts and provided theoretical direction to analysis. Once theoretical saturation was reached, conceptual relationships between the categories were explored, and a substantive theory, '*On a path to success: Endeavouring to contextualise curricula within an EBP framework'* was constructed.

1.6 Significance of the Study

There have been significant changes in nursing practice, research and knowledge in the last few decades. However, it has been found that nursing faculty have not been adequately prepared to address changes in nursing curriculum (Levin & Feldman, 2006a). In academia, due to faculty shortages, demands and responsibilities may interfere with integration of EBP in nursing curriculum (Heye & Stevens, 2009; Moch et al., 2010). Therefore, this research is very important to nursing's body of knowledge, exploring how well prepared teaching staff are towards incorporating EBP into their teaching practices. The results of the study will further

assist in identifying teaching and learning strategies academics utilise to influence students' learning of EBP concepts.

This study is much needed as it generates new knowledge in the area of evidence-based practice and provides evidence for academic institutions, nationally and internationally to develop curricula upon. Additionally, the substantive theory generated will raise awareness of social processes and activities academics adopt for EBP integration. It is anticipated that the theory will also facilitate understanding of factors influencing faculty members' teaching practices relating to EBP. Hence, the study has potential in bridging a gap between theory and practice within the EBP paradigm.

Advancing students' knowledge and appreciation of EBP, ensuring skills in finding, critically appraising and applying evidence to practice require innovative teaching strategies beyond the traditional lecture format. Chaboyer et al. (2004) implemented EBP strategies into a new nursing curriculum within an Australian university through a benchmarking project. The authors reported that structure of the school and belief teaching staff had towards EBP could either assist or hinder development of culture to support EBP. Very few studies have been published reflecting the EBP movement in nurse education. Examples of effective teaching strategies and key resources to integrate aspects of EBP would ensure the future workforce is prepared for the challenges of evidence-based quality movement.

1.7 Thesis Structure

This thesis consists of nine chapters. Some chapters include publications and manuscripts submitted for peer review. In Chapter One, the reader is introduced to the aims and context of the study. A detailed exploration of literature containing concepts relevant to the study topic

and the need for this study in the context of global literature is explored in Chapter Two. This chapter includes one published article which sets the context for the study. In Chapter Three, the methodological basis and its philosophical underpinnings are discussed. In Chapter Four, application of the methods to the study is explained. In Chapter Five, study findings including published articles and under review manuscripts are presented. The beginning section presents an overview of the findings expressed through a diagrammatic expression of the findings, which give rise to the theory. A manuscript discussing the constructed theory and the associated theoretical model are presented in Chapter Six.

In Chapter Seven, key factors that serve to influence teaching practices of academics aiming to integrate EBP are presented. In Chapter Eight, the author provides an overall discussion of findings in the broader context and presents study implications and recommendations for education, practice and research. Study limitations are also outlined in this chapter. Finally, in the concluding chapter, the author summarises the study and draws readers' attention to the evaluation criteria used to evaluate the constructed theory.

Published journal articles included in the thesis have been through double blind peer review process prior to publication. The remaining manuscripts are undergoing review at the time of thesis submission. Readers may find some repeated ideas between the manuscripts, which was necessary to provide adequate explanation and background to the journal readers. In addition, following journal word limits, articles may appear lengthy and may vary in citation style. According to Monash University guidelines, published articles are presented in their submission or publication format.

1.8 Conclusion

In chapter one, the study background and origins of the study are discussed. Additionally, a detailed discussion regarding undergraduate education and curriculum model in the Australian context has been provided to set the scene. Furthermore, an overview of the research aim and questions have been presented to orientate the reader. The chapter concluded with an overview of the thesis structure. The next chapter further establishes the research context by presenting a literature review focusing on EBP in nursing.

Chapter Two: Evidence-Based Practice in Nursing-A Review of Literature and Background

2.1 Introduction

The previous chapter offered an overview of the study purpose and established the context for the study. This chapter provides an in-depth exploration of the context in which the study is positioned. In keeping with the tenets of constructivist grounded theory method, initial review of the literature was undertaken to identify gaps and to locate existing literature examining evidence-based practice. Within this chapter, the initial sections focus on theoretical foundations of EBP comprising the origins of EBP in medicine and nursing, the EBP process, and models that inform nursing practice. An exploration of knowledge, skills, attitudes and factors influencing implementation of EBP from nurses' perspectives follows. Additionally, this chapter identifies the role of undergraduate nurse education in instilling essential competencies of EBP in nursing students. Specifically, academics' roles and preparation towards EBP and how evidence-based practice is situated within nurse education is examined in greater detail, outlining what is already known and is needed.

2.1.1 A review of literature from grounded theory research perspective

There have been conflicting ideas in relation to when the researcher should be viewing the literature whilst employing grounded theory methodology. An early grounded theorist, Glaser (1992) explained that the researcher should restrict reading only to a superficial level of

knowledge about the topic to prevent imposing of existing ideas on the generated theory. He further outlined the inductive nature of grounded theory allows a researcher to have as few preconceived ideas about the research phenomena as possible, otherwise there is a risk that interpretation of data might be biased with concepts from the literature (Glaser, 1978). For Glaser (1998), during the writing-up phase of the research, a literature search on the area of interest should be undertaken for rigorous constant comparison.

Conversely, a contemporary grounded theorist, Charmaz (2006), raised concern that in the current research world, where researchers are urged to present detailed study plans for studies or for funding purposes, Glaser's recommendation does not seem practical. Bryant and Charmaz (2007) further argued that suspending one's knowledge and experience is impossible and undesirable as the topic chosen by the researcher often addresses a research gap in the literature. Therefore, following Charmaz's perspective, a preliminary review of the literature was undertaken prior to data collection and analysis to justify the need for the study.

Another question in relation to reviewing the literature is raised by Cutcliff (2000) as "when should the second review of the literature occur?" (p. 1481). In Glaser's (1978) view, the second review of literature should not take place until the theory has emerged from the data. However, Charmaz (2006) recommends the literature review should be continued throughout the study as this allows researcher to draw rich connections between the previous studies and their own study findings. Hence, for this study an initial literature search was conducted to obtain peer reviewed journal articles, text books and grey literature, published from 2003 to 2013, in English language were included as the researcher identified the gaps in literature to justify the need for the study in 2013. Therefore, a ten-year period from 2003 to 2013 was chosen for the review. In some instances, literature prior to 2003 is cited as it was seminal and recent literature could not be found. An updated and recent literature has been included during the thesis development.

Electronic databases including CINAHL, Scopus, Cochrane Library, EBSCO host, ERIC, Journals@Ovid, MEDLINE, Psych Info, PubMed, ProQuest, SAGE Journals online, Science Direct, and Wiley Online Library were searched for primary studies published within a ten year period of the initial search. The following questions were explored in the review process:

1. What is evidence-based practice and how is this embedded in nursing practice?

2. What are nurses' perceptions of knowledge, skills in, and attitudes to EBP?

3. What are the factors influencing its integration into nursing practice?

4. How does undergraduate nurse education prepare nurses in EBP knowledge, skills and its implementation? Are there subjects/courses on research/ EBP included in undergraduate curricula? How are they taught? What content is included?

5. How do nurse academics incorporate EBP concepts into their teaching practices?

6. What pedagogical approaches are being used by nurse academics to teach and integrate EBP concepts in undergraduate curricula?

In order to locate relevant literature examining the above questions, the following key words and terms were used: 'evidence', 'evidence-based', 'evidence-based practice', 'nurse, nursing', 'perception', 'medicine', 'curriculum', 'education', 'academic', 'pedagogies', and 'models of EBP'. These terms were first searched independently and then in combination to search study focused literature: "Evidence", OR "Evidence-based", OR "evidence-based practice", OR "evidence-based nursing", OR "evidence-based medicine", OR "EBP", OR "Nursing", OR "Medicine" OR "evidence-based care"

AND

"Nurse", OR "nurse teachers", OR "nurse faculty" OR "nurse academics" OR "nurse educators" OR "nurse leaders" OR "nurse instructors"

AND

"education", OR "curriculum", OR "undergraduate education", OR "pedagogies", OR "teaching strategies" OR "evidence-based practice education", OR "evidence-based practice teaching" OR "evidence-based practice pedagogies", OR "evidence-based practice instruction", OR "evidence-based practice in undergraduate education ", OR "evidence-based practice in nursing education" OR "evidence-based practice in nursing curriculum OR "evidence-based practice integration" OR "evidence-based practice subjects" OR "Research subjects".

Bibliographic and reference listings were accessed from appropriate titles discovered within the review process. Additionally, relevant references from primary research studies were reviewed, as a result additional relevant articles were located during the process. Database searches were supplemented by hand searches of grey literature, web pages, relevant texts, and newspapers, were sourced when relevant. Grey literature including government and institutional reports, conference proceedings, facts sheets and guidelines were accessed when appropriate.

2.2   What is Evidence-Based Practice?

Improving patient outcomes and delivering quality care through integration of evidence-based practice is a priority for healthcare settings globally. EBP is recognised as a framework for clinical practice that incorporates the best available scientific evidence with clinicians' expertise and patients' preferences to make healthcare decisions (Melnyk & Fineout-Overholt,

2011). The momentum in health care to improve the quality of patient care through EBP continues to escalate. EBP is now a global mantra of medicine, nursing and other health professions (Emanuel, Day, Diegnan & Pryce-Miller, 2011).

A number of definitions were found while reviewing the literature on EBP however, Sackett and colleagues' definition is widely used in healthcare. These authors defined EBP as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research" (Sackett et al., 1996, p.71). In 2000, Sackett and colleagues included the value of clinical expertise and patient perspectives more explicitly in their definition, added as "the integration of best research evidence with clinical expertise and patient values" (Sackett, 2000, p.1). Considering the key features, EBP can be represented by Barker (2013, p.5):

Evidence
Clinical Expertise   Integration = EBP
Patient preference
Context of care

Nursing researchers have broadened the scope of EBP by describing this as a problem solving approach to clinical practice that integrates a systematic search for, as well as critical appraisal and synthesis of, the most relevant and best research evidence to answer a burning clinical question (Fineout-Overholt, Melnyk & Schultz, 2005). It also incorporates one's own clinical expertise including internal evidence generated from quality improvement projects, thorough patient assessment and evaluation in the presence of available resources to achieve desired outcomes. Additionally, patient preferences and values also become part of clinical decision making and are taken into consideration during EBP implementation (Fineout-Overholt et al., 2005). Figure 2.1 summarises the key elements of EBP in light of organisational context in which EBP is operationalised (Newhouse et al., 2007).

Figure 2.1 Key Elements of EBP

Source: (Newhouse et al., 2007)

To explain the above EBP elements fully, it is important to describe them in four key areas: (1) the best available research evidence, (2) clinical expertise, (3) patient preferences, and (4) resources (Dicenso, Guyatt & Ciliska, 2005). Firstly, the characteristics of being conscientious, explicit and judicious signifies nurses' abilities to think critically and thoughtfully, weigh their use of information and justify the use of the best evidence. Secondly, current best evidence implies that nurses first thoroughly search the literature to locate available evidence. This step goes beyond searching and involves judging quality of the evidence and determining how this evidence is applicable in patient and organisational contexts. Other critical considerations nurses should take into account while making practice decisions based on the best evidence, are their clinical expertise and patient preferences. Clinical expertise includes knowledge, skills and experience nurses obtained during their undergraduate education and in their practice careers. This helps them to evaluate whether evidence found is appropriate to their patient's situation. In addition, considering patients' desires, wishes, and their choices when implementing decisions are paramount for effective patient outcomes (Melnyk, Gallagher-Ford & Fineout-Overholt, 2016). However, these steps will not guarantee an evidence-based

decision unless an organisational context and its resources are taken into consideration. Accessibility to material, and financial and human resources are vital to the success of evidence-based decisions. Learning about evidence-based practice is like a three-legged stool where clinical decisions incorporate the best available evidence, clinical expertise and patient preferences within a context of available resources (Hopp & Rittenmeyer, 2012).

2.2.1   What Constitutes Evidence?

The word 'evidence' is defined in the Oxford Dictionary as "information given personally or drawn from documents, tending to establish facts and serve to indicate, attest" (Oxford Dictionary, 2010). Pearson, Wiechula, Court and Lockwood (2005) define evidence as "the basis of belief; the substantiation or confirmation that is needed in order to believe that something is true" (p. 210). In healthcare, the concept of evidence has been described as a systematic collection of information that can be replicable, observable, verifiable and is credible to be used for many purposes (Rycroft-Malone et al., 2004), such as in understanding health and illness phenomena and improving the process of achieving effective healthcare outcomes (Rycroft-Malone et al., 2004).

The concept of evidence in the notion of EBP is considered as knowledge and facts derived from a wide range of information sources, broadly this entails two kinds, external and internal (Melnyk & Fineout-Overholt, 2015). External evidence is generated by research studies which can be transferred and applied in other settings. However, expert opinions and published program evaluations are considered to supplement research-based recommendations. Internal evidence comes from locally obtained facts or information, for example, through quality projects, practice initiatives, patient records, internal surveys, and healthcare documents relevant to that particular organisation. Additionally, it includes consensus opinions and

experiential information shared by professionals (Rycroft-Malone et al., 2004; Melnyk & Fineout-Overholt, 2011).

In relation to external evidence, it is paramount to consider the so-called hierarchy of evidence to guide clinical decisions. Over the years, many organisations have developed their own rankings and levels of evidence, for instance, the Joanna Briggs Institute (JBI), and National Health and Medical Research Council (NHMRC) have proposed levels of evidence relating to the feasibility, appropriateness, meaningfulness and effectiveness of healthcare interventions (Holland & Rees, 2010). It is of utmost importance for clinicians aiming to implement evidence-based practice to understand the strength of evidence by critically appraising or assessing its methodological quality (JBI, 2016). These levels of evidence are widely used by clinicians and researchers nationally and internationally during the process of evidence generation, systematic reviews, evidence-summaries, practice recommendations and best practice information sheets (Barker, 2013). However, some levels of evidence have been criticised due to their nature of positioning evidence from experimental studies over observational studies (Scott & McSherry, 2008).

2.2.2 Origins of the EBP Movement

Evidence-based practice originated in England and Canada in the late 1980s and early 1990s with the purpose of providing clinically effective healthcare within the available resources (Sackett et al., 1996). The EBP movement emerged as a response to unacceptable variations in practice and a failure to find and act on best available evidence. Florence Nightingale was the pioneer among nurses who promoted healthcare workers to create, interpret and use research findings to improve care outcomes and influenced the key stakeholders to provide resources to make that happen (Beyea & Slattery, 2013). After 80 years of Nightingale's frustration with

the continuance of traditional practices and ignorance of evidence in patient care, British epidemiologist and physician Archie Cochrane criticised the medical community for not using scientific evidence in pursuing clinical decisions (The Cochrane Collaboration, 2012). He proposed that reviews of research evidence across all disciplines should be prepared systematically through a rigorous process and should be maintained to generate new evidence (The Cochrane Collaboration, 2012).

Although Professor Cochrane died before his idea became a reality, his influence and a call for systematic reviews resulted in the establishment of the Cochrane Centre in Oxford, England in 1992 and the Cochrane Collaboration a year later. The key purposes of the Centre and the Collaboration were to assist individuals in developing, maintaining and updating systematic reviews for healthcare interventions and ensuring that these reviews were publically available (Fineout-Overholt et al., 2005). Later, the work of the Cochrane Collaboration advocated the use of randomised controlled trials (RCTs) to provide scientific evidence for effective medical interventions; hence evidence-based medicine came into existence (Scott & McSherry, 2008). In 1992, Gordon Guyatt and the evidence-based medicine working group described evidence-based medicine as a new paradigm over intuition and unsystematic clinical opinions. Shortly thereafter, the concept of evidence-based practice evolved with realisation that it was not only relevant to medicine, but equally influenced the practice of other health disciplines such as nursing, pharmacy, orthodontics to name a few (Cullum, Ciliska, Haynes & Marks, 2008; Holland & Rees, 2010). Since then, the EBP movement has continued to promote the value of best available evidence to underpin clinical decisions within health disciplines (Cleary-Holdforth & Leufer, 2008).

2.2.3 Evidence-Based Medicine (EBM)

There was a common belief among members of the medical community that fewer than 20% of interventions were clinically proven to bring positive outcomes (Schmidt & Brown, 2009). In the late 1980s, only about 15% of medical interventions were supported by scientific evidence. As a result, when the medicine community was enforced to bring research-based practice, evidence-based medicine [EBM] (later evidence-based practice) emerged (NHS Public Health Resource Unit, 2002).

The terms 'evidence-based practice' and 'evidence-based care' have since evolved from the initial concept of evidence-based medicine (Banning, 2005). EBM represents a paradigm shift from medical practice based on clinical observation, expertise and experience to the collection, interpretation and integration of valid patient reports, and systematic search for relevant scientific evidence (Scott & McSherry, 2008). EBP has its origin in medicine, but has since influenced a wide range of health disciplines.

2.2.4 Evidence-Based Nursing (EBN)

Challenges in translating research evidence into clinical nursing practice are addressed in global studies (Breimaier et al., 2011; Hagler et al., 2012). In the 1970s, when nurse researchers were busy generating research evidence for the nursing community, nurse clinicians were still focusing on sources of knowledge other than research evidence to inform their practice decisions. As a result, the concept of research utilisation gained popularity with the aim of using available research to improve nursing practice. However, in the recent literature research utilisation has been considered an old paradigm, preceding the new paradigm of EBP which is considered by researchers, as a broader concept encompassing research utilisation as one of its components (Melnyk & Fineout-Overholt, 2011).

Evidence-based nursing, like evidence-based medicine, originated in England and Canada in the early 1990s with the establishment of the journal "Evidence-Based Nursing" (Krugman, 2003). At present, evidence-based nursing organisations exist in Canada, Australia, USA and the UK. Scott and McSherry (2009) reviewed thirteen definitions from the literature to understand the concepts of evidence-based practice and evidence-based nursing. They concluded that both of these concepts promoted the use of current evidence and highlighted the value of clinical expertise in conjunction with patient involvement when making clinical decisions. "Evidence-based practice begins and ends with patients" (Sackett et al., 1997, p.22).

Evidence-based nursing (EBN) has a broader meaning than research utilisation. It includes all forms of practice knowledge on which nurses base their day-to-day practice consisting of intuition, tradition, peer opinions, books, journal articles, experts and patient preferences (Melnyk & Fineout-overholt, 2011). Although, evidence-based nursing practice recognises the importance of intuition and sound judgment, it also incorporates components on which clinical practice guidelines are based. By filling the gap between theory, research and practice, EBN strives to improve patient care outcomes, manage costs and keep pace with new technologies and knowledge developments (Williams, Perillo & Brown, 2015). Additionally, Debryn et al. (2014) suggested that theoretical knowledge on which research evidence is based when incorporated into the practice setting, leads to enhanced professional autonomy.

2.2.5 Research Utilisation (RU) and EBP

Research utilisation has been widely referred to as review and critique of scientific research and the application of findings from a single primary study to clinical practice (Saunders & Vehvilainen-Julkunen, 2016). This is now considered a sub-set of EBP by contemporary researchers, however from time to time, it is still incorrectly used as a synonym for EBP in the

literature (Melnyk & Fineout-Overholt, 2011). Evidence-based practice goes beyond the scientific research by considering patient values and preferences to guide patient care. Polit and Beck (2010) argued that the difference between RU and EBP lay in their beginning step, RU starts with research, whereas EBP begins with inquiry. Since the introduction of EBP in the 1990s, questions regarding the relationship between RU and EBP have been raised widely. Melnyk and Fineout-Overholt (2011) described that RU focuses on the use of research evidence, whereas EBP is a broader concept and incorporates research evidence both internal and external, and patients' values in the context of decision-making.

A meta-analysis of 84 studies conducted by Dicenso et al. (2005) on 4,146 patients sought to determine the contribution of research-based nursing practice to patient outcomes. The researchers reported that patients who received research-based nursing care demonstrated improvement in behavioural, physiological and psychosocial outcomes compared with those who received routine, procedural nursing care. Based on the results, the authors concluded that resources and equipping nurses with fundamental competencies of EBP are essential to achieve quality care outcomes. Grounding nursing practice on evidence, rather than in tradition, is necessary to maintain nurses' credibility among other health disciplines and to build a nursing knowledge base that can be used to influence policy decisions (Dicenso et al., 2005). Specific to nursing, the Sigma Theta Tau International (STTI) Honor Society of Nursing issued a position statement in 2003, making a commitment to being a leading source of knowledge and resources to foster evidence-based practice globally. To achieve evidence-based nursing practice, centres of evidence-based nursing have been established in many countries to assist with resources for successful EBP adoption (Cullum et al., 2008).

2.2.6 Why Evidence-Based Practice?

Over the past fifteen years, EBP has emerged as a major policy theme in western healthcare and therefore, been recognised as the gold standard for the provision of safe and effective healthcare delivery (Brown, Wickline, Ecoff & Glaser, 2008). The Joint Commission accreditation standards in the USA and the Australian Commission on Safety and Quality in HealthCare [ACSQHC], recognised EBP as a critical step in improving health care quality and an essential competency for health care providers to achieve in light of increasing complexities of healthcare, with technology explosion and in response to escalating pressures from insurance companies (The Joint Commission, 2016; ACSQHC, 2010).

On a daily basis, nurses and other health care professionals confront questions about assessment, treatment, prevention and cost effectiveness of care. The ultimate goal of EBP is to support practitioners in their decision-making in order to eliminate use of ineffective, inappropriate, expensive and potentially harmful practices (Billings & Kowalski, 2006). In nursing, the use of EBP enhances nurses' abilities to critically evaluate current practice and seek out evidence that supports rational decision-making processes, and showing professional accountability (Rickbeil & Simones, 2012). When health care providers know how to find evidence, are able to critically appraise it and utilise best evidence, they can achieve optimal outcomes for patients (Melnyk & Fineout-Overholt, 2011).

2.2.7 The Evidence-Based Practice Process

The process of EBP relies on sound knowledge of what it constitutes and the skills to apply in practice. Skills of question framing, database searching, critically appraising, implementing and evaluating evidence are essential components of the EBP process (Fineout-Overholt et al.,

2005). According to Melnyk and Fineout-Overholt (2011), the process of EBP comprises seven essential steps:

1. Cultivate a spirit of inquiry

2. Ask a burning clinical question in PICO format

3. Search for and collect the most relevant best evidence

4. Critically appraise the evidence

5. Integrate the best evidence with one's clinical expertise and patient preferences and values in making a practice decision or change

6. Evaluate outcomes of practice decision or change based on evidence

7. Disseminate the outcomes of the EBP decision or change (Melnyk & Fineout-Overholt, 2011, p. 11).

The following section discusses each step in detail.

Cultivate a spirit of inquiry

Nurturing a culture that fosters the spirit of inquiry is regarded as an essential element for the EBP process and broadly for sustaining an EBP environment. Before embarking on the EBP journey, it is critical to cultivate a spirit of inquiry (consistent questioning attitude towards practice) so that clinicians are confident in asking care-related questions and challenge current institutional practices (Levin & Feldman, 2013). Without a culture that is supportive of inquiry, individuals' and organisations' efforts towards changing practice will not be likely to succeed (Rycroft-Malone, 2008).

Ask a burning clinical question in PICO format

 This is the initial step of the EBP process in which clinical questions are asked in PICO format. The acronym 'PICO', stands for patient/population, intervention or issue of interest,

comparison intervention, and outcome (Melnyk & Fineout-Overholt, 2011). When questions are asked in PICO format, it results in effective searches that yield relevant information and save time (Fineout-Overholt & Johnston, 2005). On the contrary, questions having no focus may lead to a search outcome that will likely include hundreds of abstracts of no use and irrelevant information. In addition, when multiple questions arise from a clinical problem, priority is given to those questions with significant consequences or occurring more frequently (Melnyk & Fineout-Overholt, 2011).

<u>Search for and collect the most relevant best evidence</u>

The search for the most relevant and best evidence should first begin by considering the elements of the PICO question (Barker, 2013). Each of the key words from the PICO statement should be used while searching for evidence. Although there are levels of evidence available in the literature to guide the clinical question, one should consider a broad range of evidence to address the PICO question. This evidence includes both external and internal, as discussed earlier (Hopp & Rittenmeyer, 2012).

<u>Critically appraise the evidence</u>

In the critical appraisal process, studies are evaluated for their validity, reliability and applicability to answer clinical questions (Johnston & Fineout-Overholt, 2006) Although this process can be exhaustive and time consuming, it can be achieved by answering three questions including: (1) Are the results of the study valid? (2) What are the results? and (3) Will the results assist me in caring for my patients? Answering these questions ensures relevance and transferability of evidence to the specific population for whom the clinical question is asked (Hopp & Rittenmeyer, 2012). Many qualitative and quantitative research appraisal tools are available for clinicians and researchers to determine their appropriateness in relation to the study findings and their applicability in practice.

<u>Integrate best evidence with one's clinical expertise and patient preferences and values in making a practice decision or change</u>

The vital step in the EBP process is integrating best evidence along with clinicians' expertise and patients' values when making care-related decisions (Melnyk & Fineout-Overholt et al., 2011). Clinical expertise refers to the ability to use knowledge, clinical skills and past experience to identify health status of patients, risks involved, and their choices in offering best possible interventions to improve outcomes (Dicenso et al., 2005). Healthcare professionals are assumed to bring theoretical and clinical knowledge to their practice. They utilise this in combination with available evidence to assess needs of patients and families, understand contexts and evaluate environments in which practice decisions are to be made (Hopp & Rittenmeyer, 2012).

Consumers of healthcare services have a right to participate in their care-related decisions (Newhouse et al., 2007). Even if the evidence from rigorous search and critical appraisal strongly supports that a certain intervention is beneficial, discussion with the patient may reveal concerns related to the intervention. A decision to use such intervention should only proceed with thorough patient assessment and discussion involving benefits and risks of the intervention/treatment. There are times and circumstances when the best available evidence points health professionals in the right direction, however lack of available resources may not support that particular intervention. Importantly, all informed health care decisions must be made within the context of available resources and patients' needs and choices (Hopp & Rittenmeyer, 2012).

<u>Evaluate outcomes of practice decisions or change based on evidence</u>

It is essential to determine the effectiveness of interventions by evaluating the outcomes. Determining whether change based on expected outcome has occurred is important to evaluate

the entire process and to influence practice guidelines and policy decisions (Levin & Feldman, 2013).

<u>Disseminate the outcomes of EBP decision or change</u>

This last step of EBP, which was a recent addition to the process, emphasises clinicians disseminate practice outcomes and effectiveness of evidence-based interventions through various means. These may include published articles, oral/poster presentations at local, or international conferences, or reports for organisations (Melnyk & Fineout-Overholt 2011).

Though the EBP process provides a structured framework for healthcare professionals to achieve desired outcomes, the complex nature of a multi-step EBP process implementation is highly dependent on intrinsic and extrinsic factors. Intrinsic factors are characterised as health professionals' individual characteristics including knowledge, attitudes, beliefs, skills and perceptions towards EBP. External factors involve organisational readiness, culture, resources and support for professionals to implement and evaluate the EBP process (Saunders & Vehviläinen-Julkunen, 2016). In the last few years, EBP experts have created numerous models to guide clinicians and organisations to implement the process.

2.2.8 EBP Models

It has been widely recognised in global literature that changing to clinical practice using EBP process and principles is complex and challenging (Hagler et al., 2012). As a result, numerous models have been developed over time to guide systematic implementation of EBP, aiming to strengthen evidence-based decision-making and provide frameworks for clinicians to change practice based on evidence. According to thematic analysis of available models conducted by Mitchell, Fisher, Hastings, Silverman and Wallen (2010), EBP models can be characterised into three broad categories, that is, EBP, RU and knowledge transformation processes, strategic

and organisational change theory to promote uptake, and knowledge exchange and synthesis for application and inquiry. There is no single model which meets the needs of all settings where nurses provide care, therefore each brings some strengths in a particular context and can be applied for many purposes such as evidence identification, evidence integration, practice change, and education purposes. Some of these models which are widely used in nursing are discussed briefly.

2.2.8.1 Model for Evidence-Based Practice Change

One of the pioneering models of EBP was developed by Larrabee (2009), guiding practitioners to change traditional, untested practices to evidence-based. The model reflected progressive steps with two-way directional arrows between the steps, indicating its recursive and cyclic nature (Larrabee, 2009). It is comprised of six steps:

1. Assess need for change in practice

2. Link identified problems to interventions and outcomes

3. Synthesise best evidence

4. Design practice change

5. Implement and evaluate change in practice

6. Maintain change in practice (Rosswurm & Larrabee, 1999, p.318)

Embedded in the steps, this model also integrates quality improvement principles, team work and evidence-based translation strategies to promote practice change (Melnyk & Fineout-Overholt, 2015). The model for evidence-based practice change is a revised version of the original model proposed by Rosswurm and Larrabee in 1999. Since its development, this model has been successfully adopted by Hamilton Health Sciences Evidence-Based Nursing

Committee to orient staff nurses to EBP concepts, along with implementation plans (Mohide & King, 2003). In the recent nursing literature, examples are limited in the use of this model.

2.2.8.2 The Stetler Model

The Stetler Model provides conceptual underpinnings for research utilisation to facilitate evidence-based nursing practice. It was first developed in 1976 and modified in 1994. This model describes its relationship to evidence-based practice by incorporating the term "evidence" in the first version and related concepts were fully integrated into the modified version in 1994 (Stetler, 2001). The model creates a vehicle for changing policies and procedures within healthcare settings.

In order to facilitate effective use of research into practice, the Stetler model provides a framework for critical thinking and decision-making steps which comprise preparation, validation, comparative evaluation, decision-making, translation/application, and evaluation. This model has long been categorised as a practitioner-oriented model offering a comprehensive explicit approach to individual nurses such as practitioners, educators, and policy makers to synthesise research evidence and use knowledge to influence educational programs and practice decisions (Stetler, 2001). For example, this model has been used to analyse the evidence for using humour therapy with oncology patients (Christie & Moore, 2005), in the development of screening tools to reveal postpartum depression (Bishop, 2007) and to screen anxiety in Parkinson's disease patients (Snyder, Facchiano & Brewer, 2011). However, due to its complex diagrammatic presentation and comprehensive nature, this model requires an individual with research utilisation and EBP competency skills to apply in practice (Stetler, 2010).

2.2.8.3 *The Iowa Model*

The Iowa model was originally developed at the University of Iowa hospitals and clinics, serving as a framework to improve patient outcomes, enhance nursing practice, and to monitor healthcare costs (Titler, Kleiber, Steelman, Rakel, Budreau & Everett, 2001). Additionally, this model provides guidance for nurses and other clinicians in making decisions about day-to day practice as it is based on the problem solving steps and is widely recognised for its applicability and user-friendly approach by multidisciplinary healthcare teams (Melnyk & Fineout-Overholt, 2011). Health professionals are guided through the steps from identification of problem to the dissemination of outcomes at local and international levels (Melnyk & Fineout-Overholt, 2011). Since its establishment, the IOWA model has been used in a variety of health settings, for example, staff in one New York hospital applied the model to implement a pain assessment tool for patients with limited verbal communication in an intensive care unit (Kowal, 2010). A key strength of the model includes a trial phase to evaluate the proposed change in practice, although implied, the steps do not explicitly address making staff aware of practice decisions (Lenz & Barnard, 2009; Kowal, 2010).

2.2.8.4 *The Clinical Scholar Model*

The key features of the Clinical Scholar Model are promotion of spirit of inquiry, and to bring the concept of mentorship in reality. Dr Kruegher in 1999 inspired the creation of this model when she promoted the notion to bridge the gap between theory and practice by encouraging the conduct and use of research as one of the key functions of nursing staff. The model builds the capacity and skills for using evidence at the point of care and offers long-term solutions to changing patterns of thinking and promoting evidence-based care. This model is inductive in nature using innovative ideas with the aim of building a community of practitioners who will

serve as clinical scholars (mentors) to health care providers. These mentors act as change agents promoting clinical scholarship through the spirit of inquiry and also challenging current traditional practices and facilitating EBP culture shift (Hopp & Rittenmeyer, 2012). This model has been reported to have been used by a group of cardiac nurses to reduce the duration of bed rest for patients undergoing angioplasty (Honess, Gallant, & Keane, 2009). Additionally, English (2015) reported the application of the model by Doctor of Nursing Practice (DNP) graduates to guide frontline nurses to become clinical nurse scholars who facilitated the advancement of EBP across Maine Medical Centre, USA.

2.2.8.5 *The Johns Hopkins Nursing Evidence-Based Practice Model*

The Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) model facilitates nurses in translating evidence to clinical, administrative and educational nursing practice. In 2002, staff at Johns Hopkins Hospital recognised the gap in implementing research evidence into the practice domain. As a result, a team of nurses formed a task force and invited academics from the Johns Hopkins University School of Nursing to participate in devising a practical model to adopt EBP (Newhouse et al., 2005). Based on existing EBP models, the JHNEBP model was constructed and evaluated within the organisation.

Consistent with the EBP definition, the JHNEBP model contains three major components including: Practice question, Evidence and Translation (PET). It includes tools which guide users in developing questions, appraising evidence and translating evidence in care decisions. This model is comprehensive, addressing steps of the EBP process, therefore has been successfully applied to clinical and academic settings within undergraduate and graduate education programs (Schaffer, Sandau & Diedrick, 2012). For instance, it has been used by undergraduate students for locating and appraising the literature. Additionally, using

the model, a collaborative EBP project between a university professor and clinical nurse leaders, resulted in prevention of deep vein thrombosis for post-operative surgery patients (Schaffer et al., 2012).

2.2.8.6   ACE Star Model

Developed by the Academic Centre for Evidence-based Practice (ACE) at the University of Texas Health Science, USA, this model focuses on use of several forms of knowledge in clinical decision-making (Stevens, 2004). This model depicts the relationship between stages of knowledge transformation through to best practice outcomes, such as how systematic reviews and clinical practice guidelines can be used to translate research to practice. The ACE model facilitates the process by which the health practitioner summarises evidence known on the topic. The five steps are similar to the EBP process and include generating new knowledge, summarising evidence following a rigorous review process, translating evidence for practice, integrating recommendations into practice and evaluating the outcomes (Schaffer et al., 2012).

This model has been widely used across clinical settings and educational settings to develop EBP-related competencies for undergraduates (Heye & Stevens, 2009) and clinical practice guidelines for ventilator-associated pneumonia (Abbott, Dremsa, Stewart, Mark & Caren, 2006). To measure these competencies, the instrument called the ACE-EBP readiness inventory (ACE-ERI) was developed which has been used to asses nurses' readiness for implementing EBP (Stevens, Puga & Low, 2012).

2.2.8.7 *Promoting Action on Research Implementation in Health Services (PARIHS) Framework*

 The PARIHS framework was developed over several years by a number of authors inductively from an analysis of practice development, quality improvement and research projects. The authors have used the term 'framework' for their work rather than a model, possibly because model requires testing and more vigorous explanation (Titler, Everett, & Adams, 2007; Schaffer et al., 2012). This framework has three key elements which mutually influence one another, leading successful implementation of EBP work. Evidence, being the first element, is described as knowledge sources. Context in which the evidence is applied is referred to as the second element, and the third element is facilitation, a technique to promote change. A success in EBP implementation lies in the strength and appropriateness of all three elements (Schaffer et al., 2012). Due to its contextual application, this framework has been used to facilitate EBP projects across health care disciplines. Researchers in New Zealand have used the PARIHS framework to explore a nationwide cardiovascular factors guidelines implementation, using focus group interviews with group of nurses, physicians and managers in a primary care setting (McKillop, Crisp & Walsh, 2011). However, the authors recommended further refinements in the framework to incorporate organisational factors more broadly (Titler et al., 2007).

2.2.8.8 *The Evidence-based Advancing Research and Clinical Practice through Close Collaboration (ARCC) Model*

The aim of the ARCC model is to provide healthcare settings with an organised approach and framework that can guide system-wide implementation and sustainability of EBP to achieve quality patient outcomes. For this to occur, changing individuals' behaviours to achieve the outcomes is also addressed. This model was first developed by a nurse, Bernadette Melnyk, in

1999 as a part of strategic planning to link research and clinical practice to advance EBP within an organisation (Melnyk & Fineout-Overholt, 2011). The key feature of this model is the use of an EBP mentor to promote nurses' competencies in EBP implementation. This five-step model has some unique features that begin with assessment of organisational readiness and culture for EBP implementation, including its strengths and barriers. Once assessment is completed, with the help of EBP mentors, evidence is implemented to change organisational practice and outcomes are evaluated (Melnyk, Fineout-Overholt, Giggleman & Cruz, 2010).

This model has been used in hospital and community settings emphasising a system-wide approach to implement EBP in practice areas. In one research hospital, the ARCC model was used to develop mentors and evaluate effectiveness of the mentorship program towards advancement of EBP in a clinical research intensive environment (Wallen et al., 2010). Identification of contextual factors affecting EBP use and appointing EBP mentors to facilitate EBP adoption are the key strengths of the model (Schaffer et al., 2012). However, less emphasis is given to evaluating evidence. The ARCC model has been advocated by the developers for use in educational settings, endeavouring to integrate EBP across curricula as the ARCC-E (Advancing research, education and clinical practice through close collaboration & Education) model. The steps are similar to the original ARCC model, but are contextualised to educational settings. However, not many examples are published in the literature with relation to its application (Melnyk & Fineout-Overholt, 2015).

The above models contribute in unique ways to advancing EBP in clinical and educational settings. Some models are widely used in clinical areas and others in educational settings. Experts in the field of EBP have espoused the importance of EBP models in advancing practice, yet there is little evidence available on the review, testing, shortfalls and practice outcomes using EBP models, in line with diverse workplace cultures and constant healthcare changes (Schaffer et al., 2012).

2.3 Nurses' Perceptions towards Evidence-Based Practice

Nurses work individually and collaboratively in consultation with other health care professionals, striving for best clinical outcomes. Care goals aiming to provide the highest quality nursing care that yields the best patient outcomes in today's financially constrained healthcare environment are imperative (Zhang et al., 2012). In order to achieve this, nurses need to be critical thinkers, evidence-based practitioners and collaborative team members (Melnyk & Fineout-Overholt, 2011). Managing uncertainties that often surround clinical decisions is critical; exploring ways to systemise the use of evidence to promote optimal decisions requires competence in both knowledge and skills in EBP (Brown et al., 2010).

Although reasons for introducing EBP, together with strategies for implementation and resource implications have been discussed in the literature, evidence suggests that a paradigm shift to EBP happens slowly (Williams et al., 2015). An integrative review examining 37 studies on nurses' perceptions of knowledge, skills, attitudes and use of EBP in practice, reported that irrespective of nationality, primary role and practice settings, most nurses were ill prepared for EBP adoption in practice (Saunders & Vehviläinen-Julkunen, 2016).

Nurses require foundational knowledge and skills in EBP concepts and process to be able to implement the skills in their clinical practice. Literature provides examples where frontline nurses are expected to use EBP process to inform their practice and patient-care decisions (Eizenberg, 2010). However, a large number of studies examining nurses' perceptions on EBP have revealed that nurses' knowledge and skills are considerably lower than their attitudes (Adib-Hajbaghery, 2007; Koehn & Lehman, 2008; Waters, Crisp, Rychetnik & Barratt, 2009a; Malik et al., 2015a). These findings are consistent across the globe.

A survey with 1097 nurses across the USA found that almost half were not familiar with the term 'evidence-based practice', and more than half reported that they did not believe their colleagues used research findings in practice. Only 27% were taught how to use electronic databases and most did not search databases to gather practice information (Pravikoff, Pierce & Tanner, 2005). Similarly, Brown et al. (2008) studied nurses' perceptions at an academic centre in California, finding lack of knowledge related to difficulty locating and appraising research reports were highly reported by participants. Another study conducted in Australia by Waters, Rychetnik, Crisp and Barratt (2009b), examining perceptions of EBP among 127 nurses and 257 final year nursing students, revealed that these groups of nurses demonstrated positive attitudes to EBP, however were poorly prepared in EBP knowledge and skills. A study conducted in Africa by Barako et al. (2012) concluded that poor knowledge and skills for searching and retrieving research studies prevented use of EBP into nursing care.

A recent finding from 19 Slovenian hospitals surveying 534 nurses reported low implementation of EBP in practice was contributed to perceived poor knowledge in EBP and research, and low job satisfaction level (Skela-Savič, Pesjak, & Lobe, 2016). It is noted across these studies that a large number of nurses had completed their undergraduate degrees between three and five years previously, and were practising at advanced levels. Therefore, nurses' preparation in EBP knowledge and its use is essential at an undergraduate level. The extent to which nurses use evidence to inform their practice correlates to increased knowledge and competency in EBP skills (Melnyk & Morrison-Beedy, 2012). This clearly implies that lack of competencies in EBP among nurses has been consistent over the number of years and across the globe.

With regards to the sources of knowledge that nurses refer to inform their practice decisions, studies suggest that current nursing practice is much more based on experience, tradition and intuition than evidence gathered from research (Adib-Hajbaghery, 2007; Koehn

& Lehman, 2008; Brown et al., 2008; Cadmus et al., 2008). Majid et al. (2011) surveyed 1486 nurses from two public hospitals in Singapore reporting medical information provided by websites and hospital policies and procedures were most frequently used sources. These findings concur with an Australian study by Malik et al. (2015a) that revealed that nurse educators, clinical coaches and clinical nurse specialists relied mostly on hospital policies and protocols as frequently used sources of information.

There are a few studies highlighting the need to make resources available for nurses to enhance their information literacy skills. Results of Cadmus et al.'s (2008) study demonstrated that 50% of the acute care nurses from 32 New Jersey hospitals reported they never used the hospital library, with some indicating that they did not know where the library was. Researchers expressed their concerns in relation to low information literacy skills and insufficient resources available to nurses (Cadmus et al., 2008). Arguably, access to evidence sources and possessing information literacy skills did not necessarily transfer the skills required to embrace EBP (Beke-Harrigan, Hess & Weinland, 2008).

In many practice settings, information-seeking behaviours and use of current evidence are neither valued nor supported due to lack of organisational support from physicians, registered nurses and organisational leaders to promote changes based on current evidence. Lack of organisational support has been the most significant issue cited in the literature, contributing to a culture of resistance and impacting overall care related outcomes (Adib-Hajbaghery, 2007; Bonner & Sando, 2008). Nurses require support, mentorship and conducive environments to integrate best practice into care delivery. If the leadership encourages questioning practice, if it is an expectation of staff to be involved with finding and applying evidence, if nursing administrators provide resources, and if there is collaboration among clinical and educational institutions, then research is more likely to be supported and incorporated into practice (Majid et al., 2011; Shivnan, 2011).

Barriers to evidence-based practice involve individual nurse characteristics, organisational characteristics, the nature of research information and the healthcare environment (Patter Gale & Schaffer, 2009). Hutchinson and Johnston (2006) reviewed thirty studies between 1991 and April 2005 using the BARRIERS scale to measure nurses' perceptions of barriers to evidence-based practice. They concluded that commonly reported barriers included lack of EBP knowledge and critical appraisal skills, poor time, lack of confidence, being short staffed, no incentives, lack of authority to change practice, limited support and mentoring, poor access to information, and resistant nursing culture. Brown et al. (2008) added that organisational culture plays an important role towards nurses' autonomy in changing practice based on evidence. Organisations often avoid having processes in place to support nurses through a systematic approach for developing and evaluating nursing interventions, protocols, critical pathways and policies that are derived from synthesis of evidence. An evidence-based approach to nursing practice has the potential to improve nurses' abilities to question common practice and to improve outcomes for their patients. Unfortunately, the issues present within clinical environments have made this difficult to change practice based on research evidence (Vanhook, 2009).

A scoping review was conducted almost ten years after Hutchinson and Johnstons' (2006) review that included 49 studies exploring organisational barriers to EBP implementation across health care settings. It found that heavy workload, limited time, minimal support from leadership, scant resources, lack of authority to change practice and cultural resistance as impeding factors. The authors highly recommended clinical organisations be informed of the findings and take steps to combat these barriers. Even those individuals who were motivated and inclined to uptake EBP would not be able to sustain their motivation and maintain their use of EBP in light of reported barriers, concluded the researchers (Williams et al., 2015). Findings from the above two reviews are concerning, highlighting that barriers to EBP implementation

remain consistent over the years and require healthcare industry leaders to design and implement effective strategies that promote the uptake of EBP among the nursing workforce globally. Educational institutions are also required to design curricula that emphasise clinical implementation of EBP along with enhancing nursing students' competency in EBP (Levin & Feldman, 2013).

To address a couple of barriers mentioned earlier, Newhouse et al. (2005) implemented The Johns Hopkins Nursing Evidence-Based Practice Model as a strategic initiative to enhance EBP culture within the practice setting. To implement the model, a two-day educational session was provided to nursing research committee members and unit-based nursing leaders. During implementation of the model, the authors confronted similar barriers to EBP implementation including realities of practice and heavy workloads. Use of an evidence-based practice approach to clinical decision-making clearly needs support from nursing leadership to provide dedicated time away from day-to-day clinical responsibilities. This barrier of "time" has been longstanding in the literature and is one of the greatest difficulties to be overcome in order to establish EBP informed workplaces (Carlson & Plonczynski, 2008). However, it is argued that lack of educational preparation has contributed to frustration and could be an underlying aspect of lack of time. Attempting to undertake the EBP process without having adequate knowledge and skills might in itself be time consuming (Majid et al., 2011).

The support and visibility of nursing leadership comprising nurse managers, nurse educators and nurse specialists in promoting EBP culture is paramount (Amato, Kerber, Yurko & Mion, 2009; Malik et al., 2016). To operationalise evidence-based healthcare, an organisation's leadership must develop a strategic plan for adoption of EBP. The plan requires commitment from the organisation to allocate resources towards EBP initiatives and its successful implementation (Gerrish, Ashworth, Lacey & Bailey, 2008; Melnyk, Fineout-Overholt, Dadler, & Green-Hernandez, 2008). At a unit level, nursing leadership can initiate

activities such as maintaining consistent and visible presence in the ward, raising questions in every group discussion, encouraging staff nurses to talk about clinical problems during staff meetings, supporting nurses' ideas and facilitating pursuit of new ideas, identifying links between research and direct care, encouraging the use of patient rounds as teaching sessions, involving staff in meaningful projects, journal clubs, setting up computer links to local library database, increasing staff participation in conferences and facilitating learning by directing staff toward appropriate resources (Pepler et al., 2006; Majid et al., 2011; Shivnan, 2011; DeBruyn et al., 2014; Malik et al., 2015a).

Along with building a foundation for establishing an evidence-based culture, nurses in the workplace need tools to feel comfortable with inquiry and reflective skills. Questioning of clinical practice during group discussions was identified as an effective means to encourage staff participation in evidence-based care (Shivnan, 2011). A collaborative partnership among academics and clinical staff/leaders was found to be successful in facilitating research-based practice (Pennington, Moscatel, Dacar & Johnson, 2010). Furthermore, engaging people from multiple disciplines and leaders in EBP projects appears to be an effective strategy (Pepler et al., 2006). Additionally, appointment of EBP mentors in collaboration with academic institutions for evidence-based practice to guide clinical nursing inquiry is a prime example of organisational support that fosters implementation of research into practice (Newhouse et al., 2007; Melnyk & Fineout-Overholt, 2011).

Resistance to change is not surprising because there is no culture which accepts change readily, and evidence-based practice implies continually changing practice in the light of new information. Therefore, it is imperative that nursing leadership across both healthcare organisations and academic settings create structures and processes that reduce organisational barriers to enable research use (DeBruyn et al., 2014). Nurse education should focus on provision of integrated curricula preparing undergraduate students with essential knowledge

and skills in EBP along with clinical application, as recommended by a number of studies (Al Hadid, Hasheesh, & Al Momani, 2011; Finotto et al., 2013; DeBruyn et al., 2014). In light of perceived individual barriers to EBP, the next sections explore how undergraduate nurse education prepares nurses with essential EBP knowledge and skills, and its implementation across health care settings.

2.4 Evidence-Based Practice in Nurse Education

2.4.1 Nurse academics' roles and preparation towards EBP

Globally, undergraduate nurse education programs have graduated numerous individuals who have assumed roles as nurses, teachers, administrators, researchers, leaders in the public policy arena, consultants and other specialist practitioners (Levin & Feldman, 2006a). The healthcare system that now exists is vastly different from what it was in the past, mandating graduates to be armed with a different set of knowledge, skills and values if they are to be considered 'competent and efficient' healthcare providers (Institute of Medicine, 2010). A 2002 summit on the education of health professionals globally, acknowledged that "education for all health professionals is in need for a major overhaul" (Institute of Medicine, 2003, P.1). In line with this, there was seen a need to reform traditional curricula preparing undergraduate nurses to perform their solely 'care provider' roles to become evidence-based practitioners (Christie, Hamill & Power, 2012).

To achieve an outcome-based education system that better prepares clinicians to meet both the needs of patients and requirements of changing health systems, health professionals need to be prepared to engage in EBP (Adib-Hajbaghery, 2007; Brown et al., 2008). If the educational system is to change dramatically in order to accomplish goals and to overcome barriers discussed earlier, nurse academics and faculty members must question many

traditional practices, such as rigid and highly sequential curricula, traditional teaching and learning approaches and teacher-centered practices (Levin & Feldman, 2006a; Brown et al., 2010; McCurry & Martins, 2010). In fact, faculty members must be skilled in two areas such as helping their students learn how to engage effectively in evidence-based nursing practice, and developing and using evidence for their own teaching practices (Dawley, Bloch, Suplee, McKeever & Scherzer, 2011; Stichler et al., 2011; Levin & Feldman, 2013).

Creating a culture within nurse education that supports EBP across both educational and clinical settings relies heavily on nurse academics and clinical educators contributing to this effort (McCurry & Martins, 2010). Nurse academics play a crucial role in educating future nurses in EBP concepts and practices. They have the capacity to achieve desired learning outcomes, develop EBP clinicians and shape future generations through role modelling (Levin & Feldman, 2006a; 2013). Therefore, academics' preparation prior to developing EBP curricula is fundamental. Only when academics are confident and competent with their EBP competencies, can they incorporate it into their teaching and support students' learning (Fineout-Overholt, 2013; Levin & Feldman, 2013). However, there is a paucity of literature examining academics' preparation and engagement with EBP globally.

All faculty members must employ a critical mind and questioning spirit as they design curricula, evaluation methods, clinical learning experiences for students, and develop collaborative initiatives with colleagues in the clinical setting (Levin & Feldman, 2006a; Moch et al., 2010). Faculty who are preparing a future workforce are particularly challenged because graduates will play leadership roles in future in supporting organisational change based on EBP. Therefore, it is paramount that EBP is embedded in teaching practices of academics and integrated across undergraduate curricula (Christie et al., 2012; Fineout-Overholt, 2013).

An essential aspect for making a successful paradigm shift from traditional to EBP integrated curricula is securing the commitment and engaging academics with EBP who were

largely prepared in a traditional research paradigm (Levin & Feldman, 2006a). A study by Al Hadid and Al Barmawi (2012) exploring factors influencing adoption of evidence-based principles in nurse education in Jordon, reported that many of the educator participants were prepared to be researchers and had expertise in their area of study. However, their focus was very limited in transferring elements of EBP into their teaching courses. Another study exploring knowledge, beliefs and teaching strategies of EBP among educators in nursing institutions in Nigeria, concluded that a majority of participants claimed to have knowledge of EBP, however they lacked knowledge regarding the EBP process, and teaching methods promoting EBP in clinical practice (Enuku & Adeyemo, 2014). While results from the above studies may be applicable, a relatively small sample size should be taken into consideration when interpreting the results.

Conversely, a larger study by Stichler et al. (2011) explored the knowledge, attitudes and perceived barriers to teaching EBP among nursing faculty at two schools of nursing with baccalaureate and masters level programs in south-western USA indicated that masters prepared faculty scored higher in the practice of EBP compared to doctorally prepared academics. Overall, their attitudes towards EBP were much more positive than their competencies in EBP. One major finding of the study was that existing research knowledge and skills did not necessarily translate into competencies in EBP. Results from Melnyk et al.'s (2008) study demonstrated a close link between understanding of EBP, valuing EBP and confidence in its teaching from a descriptive survey with 79 nurse practitioner educators from the USA. Participants demonstrated strong beliefs towards inclusion of EBP into curricula, however highlighted knowledge gaps in EBP teaching strategies.

Understanding academics' knowledge, attitudes and practice of teaching EBP is a critical step towards successfully transforming nursing schools' cultures. While exploring barriers towards the use of EBP among academics in a South African university, McInerney

and Suleman (2010) reported that academics who were healthcare practitioners, faced a number of barriers such as lack of knowledge, lack of access to research findings, limited experience in teaching, and inadequate time to infuse EBP in their teaching practices. Academics further highlighted that integrating EBP into their teaching imposed heavy demands on their workload and on already full curricula. Though this study highlighted some important results for consideration, it was a pilot study with only 23 among 400 academics responded. The data obtained from this sample might be skewed by a response from those who were passionate about EBP.

Introducing EBP to students as a core concept of nursing has potential to prepare students for upcoming care-related challenges (Emerson & Records, 2008). Findings from a benchmarking project focusing on embedding EBP in a new curriculum in an Australian university further confirmed that the vision and support offered by school leadership, along with expertise of faculty members influence the development of a culture that supports a move towards EBP among academics and students (Chaboyer et al., 2004). The above studies strongly recommend offering continuing education courses in EBP for educators as knowledge on EBP is highly related to their teaching practices, as well as provision of resources, support, and accessibility to mentors as possible strategies to overcome knowledge-skill gaps among academics (Kalb, O'Conner-Von, Brockway, Rierson & Sendelbach, 2015). However, conclusions cannot be drawn in light of limited studies. There is a need to explore nurse academics' understanding and engagement with EBP, in particular factors promoting their preparation, and engagement with EBP in the Australian context. To be successful in integrating EBP into undergraduate curricula, future studies must explore the enabling factors and barriers encountered by nurse academics in this process (Stichler et al., 2011).

Factors affecting EBP in the context of clinical practice have been widely explored. Yet, only a few studies have examined facilitators and barriers faced by faculty members when

attempting to include EBP in educational practices. A recent study using a qualitative descriptive design with 13 participants including seven educators, three full-time graduate students, two educators who were near completion of their graduate degrees and one member of national association of nurses in Medellin, Colombia, USA. The study outlined key facilitators and barriers experienced by informants of the study. Findings highlighted organisational barriers including heavy workload, lack of incentives for educators to engage in research, limited accessibility to nursing evidence and a gap between academic and clinical world as confounding barriers. Participants highlighted some significant gaps within academic curricula with regards to students' preparation for EBP. A focus on research process and its utilisation seemed to be the concepts taught, instead of evidence-based nursing and related knowledge and skills. Additionally, no clarity was given to educators as how to create evidence-based clinicians when there was lack of communication between academia and practice worlds. The study strongly recommended that EBP should be fully embedded beyond the boundaries of research classes, rather it must be integrated across academic and practice courses, which would require preparation by academics, clinical practitioners and leadership across both settings. This study results should be interpreted carefully as the findings were reflective of all participants' perceptions and could not be isolated to evaluate educators' perceptions specifically. Therefore, embedding EBP within nursing curricula is relatively new and in-depth understanding of how nurse academics facilitate this process presents an important area of nursing research (DeBruyn et al., 2014).

2.4.2   Embedding EBP in undergraduate education: Is there a gap?

The ability to access research and translate it into practice is increasingly essential to nursing, in an environment that demands care that is current, competent and cost effective (Holland &

Rees, 2010). During the last few decades, nurse education in the global context has shifted from vocational training to undergraduate degree programs, preparing nurses to meet challenges of current healthcare (Rudman, Gustavsson, Ehrenberg, Boström, & Wallin, 2012). This shift has resulted in inclusion of research and EBP courses (Halcomb & Peters, 2009), capstone projects (Brancato, 2006), theses in undergraduate degrees (André et al., 2016) and active learning approaches (Johnson et al., 2010). In line with educational reforms, nurses are expected to use their learnt research skills in their professional practice and influence patient outcomes. However, it appears from global studies that research content within degree programs is not well integrated across courses, particularly in the clinical aspect of the program (Florin, Ehrenberg, Wallin & Gustavsson, 2012; Hung et al., 2015). Thus, shortcomings in nurse education, along with barriers present in clinical settings, significantly contribute to the poor EBP preparation of graduating nurses (Rudman et al., 2012).

Global studies exploring research education in undergraduate programs (Halabi & Hamdan-Mansour, 2010; Brooke et al., 2015) have reported that these courses often failed to convey the relevance of research to clinical practice, aiming for graduates to be evidence-generators rather than evidence-users. As a result, students often find undergraduate research courses boring, distracting them from being their primary role as nurses and do not create visible theory-practice links for students (Halcomb & Peters, 2009; McCurry & Martins, 2010). Therefore, nurse academics are positioned to change the way research courses have been structured (Levin & Feldman, 2006a; Halcomb & Peters, 2009) and design courses within an EBP paradigm emphasising preparation of students to be active evidence-users (McCurry & Martins, 2010; Hagler et al., 2012).

Educators must generate enthusiasm towards EBP to help diminish commonly found negative attitudes many nurses have about research. Yousefi-Nooraie, Rashidian, Keating and Schonstein (2007) conducted a Delphi study, surveying EBP experts across developing and

developed countries. Participants were asked to rate the importance of teaching EBP listed topics in the introductory and advanced courses. Study participants recommended that early EBP education should include development of clinical questions, literature searching skills and basic information on critical appraisal. In-depth information on levels of evidence and how to critically appraise could be provided later. However, Nadelson and Nadelson (2014) argued that teaching critical appraisal skills is essential to undergraduate students as this is an important step in the EBP process. Meeker, Jones and Flanagan (2008) suggested that undergraduate programs currently emphasising how to do research over how to use research, needs significant curricula revision.

Lack of consistency exists between undergraduate programs regarding what content should be included in EBP courses and at what level the essential skills need to be introduced. Additionally, only limited studies have explored effectiveness of EBP courses within undergraduate programs, and therefore this requires further exploration. Ciliska (2006) cautioned that educators sometimes shift content from research courses to EBP courses without realising the conceptual differences. She acknowledged that educational studies on EBP teaching were in their infancy and suggested faculty development in EBP to ensure that teachers have the skills to incorporate EBP concepts in clinical and classroom teaching.

A study investigating EBP education in 21 undergraduate programs across Taiwan reported that 50% of schools offered independent EBP courses, 50% had incorporated it into other courses and the remaining offered both. However, less than 35% of schools had integrated teaching materials and had mechanisms available to evaluate students' learning outcomes. Although, numbers had provided an idea to some extent whether EBP was integrated, researchers did not explore how the nursing schools had systematically embedded EBP into curricula and collaborated with hospitals for its clinical application. Shortage of trained faculty in EBP and challenges with clinical teaching of EBP were reported as key obstacles. The

researchers strongly recommended continuing education for teaching staff and systematic curricula with interactive pedagogies linking with clinical courses (Hung et al., 2015). While determining effectiveness of EBP courses across 50 graduate schools in the USA, Zelenikova, Beach, Ren, Wolff and Sherwood (2014) found overall perceptions were associated with support being provided by the school for teaching EBP courses, EBP being included in the school's philosophy and mission, concepts being thoroughly integrated across courses, students being given opportunities to apply skills clinically, and adequacy of teachers' knowledge in EBP teaching. The study found lack of teacher competency, limited use of evaluation methods relevant to information literacy skills, and inadequate mentoring opportunities for faculty in designing EBP courses as concerning issues. The main limitation of the study was a non-Randomised sample of faculty across 50 nursing schools. However, the effectiveness of EBP courses in nursing is not often a subject of discussion, therefore future researchers could further build on this study.

An essential question every academic who undertakes teaching EBP should be asking is: Does the philosophy and mission of my organisation support EBP? The foremost step toward building a fully integrated curriculum is to obtain buy-in and support from all levels of the organisation including colleagues and leadership (Zelenikova et al., 2014). This also determines how ready an academic institution is, and the commitment among educators and leaders for school-wide integration. One way to ensure whether educators are committed is to observe their teaching practices, and how actively they are involved in research and EBP initiatives which will identify the needs for continuing education and resources they require to begin a program of teaching EBP (Melnyk & Fineout-Overholt, 2011).

Common barriers to EBP education reported in the literature concur with previously mentioned studies highlighting insufficient resources, shortage of trained EBP teachers, confusion over approaches to EBP education, focus on evidence development over evidence

application, inexperienced faculty members in curricula design and delivery, and the use of didactic approaches in teaching EBP (Melnyk et al., 2008; Al Hadid & Al Barmawi, 2012; Hussein & Hussein, 2014). However, there is a paucity of studies in the Australian context exploring how undergraduate programs have integrated EBP across curricula and what challenges academics face when considering embedding EBP concepts into curricula. Although most published studies report EBP inclusion in a couple or a few subjects, the benefits of a fully integrated curriculum on students' capabilities, beliefs and practice of EBP were reported in a systematic review of 23 studies, finding that stand-alone classroom teaching of EBP or critical appraisal skills courses improved knowledge, but clinically integrated teaching also improved skills, attitudes and behaviours (Coomarasamy & Khan, 2004). Finding empirical evidence is enhanced when the skills needed to effectively access and search the literature are introduced early in the program and are integrated into each nursing course (Levin & Feldman, 2013).

The University of Pittsburgh School of Nursing in the USA introduced EBP into its freshman level undergraduate nursing curriculum in 2004-2005. Early in the curriculum, the concept and process of EBP were integrated into two units titled "nursing freshman seminar" and "introduction to professional nursing". Students were evaluated on their knowledge of EBP and use of EBP, which showed success in the students' abilities to learn the skills when EBP concepts were introduced early in the curriculum (Burns & Foley, 2005). On the contrary, Schmidt (2008) suggested the addition of a course devoted entirely to EBP with linking to the clinical practicum would be particularly beneficial. Students could be expected to formulate a clinical question and find evidence to answer it during clinical experience and later when they reflected on their practice. Adding objectives that require students to demonstrate EBP in the clinical setting would not require any major curricular changes and may provide an effective way to introduce students to embrace EBP (Schmidt, 2008).

Literature suggests that in an academic setting where a series of courses is required, it is imperative that all courses reflect integration of EBP principles (Moch et al., 2010). Moch et al. (2010) reviewed the literature addressing evidence-based practice pedagogy across the curriculum, reporting that most of the articles focused on how to foster critical thinking skills generally and how to impart knowledge on EBP procedures specifically. Having only a core course providing learners with EBP content without application to other areas reinforces disconnection that often exists between theory and practice (Moch et al., 2010). Establishing relevant links between EBP initiatives and patient outcomes is a starting point for evaluating educational programs that teach EBP (Fineout-Overholt, 2013).

To develop effective strategies for incorporating EBP into the curriculum, it is necessary to evaluate students' knowledge, attitudes and current use of EBP. Furthermore, understanding the factors that predict these domains may be beneficial in developing effective EBP teaching strategies (Brown et al. 2010). Brown et al. (2010) investigated undergraduate students' knowledge, attitudes and future use of EBP at two universities in Southern California, USA. They stated that EBP knowledge, attitudes and future use demonstrated statistically significant increases in mean scores with advancing academic levels. Furthermore, they found moderate positive correlation between confidence in clinical decision-making and EBP use. Multiple regression analysis revealed clinical preparedness and confidence in clinical decision-making were significant predictor variables for EBP use. They concluded that clinically well prepared students with high confidence in clinical decision-making were most likely to use EBP in the present and future. Therefore, along with theoretical knowledge, clinical preparation of students in the EBP paradigm is imperative. However, results of a study by Brooke et al. (2015) in the UK showed limited preparation of undergraduate students, as students perceived EBP and research concepts as difficult to understand and challenging to implement when clinical nurses neither involved nor mentored students during clinical placements.

Fostering an EBP culture in nursing is essential to delivering cost-effective healthcare (Cleary-Holdforth & Leufer, 2008). Implementing evidence into practice is a complex process that involves an array of organisational, social and professional barriers. Yet, it is necessary to enable students to acquire the knowledge and skills needed to find and interpret research and to provide them with further support as they adopt new attitudes and skills in the workplace (Graue, Bjarky, Iversen, Hausstvedt & Harris, 2010). The available literature highlights some discrepancies in regards to the ways undergraduate programs have incorporated EBP into their curricula. There is ambiguity in defining EBP concepts, and often the concepts are merged with the research process (Burns & Foley, 2005; Finotto et al., 2013). In addition, the year level when EBP training should be initiated creates further confusion among academics (Florin et al., 2012). As a result, educators often continue to offer traditional nursing research courses using didactic teaching methods (Levin & Feldman, 2006b).

In the current education system, nurse educators strive to maintain quality teaching in light of increasing numbers of students, declining numbers of experienced faculty, heavy workloads, and rapid changes in healthcare (Brady, 2010). The scholarship underlying evidence-based education must continue to be explored through the design, testing and refinement of educational strategies from nursing and other disciplines (Emerson & Records, 2008). Implementing teaching strategies that enhance nursing students' critical thinking skills and understanding of EBP principles are needed to explore and evaluate further, particularly in the Australian context. Lack of studies in EBP prompts questioning in relation to the challenges faced in this process. There are Australian studies published examining research education in undergraduate curricula (Halcomb & Peters, 2009; Leach, Hofmeyer & Bobridge, 2016), yet integration of EBP in undergraduate programs remains an area of crucial investigation, which the current study aimed to explore.

To equip undergraduate nursing students with EBP competencies, and foster positive attitudes toward EBP, a pilot learning program during undergraduate nursing students' clinical practicum was developed in a teaching hospital in China. Self-directed learning and workshop strategies were used as key methodologies. Quasi-experimental design with pre and post-intervention survey was conducted to evaluate the effectiveness of the program. Findings showed significant improvement in participants' perceptions of EBP knowledge, attitudes, beliefs and behaviours. Participants demonstrated positive attitudes and found the program helpful in acquisition of basic knowledge and skills to adopt EBP, however reported it to be less practically focused and did not prepare students to advance EBP in clinical practice (Zhang et al., 2012). Therefore, global researchers have strongly recommended undergraduate nursing courses are in need of careful evaluation to determine if clinicians are being prepared to practise based on the best available evidence (Heye & Stevens, 2009; Finotto et al., 2013).

Traditional methods of imparting EBP knowledge and evaluation methods focus primarily on assessing knowledge retention, and therefore do not provide enough scope to evaluate integration and application of EBP principles in students' and clinicians' practices (Shaneyefelt et al., 2006). Educators must consider what evaluation methods are effective in assessing how clinical decisions are made, with particular emphasis on clinicians' integration of evidence in combination with their expertise and patients' preferences (Heye & Stevens, 2009). To prepare graduating students with essential competencies with EBP, the teaching of EBP has to be effective. Though there are systematic reviews and meta-analyses available evaluating teaching outcomes and teaching methods in medicine (Young, Rohwer, Volmink, & Clarke, 2014), there is a scarcity of literature located in nurse education. This could be attributed to the fact that few nurse education programs have yet to formally include EBP, and there is a possibility that the program development and evaluation are either not generated or not yet published (Geum Oh et al., 2010; Johnson et al., 2010).

The overarching goal of degree programs is to develop capabilities of students as lifelong learners and inculcate inspiration to deliver evidence-based care. Therefore, students rely on degree programs to get exposure to the evidence-based process and concepts through an integrated curricula. Academic programs and educators have accountabilities for a paradigm shift from isolated research courses to integrated approaches across courses. However, it is not clear how undergraduate education across Australian universities achieves these goals, as Waters et al. (2009b) confirmed that specific research in EBP education is lacking and requires further attention.

2.4.3 Pedagogical approaches to incorporate EBP

An integrated literature review on undergraduate nursing students' attitudes, and use of research and EBP including nine studies, confirmed that an ongoing notion of failure to link research to practice prevails among students. Nursing students who participated in the included studies reportedly displayed little interest in research use and identified the theory-practice gap as a factor influencing their use of research in practice (Ryan, 2016). Students also mentioned problems with teaching methods such as online learning, large class sizes, didactic approach to teaching, and unrealistic expectations from lecturers associated with research courses (Halcomb & Peters, 2009; Johnson et al., 2010; McCurry & Martins, 2010). In order to create positive perceptions of research and EBP, teaching must incorporate creative and interactive strategies that make it relevant to clinical practice (Geum Oh et al., 2010; Kumar, Perraton & Machotka, 2010; Dawley et al., 2011).

Effective, engaging and experiential pedagogies may address the challenge of teaching EBP in the context of public demand for quality improvement, complex care delivery systems, accreditation requirements and technical skills required to retrieve relevant information

(Winters & Echeverri, 2012). Examples of such pedagogies outlined in the literature include lectures, tutorials, small group work, clinical placement projects, clinical conferences, EBP rounds, online learning and simulation (Badger, Daly & Clifford, 2012; Bloom, Olinzock, Radjenovic & Trice, 2013; Levin & Feldman, 2013; Phillips & Cullen, 2014). Advancement of EBP in nursing is perceived as a challenge. Numerous educationalists have suggested strategies to meet the challenges of successful EBP education, however recognising that teaching EBP is different from teaching other traditional topics is a fundamental step, aiming to prepare nurses as consumers of evidence (Levin & Feldman, 2006a; Varnell, Hass, Duke & Hudson, 2008).

In an attempt to address the objective of preparing students for EBP, Dawley et al. (2011) incorporated a "learning by design" pedagogical approach in an undergraduate women's health clinical course for students enrolled in the baccalaureate nursing program in a northeast USA academic institution. An assignment was created that required students to keep a journal of questions they identified from their clinical practicum. Following on, students were expected to access and search scholarly literature to see if there was sufficient published evidence to answer their questions. The assignment provided insight into the students' abilities to engage with the initial steps of EBP. However, it is argued by Finotto et al. (2013) that this approach may not adequately prepare students to implement evidence into clinical practice.

Conversely, McCurry and Martins (2010) attempted to include clinical elements into their EBP teaching by developing innovative strategies involving worksheets for collaborative learning, presentations by clinical experts, joint assignments with the requisite clinical course, poster and oral research presentations, research grand rounds and journal club activities. The quantitative results of these innovative approaches were reported to be significant, and students appeared to be engaged and were able to articulate research into practice.

In response to the curriculum evolution in nurse education, blended teaching and learning approaches are gaining popularity among nursing faculty in degree programs. In particular, many degree programs deliver EBP and research content either through online or using blended approaches (Johnson et al., 2010). Weaver, Warren and Delaney (2005) introduced an online simulated e-health delivery systems (SEEDS) as a pedagogy to teach EBP and clinical informatics (content and process) at the University of Kansas School of Nursing, USA. SEEDS technology used a live electronic health record system and educational references databases, was embedded directly into the curriculum within classroom, skills laboratory and clinical practicum. Teaching staff employed the SEEDS system to teach content for disease pathophysiology, health assessments and development of care plans using patient case studies. Evidence-based practice content was included as reference information for students to select based on the plan of care. This approach provided students with hands-on experiences in development of skills and implementation exposure when they were asked to assess simulated patients and develop care plans using the SEEDS system.

Similarly, Kumar et al. (2010) reported use of an online hybrid/ blended delivery model for teaching EBP within physiotherapy courses that resulted in increasing overall student satisfaction rating from zero to 62.07%. Students expressed higher levels of satisfaction with the blended approach than traditional teaching approaches (Kumar et al., 2010). Providing diversity in teaching assists in engaging students, and this also allows deeper level learning and complements classroom teaching. Nevertheless, Johnson et al. (2010), and Bradshaw and Lowenstein (2011) outlined issues, for instance lack of competency in IT literacy among both teaching staff and students, technical issues, and lack of motivation in shifting from face-to-face contact to blended delivery. In view of the above findings, the challenge with EBP and research education cannot be addressed with the introduction of interactive teaching

approaches, but these approaches need to be carefully evaluated to determine practice-based outcomes particularly with the growing trend of online teaching methods.

It appears that university courses prepare students with the initial steps of EBP, yet clinical implementation and evaluation of outcomes are less focused. The nature of EBP implementation requires linking objectives with clinical courses and engaging students with real clinical situations. There are examples cited in the literature where collaborative strategies between universities and clinical settings were initiated to enhance EBP teaching. Kruszewski, Brough and Killeen, (2009) reported findings from a shared clinical project between a college and clinical agency developed for two courses, 'evidence-based practice' and 'acute care of patients and families across the lifespan', for accelerated second-degree baccalaureate students at Michigan State University, USA. The entire content was delivered through a blended approach in which the essential steps of EBP were of focus. The educators applied EBP concepts by identifying a clinical problem as a requisite of a clinical component of a course. Students worked in groups, implemented all of the EBP steps, designed practice protocols and presented their work to staff and colleagues in the form of posters.

It was claimed by Singleton and Levin (2008) that when students were provided with avenues to work along with clinical staff, it resulted in the adoption of evidence-based approaches to clinical decision-making. This paradigm envisions students not merely as recipients of education in EBP, but also as active enablers who can promote EBP within clinical settings by involvement in projects (Missal, Schafer, Halm & Schaffer, 2010). Missal et al. (2010) developed a partnership model between a university and healthcare settings to integrate research knowledge by involving students and clinical staff in collaborative projects. Ruskjer (2010) also reported a project designed for engaging final year baccalaureate nursing students to apply EBP into practice, which resulted in overwhelmingly positive results with EBP implementation. Findings from the above studies suggest involving students in collaborative

projects led to increased levels of confidence among students with the EBP application. Additionally, these approaches provided students with valuable opportunities to contribute towards practice recommendations.

However, the evidence from many studies indicates that students face difficulties in applying EBP principles in practice settings. Many factors have been identified including clinical staff being not adequately prepared (Brooke et al., 2015), students not being mentored by clinical staff (Smith-Strøm, Oterhals, Rustad, & Larsen, 2012), and academics encountered challenges when they attempted to embed EBP concepts into clinical practicum due to barriers existing in the clinical settings (de Cordova et al., 2008; Graue et al., 2010). This was further supported by Florin et al. (2012) who reported that university education supported students to a larger extent than clinical education in using research findings and acquiring knowledge about EBP. However, differences between universities were reported in relation to teaching EBP and support offered to students. Study findings recommended curricula revision and effective pedagogical approaches, along with ensuring support from clinical organisations.

Nurse education has traditionally included learning within practice settings through clinical experiences. However, in view of challenges encountered by educators and students when clinical staff were ill-prepared (Smith-Strøm et al., 2012), there was a need for future interventions targeted towards strengthening frontline nurses' beliefs and use of EBP (Llausus, Angosta & Clark, 2014). Constant effort by academic settings and clinical organisations in creating ways for students and staff to interact meaningfully may overcome some of the barriers to the EBP adoption addressed earlier. Building academic-clinical partnerships is a way to assist nursing students and clinical staff in appreciating and understanding EBP (Smith-Strøm et al., 2012).

A small, but growing, number of nursing educators have begun to re-envision the academic-practice partnership as a means through which students and practising nurses

collaboratively learn to integrate EBP principles into practice change (Stone & Rowles, 2007; Moch, Cronje, Branson, Crowley, Brandt & Bonnel, 2008). In such partnerships students emerge as enablers of EBP and as a result, nursing staff learn EBP with students. Moch and Cronje (2010) proposed an integrated model titled "the student-enabled practice change curricular model" at the University of Wisconsin-Eau Claire, USA, for an undergraduate nursing curriculum. This model was utilised to systematically evaluate the potential of such partnerships to promote EBP among both students and staff nurses. The model empowered nursing students to partner with practising nurses to obtain evidence to inform practice and also facilitate learning about EBP across both academic and practice settings. Through action research methodology, the authors monitored, evaluated and reported success in EBP adoption. However, the researchers did not highlight any challenges faced, nor lessons learnt during the curriculum design and implementation. Placing students with clinicians along with classroom learning adds a level of realism and enhances student motivation as reported by Scott, Altenburger and Kean (2011) when incorporating evidence-based clinical decision-making strategies in entry level occupational and physical therapy programs. Though there are reported benefits of engaging students in collaborative EBP projects in nursing and allied health (Scott et al., 2011), it is worth exploring further if this is consistent practice across the globe.

Integrating technology into curricula is imperative to the development of students' information literacy skills. These skills enable students to effectively and efficiently access resources in order to search for, review and implement the best evidence to answer clinical questions (Williamson, Fineout-Overholt, Kent, Hutchinson, 2011). When students find difficulty in formulating questions, subsequently this compromises their skills of finding and appraising literature (Heye & Stevens, 2009; Florin et al., 2012). Many degree programs place heavy emphasis on acquiring literature review and critical appraisal skills and continue to focus on assessing these skills as reported in an integrative review (Saunders & Vehviläinen-

Julkunen, 2016). However, the researchers argued that undergraduate degrees should prepare nurses to enable practice change based on evidence, rather than merely focusing on their technical research skills. Findings from a systematic review further confirm that although considerable efforts are directed towards teaching information literacy skills and research topics, students often fail to connect theoretical learning tasks for their future practice (Aglen, 2016). Students need to be insightful into knowledge transfer related to clinical problems which need to be prioritised when teaching EBP. Misalignment between what students are taught in undergraduate programs and what they will be needing to advance their EBP presents a persistent gap.

While reviewing the associate degree nursing curriculum at Mississippi University, USA, Larmon and Varner (2011) incorporated use of article critiques, literature reviews, and group presentations to integrate both EBP and needed technical skills. They claimed that the skill-set prepared students for EBP application to their clinical practice. However, they did not evaluate the effectiveness and outcomes of these activities on students' clinical decision-making skills. In contrast, Lienhard School of Nursing Pace University, USA, academics assigned students to critically appraise clinical practice guidelines and apply them within an evidence-based context for practice. They found this strategy was a great stimulus for students to learn critical appraisal skills with a practical application (Singleton & Levin, 2008). A partnership model was created between Bethal University Oregon, USA and a healthcare organisation for teaching graduate students nursing research from an evidence-based framework. Nurses from partnering hospitals identified topics for graduate students to search relevant literature and synthesise the evidence. Following on, nurse educators mentored students in conducting critical appraisal of the literature, and students were expected to translate their findings into practice recommendations (Missal et al., 2010).

Other reported strategies of teaching and incorporating EBP comprise educational prescription on EBP process, writing one page summaries of evidence as critically appraised summaries (CAS), oral synopses of summaries/ projects (Schmidt 2008), innovation-decision process teaching strategy (I-DPTS) in which students were placed in a small group to simulate being a member of an EBP team and presented with clinical problems by local health care agencies (Schmidt & Brown, 2007) were found to be effective. Additionally, Fineout-Overholt, Stillwell, and Kent (2008) recognised problem-based learning to teach EBP, promoting inquiry, critical thinking and clinical reasoning skills. An active learning experience based on real patient scenario was also used to provide students with experience with the EBP process, in particular decision-making skills (Wonder & Otte, 2015).

A variety of active teaching approaches can be used to prepare nursing students with essential EBP competencies. Role modelling and integrating the concepts into teaching practices come from academics who translate these through their teaching. An outcome of integrating EBP principles as part of a teaching program should focus on creation of a contemporary health care practitioner who embraces life-long learning principles, possesses skills in accessing and evaluating research, and who recognises the integral role of EBP in care delivery (Kumar et al., 2010). Changes within the healthcare delivery system, shifting population demographics and scientific advances require the nursing profession to re-evaluate the ways future practitioners are prepared. Making a difference in healthcare requires commitment from educators to prepare future practice innovators and evidence-based practice clinicians. From the available literature, it is known that solutions to the difficulties of teaching research and EBP are not straightforward and require careful implementation of pedagogical approaches, along with well-aligned content and delivery to prepare contemporary nurses as evidence-based clinicians.

There are several pedagogical approaches for teaching EBP concepts reported in the literature, however their effectiveness and whether they prepare students to be evidence-based clinicians still need to be determined (Schmidt, 2008). Most reported pedagogies were introduced either into a theoretical unit covering EBP teaching objectives or to a clinical course incorporating EBP concepts. In addition, some pedagogies were not explained in detail, for instance, outcomes achieved, year level of students when these strategies were introduced and challenges faced by academics in implementing those in courses. Therefore, there is a need to develop research-based pedagogies influencing students' knowledge and application of EBP. Further educational research that builds upon existing knowledge and provides comprehensive evidence is needed to make the changes necessary for curricula underpinned by EBP (Moch et al., 2010). Information about the strategies and how they could be integrated across curricula are limited, particularly in the Australian context. Most of the discussed pedagogies were reported from studies conducted in the USA, Sweden, the UK and elsewhere.

To seek an understanding of how Australian undergraduate programs incorporated teaching of EBP concepts and its integration into courses, an analysis of curriculum outlines of all Bachelor of Nursing (BN) programs was undertaken. Curriculum outlines of each BN program were accessed through publicly available websites. Each unit of study was reviewed in relation to units offered on research and EBP as combined or separate units. Integration of EBP across various units was also examined. The results from this analysis further highlighted a need for detailed investigation into academics' teaching practices and processes utilised when teaching and integrating EBP concepts, thus established a context for this study. The results from this curricula analysis have been published in the GTSF Journal of Nursing and Healthcare under the title "*An Analysis of evidence-based curriculum integration in Australian undergraduate nursing programs*".

Paper 1: Curriculum Analysis

Malik, G., McKenna, L., & Griffiths, D. (2015). An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. *GSTF Journal of Nursing and Health Care*, 3(1), 158-164.

Paper 1: Curriculum Analysis

An Analysis of Evidence-Based Practice Curriculum Integration in Australian Undergraduate Nursing Programs

Gulzar Malik, Lisa McKenna, and Debra Griffiths

Abstract— Evidence-based practice (EBP) remains a relatively new concept to nursing, creating many challenges in relation to curriculum evaluation. Most of the available literature on EBP focuses to a great extent on clinical practice. There is limited literature available addressing the incorporation of EBP into nursing curricula, particularly at the undergraduate level. Existing literature highlights discrepancies in how EBP is implemented into nursing curricula, and reveals ambiguity in defining the concepts of EBP, appropriate place in the course in which to initiate EBP skills training, and in merging EBP with the research process. In the Australian context and internationally, EBP is variably addressed within undergraduate nursing education.

Aim: This paper reports findings of an analysis of curriculum outlines from tertiary education providers exploring how EBP is incorporated into Bachelor of Nursing (BN) programs in Australia.

Method: Curriculum outlines of BN programs were extracted through public websites. Each subject or unit of study was analysed in relation to units offered which addressed research and EBP, either in isolation or combined. Content analysis informed by Chambers and Chiang (2012) was performed to analyse the data.

Results: In Australia, 32 universities and three colleges offer BN programs. Results revealed that of these, three did not appear to offer specific units related to research or EBP. Twenty five combined units on research and EBP with major emphasis on research concepts and methodologies. In addition, 30 education providers integrated EBP related objectives throughout their curricula ranging between one to twelve units of study. Variations among institutions were found in terms of years and semesters in which research and EBP units were introduced.

Implications: It is paramount that EBP is considered an integral part of curricula and be embedded in all units of study.

Keywords- *Evidence-based practice; nursing curricula; undergraduate curricula: research: EBP integration*

I. INTRODUCTION

Evidence-based practice (EBP) has become recognised as the gold standard of care delivery, prompting health care organisations to invest infrastructure for its implementation. Recently, there has been an explosion of knowledge and evidence to guide clinical practice, however studies suggest implementation of evidence-based care by health professionals is typically very slow across the globe [1], [2], [3], [4]. Multiple factors reportedly contribute to slow paradigm shift, particularly in nursing including lack of time, poor knowledge and skills, lack of mentorship and administrative support, limited resources within organisations and rigid organisational culture [5], [6].

Integrating EBP into undergraduate nursing education and preparing future nurses to embrace EBP into clinical practice becomes paramount in today's complex and evolving healthcare environment [7]. The role that EBP plays in the practical lives of nursing students will depend on the degree to which it is promoted by academics, the extent to which it is incorporated in course objectives, content, assessments and its application to the clinical setting [8].

The literature highlights issues that need further discussion, such as how academics can ensure the curriculum embeds principles of EBP, and challenges for nurse educators and nursing students towards EBP engagement [9], [10]. There is limited literature available addressing incorporation of EBP into nursing curricula, particularly at undergraduate level [9], [11].There is also a lack of clarity about EBP content and process; frequently it is blurred with the research process and outcomes. This often results in continuance of traditional nursing research courses in the hope of preparing EBP practitioners [12].

Ambiguity also exists in relation to the appropriate year in which the EBP knowledge and skills should be initiated [9]. Available literature highlights that some nursing schools implement EBP skills in the first year of the undergraduate course as a standalone activity, few apply it in clinical rotations and some introduce the concept and application in the final year [13], [14].

The Australian Safety and Quality Framework for HealthCare mandates "a vision for safe and high-quality care for all Australians" and stipulates three core principles of care comprising 'consumer centred', 'driven by information' and 'organised for safety'. In order to comply with acceptable standards, health professionals are constantly required to be using up-to-date knowledge and evidence to guide their decisions, hence improving patient care experiences [15]. In response to achieving the mandate for safe, person centred and evidence-based care, the Australian Nursing and Midwifery Accreditation Council (ANMAC)[16] recently revised accreditation standards for undergraduate programs in Australia. Within the revised standards, education providers offering BN program must ensure program content addresses research appreciation and translation. In addition, research and evidence-based inquiry principles should be equally embedded in program content and delivery.

It is expected that in reference to the ANMAC accreditation standards, all undergraduate education providers incorporate research and EBP concepts in program content and delivery. To date, limited evidence is available addressing EBP in nursing education across Australian universities. This may be a result of the fact that few nursing education programs have yet to formally include EBP in their curriculum, and evaluation is either not generated or has not yet been published. Therefore, the current analysis seeks to provide insight into how EBP has been addressed into undergraduate nursing curricula within higher education in Australia.

II. METHOD

The paper focuses on findings from an analysis of curriculum outlines of Bachelor of Nursing (BN) programs offered by tertiary education institutions in Australia. Curriculum outlines of BN programs were extracted through education providers' publically available websites. Each unit of study was reviewed in relation to units offered on research and EBP as combined or separate units. The review also explored integration of EBP into various units of study within the undergraduate program.

Text analysis required an approach which condensed the larger text into a small amount of data defused into codes and categories; thus provide the context to the findings. In the literature, content analysis is referred to "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" [17: 18]. In qualitative research, content analysis usually involves a process of labelling, organising and interpreting data into a set of codes, concepts, themes or categories [17]. An inductive approach of content analysis informed by Chambers and Chiang [18] was executed to analyse data. Curriculum outlines were collected and organised into a text. In order to place the content appropriately, the text was further organised into themes such as units on research, units on EBP, EBP integration into curricula, and EBP/ Research unit placement. Content analysis was accomplished through use of coding and categories to produce meaningful concepts. Codes were developed by reading each sentence of unit descriptors and headings were written in the margin to describe all aspects of the content. The codes were collected into the coding sheet and categories were inductively generated at this stage.

The aim of categorising is to organise and to reduce the number of concepts into manageable and meaningful concepts [19]. The emerging categories were compared for similarities, disparities and for belongingness which are presented as 'sub-categories' in the findings section. The sub-categories were further grouped under higher order 'categories.' In addition, frequencies of codes representing each category were also determined by identifying phrases and words appearing most frequently [18]. Trustworthiness of findings was achieved in two ways. The researcher coded the data a few times and found approximately the same result [20]. Secondly, dialogue between the co-researchers about the findings and the recognition of the findings indicated credibility and conformability.

III. FINDINGS

In Australia, 32 universities and three colleges offer BN programs. These programs prepare graduates to meet the standards required to register as registered nurses in accordance with the national competency standards for registered nurses. Findings are presented into themes comprised of units on research and EBP (Table 1), research unit learning outcomes (Table 2), EBP unit learning outcomes (Table 3), combined unit learning outcomes (Table 4), EBP integration into curricula (Table 5) and unit placement in the program (Table 6).

TABLE I: UNITS ON RESEARCH AND EBP

	No Units on EBP or Research	Unit on Research	Unit on EBP	Combine units on Research and EBP	EBP integration into various units of study
No of academic institutions (N=35)	03	06	02	25	30

From the above analysis, three (8.5%) education providers did not appear to include any units specifically related to research and EBP in their course content. Of these, six (17%) offered units on research and two (5.7%) offered a separate unit on EBP. In addition, 25 (71%) offered combined units outlining the objectives related to research methodologies and evidence-based practice in context of healthcare. Amongst all, 30 (85.7%) education providers had integrated EBP related objectives into their theoretical and clinical units of study.

TABLE II: RESEARCH UNIT LEARNING OUTCOMES

Ranking	Categories	Code-freq	%	Sub-categories
1	Research process	26	59.0	Steps in conducting research; ethics; dissemination of research; translation of research
2	Research designs and methodologies	09	20.4	Quant/ Qual research designs; statistics
3	Research significance	09	20.4	Research to practice

(Total codes=44)

Table II indicated that, amongst all education providers six (17%) appeared to offer separate units on research focusing on the significance of research to practice, process of conducting research, research designs, data collection methods, ethical issues, and critique of research studies. In addition, basic descriptive and inferential statistics were covered from clinicians' perspectives.

TABLE III: EBP UNIT LEARNING OUTCOMES

Ranking	Categories	Code-freq	%	Sub-categories
1	Evidence informing practice	06	50.0	Use of evidence in practice; relationship between evidence and practice
2	EBP Process	06	50	Structured approach to question practice; seek evidence; critique published literature; change practice

(Total codes=12)

Results from table III revealed that amongst many, only two (5.7%) institutions offered stand-alone evidence-based practice units emphasising spirit of inquiry where students were encouraged to use structured approaches to question current practices. EBP processes and concepts were also explored in relation to evidence informing practice. This unit further invited students to critique published literature and evidence-based practice guidelines. Furthermore, students were expected to explore the relationship between research, evidence and practice in the context of health care.

TABLE IV: COMBINED UNIT LEARNING OUTCOMES

Ranking	Categories	Code-freq	%	Sub-categories
1	Research Process	56	45.9	Use of evidence in practice; relationship between evidence and practice
2	Research/ Evidence in healthcare	26	21.3	Structured approach to question practice; seek evidence; critique published literature; change practice
3	Research & EBP	20	16.3	Relationship between research and EBP; EBP concept and process; research principles; barriers and facilitators to EBP and research
4	EBP in Nursing	09	7.3	Application of EBP in nursing practice; EBP and patient safety
5	Knowledge Acquisition	06	4.9	Knowledge generation; forms of knowledge
6	Others	05	4.1	Communication skills; foundations of inquiry based learning

(Total codes=122)

Overall, 25 (71%) education providers appeared to offer combined units on research and EBP with major emphasis on research concepts and methodologies as presented in Table IV. Students were introduced to the research process, qualitative and quantitative research design, ethical issues around undertaking research, managing and analysing data, and application of research into practice and role of nurse as researcher. However, students were briefly familiarised with the concept of EBP, process and its application in nursing and health care. Of the 25, 10 (40%) had 'evidence' in the title, for example, evidence-based practice in nursing or 'evidence-informed health care'; six (24%) had research in the title such as 'research nursing'; five (20%) had both research and evidence in the title, e.g. 'research and evidence-based health' or 'health research and evidence based nursing care'. However, one (4%) provider had introduced research concepts, methodologies and evidence-based practice concepts through integration into the theoretical unit covering a range of topics such as health and diseases in population.

TABLE V: EBP INTEGRATION INTO CURRICULA LEARNING OUTCOMES

Ranking	Categories	Code-freq	%	Sub-categories
1	Evidence-based nursing practice	81	47.3	Provision of evidence-based nursing care; evidence-based nursing interventions; knowledge and skills in EBP
2	Evidence-informed practice	56	32.7	Apply and evaluate evidence; clinical decision making using evidence-based framework

3	Evidence-based approach to nursing process	15	8.7	Assess, plan, implement and evaluate care; care plan based on evidence; knowledge and skills in nursing process
4	Research contribution to healthcare	15	8.7	Research application to practice; significance of research

(Total codes=171)

In regards to EBP integration into the BN program curricula, above analysis showed that 30 (85.7%) education providers had embedded EBP throughout their curricula ranging between one to twelve units of study evidencing EBP themes and principles. Through integration into theoretical and clinical units, education providers aimed to facilitate students' understanding of knowledge and skills in evidence appreciation and translation into clinical process. Data analysis revealed that four providers had introduced content and process of EBP and database searching skills at first year level and continued to advance students' knowledge and skills through integration into a majority of their units of study. However, the remaining 29 education providers had incorporated EBP skills and knowledge in a few units of study.

With EBP integration into various units of study, academic institutions intended to prepare students in clinical decision making informed by up-to-date evidence. Students were provided with opportunities to find and evaluate relevant evidence from literature to support EBP during their theoretical assignments and clinical placements in a range of health care settings such as acute care, aged care, mental health and community health. Students were further encouraged to apply evidence-based approaches to nursing process within the context of acute and chronic illnesses. This further inculcates values, knowledge and skills required to inform their practice based on evidence as registered nurses.

TABLE VI: RESEARCH / EBP UNITS PLACEMENTS

Unit Placement (year, semester)	No of Institutions	%
1, 1	01	2.8
1, 2	12	34.2
2, 1	07	20
2, 2	07	20
3, 1	07	20
3, 2	01	2.8

Table VI highlighted variations among institutions in terms of years and semesters in which research and EBP units were introduced. Of the 35, 33 education providers appeared to offer research and EBP units between first year semester two and third year semester one of their programs of study. Analysis revealed that one provider appeared to offer an EBP unit in the first semester of the BN and a similar number seemed to offer it in the final semester of their program.

IV. DISCUSSION

This curricula analysis has outlined the extent to which EBP is integrated into undergraduate programs across the Australian higher education sector. Overall, the analysis revealed that pre-registration degree programs endeavor to prepare undergraduate students with knowledge and essential competencies in EBP either by offering stand-alone units on EBP or through integration into the program units. To date, no such analysis is presented in the literature exploring EBP into undergraduate programs of study in Australia.

Undergraduate students and nurses are required to adhere to national competency standards during their professional careers. These standards mandate the use of research and EBP, promoting quality outcomes in patient care [21]. Hence, it becomes essential for education providers to instill essential knowledge and competencies required by nurses to embrace EBP during clinical rotations and practice environments. The current analysis demonstrated that three BN degree providers in Australia did not appear to include specific units on research and EBP in their undergraduate curricula. Several studies have reported findings indicating nurses are insufficiently prepared to embrace EBP into practice settings and identified lack of educational preparation as a significant contributing factor [9], [22], [23]. Introducing EBP as a core concept of nursing becomes a framework which guides students' practice and prepares them for upcoming care related challenges. As newly graduated nurses are challenged with today's complex and ever-changing healthcare environments, grounding in research and EBP embedded programs ensure future leaders contribute towards safe and evidence-based health care [11].

The findings showed that a majority of BN curricula focused on exposing students to research methodologies, critique of research literature and role of nurses as researcher. It is uncommon that baccalaureate-prepared nurses have been successful in attracting research grants, yet undergraduate programs continue to focus on research and teach basic research methods and statistics; preparing students to be 'evidence-generators' rather than producing graduates who will be good 'research evidence-users' [24]. Undergraduate education ideally should make learners aware of the research process and its application to health care. It has been argued that teaching research methodologies and critiquing research papers inadequately prepare graduates to support evidence-based nursing care [25]. Application of research evidence informing clinical decision making in consideration of patient preferences,

available resources and the clinician's expertise should be desired outcomes.

Evidence-based practice specific content, process and relationships between research and EBP were introduced in two of the courses as stand-alone subjects. Being able to use research within EBP processes, requires skills development in formulating clinical questions, finding sources of evidence, critical appraisal of evidence, and application of findings into clinical practice (develop plans of care). This arguably, would not be achieved through one course, but with a fully integrated course across all years through theoretical and clinical subjects [22].Teaching EBP should not be restricted to a single isolated unit where students are exposed to EBP processes and content without any link to other theoretical and clinical units, perhaps a better approach is embedding it into the academic programs' overall curricula in such a fashion that it becomes part of the culture [24]. Learners should be exposed to the language of EBP in their everyday practice and not be considered merely an academic exercise but equally relevant to their clinical practice. Coomarasamy and Khan [26] in a systematic review of 23 studies, found that stand-alone classroom teaching of EBP or critical appraisal skills courses improved knowledge, but clinically integrated teaching enhanced skills, attitudes and behaviours among students.

Although EBP was integrated into various units ranging from one to 12 units of study, consideration must be devoted towards integration into the entire program as supported by literature [10], [27], [28]. Integration of EBP concepts and process across the whole curriculum will more likely produce nurses who can deliver evidence-based nursing care and this is the direction education providers should move towards [7]. Chaboyer et al. [29] reported findings from a benchmarking project in developing a new undergraduate nursing curriculum in one Australian university. The project focused on embedding evidence-based nursing (EBN) into the nursing curriculum and identifying innovative approaches. They found that the way in which a school/ academics promoted research as a fundamental educational objective influenced both staff and students' abilities to base their practice on evidence. A significant finding from this project highlighted that EBN was not merely a focus for the nursing program but there was overall support for its implementation. The philosophy and structure of a school can either help or hinder development of a culture that supports a move towards EBP.

Various academics have voiced difficulty in integrating EBP content into already fully loaded curricula [30]. If this is the case, consideration should be devoted towards modifying research courses. Brancato [12] reported positive outcomes from revising a BSN undergraduate curriculum and integrated EBP into a clinical practicum. The revision encouraged students to learn required knowledge and skills associated with use of EBP and develop confidence in incorporating EBP into their daily practices. Linking theory to practice where students were expected to demonstrate EBP in the clinical setting would not require major curricula changes. A study by Brown, Kim, Stichler and Fields [31] identified clinically integrated EBP courses enhanced students' confidence in the use of EBP at the time and in future. Active partnerships between academic and clinical institutions were recommended.

Results showed variations between institutions in terms of when EBP was introduced in course content. There is general consensus that addition of a course entirely devoted to EBP emphasising academic literacy, and competencies associated with EBP should be introduced early in the program so that students have opportunities to implement it throughout the program [32]. Positions are ambiguous on the appropriate year and semester in which research and EBP concepts should be introduced. Callister et al. [14] reported that students introduced to EBP concepts earlier in their degree demonstrated better preparation in finding answers to problems during their clinical rotations. Similarly, they reported increased motivation towards EBP/research, and demonstrated greater understanding of its application. Some degree programs have placed research and EBP at the beginning of courses, others later arguing that it becomes challenging for students to develop an understanding of EBP when introduced early [11]. EBP is relatively new for nursing and due to lack of evidence concerning the appropriate year and semester for its introduction, only examples of how and where EBP was placed in the curriculum is addressed.

V. LIMITATIONS

Limitations of this analysis relate mainly to the lack of information provided in unit outlines, which made it difficult to determine the true breadth of EBP content and foreseeable integration into various units. However; it has provided insight into content and delivery of research and EBP units across undergraduate programs in Australia.

VI. IMPLICATIONS FOR NURSING EDUCATION

Preparation of future nurses to be engaged in EBP is paramount to ensure safe, quality and effective patient care outcomes. To achieve this, undergraduate curricula must reflect integration of EBP across all levels and courses. Advancing expectations of students' knowledge and skills at various levels, development of assignments reflecting those expectations and innovative teaching strategies

would facilitate students' engagement with EBP. Identified variations among universities' curricula have implications for curriculum revisions. Embedding EBP into curricula has been widely recommended; however only a couple of examples reflect its integration into curricula. Therefore, future research should investigate ways to better integrate EBP into undergraduate nursing education.

Linking Evidence into Action

Inclusion of EBP knowledge and skills in the undergraduate program is essential to preparing future EBP practitioners.

There are reported benefits of introducing EBP concepts early in the program.

The content covered in units offering research/EBP concepts require revision considering practice outcomes.

EBP concepts and process should be threaded through the entire curricula, providing opportunity for students to link theory to practice.

VII. CONCLUSION

In line with goals and vision of the Australian Safety and Quality Framework for Health care, it is essential that nursing curricula embed EBP knowledge and competencies throughout academic and clinical experiences. This analysis has highlighted the need to review undergraduate curricula for inclusion of units outlining EBP and research education. Fostering a culture of EBP and preparing future workforce in delivering evidence-based care is a mandatory nursing standard towards which all higher education institutions and health care providers should aim.

REFERERNCES

[1] H. E. Breimaier, R.J.G. Halfens and C. Lohrmann, "Nurses' wishes, knowledge, attitudes and perceived barriers on implementing research findings into practice among graduate nurses in Austria", *Journal of Clinical Nursing*, vol, 20, pp.1744-1756, 2011.

[2] C.E. Brown, M.A. Wickline, L.Ecoff and D. Glaseer, "Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical center", *Journal of Advanced Nursing*, vol, 65, no.2, pp.371-381, 2008.

[3] M.M. Eizenberg, "Implementation of evidence-based nursing practice: nurses' personal and professional factors"? *Journal of Advanced Nursing*, vol, 67, no, 1, pp. 33-42, 2010.

[4] M. Koehn and K. Lehman, "Nurses' perceptions of evidence-based nursing practice", *Journal of Advanced Nursing*, vol, 62, no, 2, pp. 209-215, 2008.

[5] M. Adib-Hajbaghery, "Factors facilitating and inhabiting evidence-based nursing in Iran". *Journal of Advanced Nursing*, vol, 58, no, 6, pp. 566-575, 2007.

[6] T.D. Barako, M. Chege, S. Wakasiaka, and, L. Omondi, "Factors influencing application of evidence-based practice among nurses" *African Journal of Midwifery and Women's Health*, vol, 6, no, 2, pp. 71-77, 2012.

[7] S. Finotto, M. Carpanoni, E.C. Turroni, R.Camellini, and Mecugni, D.Mecugni, (2013). "Teaching evidence-based practice; developing a curriculum model to foster evidence-based practice in undergraduate student nurses", *Nurse Education in Practice*, vol, 13, pp. 459-465, 2013.

[8] R.F. Levin and H. R. Feldman, *Teaching Evidence-Based Practice in Nursing: A guide for Academic and Clinical settings*. New York: Springer Publishing Company, 2006.

[9] H.K. Burns and S.M. Foley, "Building a foundation for an evidence-based approach to practice: teaching basic concepts to undergraduate freshman students", *Journal of Professional Nursing*, pp.351-357, 2005.

[10] N.A. Schmidt, "Evidence- based practice in the nursing curriculum: ponderings on design and implementation", *Annual Review of Nursing Education*, vol, 6, pp. 237-254, 2008.

[11] E. Geum Oh, S. Kin, S. Kim, E.Y. Cho, J. Yoo, H.S. Kim, L.J.H. You, and H.Lee, "Integrating Evidence-Based Practice into RN-BSN Clinical Nursing education", *Journal of Nursing Education*, vol, 49, no, 7, pp. 387-392, 2010.

[12] R.L. Foster, "Challenges in teaching evidence- based practice", *Journal of Specialists in Pediatric Nursing*, vol, 9, pp. 75-76, 2004.

[13] V.C. Brancato, "An innovative clinical practicum to teach evidence-based practice", *Nurse Educator*, vol, 31, no, 5, pp. 195-199, 2006.

[14] L. Callister, G. Matsumura, S. Lookinland, S. Mangum and C. Loucks "Inquiry in baccalaureate nursing education: fostering evidence-based practice", *Journal of Nursing Education*, vol, 44, no, 2, pp. 59-64, 2005.

[15] Australian Safety and Quality Framework for health Care, Dec 2010. [Online]. Available from http://www.safetyandquality.gov.au/ [Accessed: 15th April 2014].

[16] Australian Nursing and Midwifery Accreditation Council, *Registered Nurse Accreditation standards*, 2012. [Online]. Available from http://www.anmac.org.au/accreditation-standards [Accessed; Oct 2013].

[17] K. Krippendorff, *Content analysis: An Introduction to its Methodology*, 2nd ed. Thousand Oaks: SAGE Publications, 2004.

[18] T. Chambers and C. Chiang, Understanding undergraduate students' experience: a content analysis using NSSE open-ended comments as an example, *Qual Quant*, vol, 46, pp. 1113-1123, 2012.

[19] L.B. Berg, *Qualitative Research Methods for the Social Sciences*, 5th ed. Boston: Pearson, 2004.

[20] M. Schreier, *Qualitative content analysis in practice*. Thousand Oaks, CA: SAGE Publications, 2012.

[21] Nursing and Midwifery Board of Australia, National *Competency Standards for Registered Nurses*, 2006. [Online]. Available from http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Codes-Guidelines.aspx#competencystandards [Accessed: Oct 2013]

163

[22] S. Moch, R.J. Cronje and J. Branson, "Part I. Undergraduate nursing evidence-based practice education: envisioning the role of students", *Journal of Professional Nursing*, vol, 26, no, 1, pp. 5-13, 2010.

[23] D.S. Pravikoff, S.T. Pierce and A. Tanner, "Evidence-Based practice readiness study supported by academy nursing informatics expert panel" *Nursing Outlook*, vol, 53, no, 1, pp. 49-50, 2005.

[24] E.Fineout-Overholt, and L. Johnston, "Teaching EBP: A challenge for educators in the 21ˢᵗ century". *Worldview on Evidence Based Nursing*, vol, 1, no, 2, pp. 207-211, 2005.

[25] M. Rolloff, "A constructivist model of teaching evidence-based practice" *Nursing Education Perspectives*, vol, 13, no, 5, pp. 290-293, 2010.

[26] A. Coomarasamy and K.S. Khan, "What is the evidence that postgraduate teaching in evidence-based medicine changes anything"? *British Medical Journal*, vol, 329, pp.1017-1019, 2004.

[27] M. Heye and K. Stevens, "Educational Innovations: Using new resources to teach evidence-based practice". *Journal of Nursing Education*, vol, 48, no, 6, pp.334-339, 2009.

[28] B.M. Melnyk and E. Fineout-Overholt, *Evidence-Based Practice in Nursing & Health care: A guide to best practice*, 2nd ed. Philadelphia: Lippincott Williams & Wilkins, 2011.

[29] W. Chaboyer, A. Willman, P. Johnson, and L. Stockhausen, "Embedding evidence-based practice in a nursing curriculum: A benchmarking project", *Nurse Education in Practice*, vol, 4, pp. 216-223, 2004.

[30] J.F.Stichler, F. Faan, W. Fields, C.S. Kim and, C.E. Brown, "Faculty Knowledge, Attitudes, and perceived Barriers to teaching Evidence-Based Nursing". *Journal of professional Nursing*, vol, 27, no, 2, pp. 92-100, 2011.

[31] C.E. Brown, S.C. Kim, J.F. Stichler and W. Fields, "Predictors of knowledge, attitudes, use and future use of EBP practice among baccalaureate nursing students at two universities" *Nurse Education Today*, vol, 30, pp. 521-527, 2010.

[32] J. Christie, C. Hamill and J. Power, "How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper", *Journal of Advanced Nursing*, vol, 68, no, 12, pp.2789-280, 2012.

AUTHORS' PROFILE

Gulzar Malik, PhD Candidate, MN, Critical Care Cert, Cert IV Teaching & Assessment, BScN, RN is the primary author of the paper. She is currently undertaking doctoral studies from Monash University, Australia exploring integration of evidence-based practice in undergraduate nursing education. Along with her studies, she holds a position of nursing lecturer at School of Nursing & Midwifery Monash University, teaching undergraduate and master of nursing practice students. She is a highly experienced registered nurse and academic who has 20 years of nursing experience in a various health care settings both in Australia and overseas. She has contributed to nursing profession with her range of conference presentations and publications.

Prof. Lisa McKenna, PhD, MEdSt, Grad Dip in Local, Family & Applied History, Grad Dip Admin & System Info, BEdSt, RN, RM. Dr. Lisa McKenna is the professor in the school of Nursing & Midwifery Monash University, Australia. She is a highly experienced academic, researcher, registered nurse and midwife having more than 30 years of nursing experience. Professor Lisa has been supervising local and international research students for the last many years in a wide range of nursing education and practice areas. She has published extensively and attracted large number of research grants. She is a current Editor-in-Chief for Collegian: The Australian Journal of Nursing Practice, Scholarship and Research. Associate

Associate Professor Debra Griffiths, PhD, LLM, LLB, BA, RM, RN, Legal Practitioner is a Deputy Head of School in the School of Nursing & Midwifery Monash University, Australia. She is a registered nurse, midwife and lawyer with many years of clinical experience in nursing and midwifery practice, working in Australia and the UK. She has combined her legal and health expertise, and is passionate about law as it relates to, or influences, everyday clinical practice. A/Professor Debra has published widely and attracted number of research grants. She has been actively involved in research supervision of local and international students.

2.5 Conclusion

This literature review and the published curricula analysis paper have provided a context for the study, as well as identified gaps in knowledge, which the current study aimed to explore. Becoming skilled in EBP is a life-long learning process that requires a clinician to be fully equipped with EBP-related competencies. There is however, a large body of literature suggesting that along with organisational barriers, individuals' barriers, particularly low levels of knowledge and skills impedes EBP implementation. To fill this gap, nurses rely on undergraduate nurse education to prepare them with EBP concepts and principles. Studies have highlighted that fully integrated curricula, effective and engaging pedagogies and collaboration between education and practice settings prepare students to be evidence-based clinicians. Integration of these principles across theoretical and practical courses has the potential to enhance use of research, promote quality healthcare outcomes, contribute to ongoing professional development of future nurses and foster lifelong learning. If undergraduate education is successful in changing beliefs and attitudes of future nurses, there is a real opportunity to influence practice on a global scale. Yet, there is limited evidence available, particularly in the Australian context, examining how EBP is embedded into nursing programs. Nurse academics are crucial in instilling EBP concepts in nursing students, therefore it becomes essential to investigate in detail the processes influencing their teaching practices of EBP and their engagement with it. The next chapter explores the theoretical underpinnings employed to investigate the study aims and questions.

Chapter Three: Methodology
Why Grounded Theory Methodology?

3.1 Introduction

The aim of this research was to identify and provide explanations of the processes used by nurse academics when they incorporate EBP into undergraduate nurse education. It was anticipated that understanding these processes would contribute to the body of knowledge, resulting in better educational practices, and development of strategies to surmount barriers. To achieve the study aims, a constructivist grounded theory methodology, within qualitative research design was undertaken. This chapter offers detailed insights into the study methodology, its theoretical underpinnings and fundamental tenets when applied to achieve the study aims and answer questions. According to Birks and Mills (2011), research design is considered as a "blueprint of the study" (p.24). Before a researcher makes a decision on choosing a particular research design, it is necessary to understand the nature of inquiry, how it fits with different research designs and philosophical underpinnings of the chosen approach.

3.2 Philosophical and Theoretical Underpinnings of the Methodology

The tradition of using qualitative methods to study human phenomena is grounded in the social sciences. It has its roots in anthropology, psychology and sociology. Qualitative research was first undertaken by sociologists and anthropologists in the early twentieth century as a structured method of inquiry (Denzin & Lincoln, 2011). According to Holloway and Wheeler (2002), researchers who have used this approach in the past have termed it as naturalistic

inquiry (Lincoln & Guba, 1985), field research (Burgees, 1984) and interpretive research (Bryman, 2001).

Qualitative research offers the opportunity to focus on finding answers to questions centered on social experiences of human beings. It further aims to deal with people's lives, their lived experiences, behaviours, emotions and feelings in a specific context (Denzin & Lincoln, 2011). Additionally, it can collectively examine organisational functioning, processes, cultural phenomena and interactions between one community and another (Munhall, 2007; Speziale-Streubert & Carpenter, 2011). Researchers undertake qualitative methodology to elicit intricate details of meanings and nature of peoples' experiences in a variety of situations which are difficult to extract through quantitative research methods (Denzin & Lincoln, 2005). Furthermore, when the purpose is to explore substantive areas about which little is known, and where much is known to gain a novel understanding, this methodology is preferred by researchers (Speziale-Streubert & Carpenter, 2011). The researcher employing a qualitative approach provides thick descriptions of social experiences from participants' viewpoints. To gain full understanding of the social experiences, this approach relies on extensive interaction between the researcher and participants for an extended period in an unconstrained manner (Holloway, 2005).

3.2.1 Paradigms of inquiry within qualitative research

From a philosophical point of view, the study of humans is deeply rooted in descriptive modes of science. Descartes' view about knowing were grounded in an objective science where cause and effect could explain everything (Guba & Lincoln, 1994). Later, Kant questioned the fundamental nature of reality and opened discussion about human rationality. For him, perception was equally important as an observation, and reality could be fully known through

using observational methods (Hamilton, 1994). The early debates about science and reality establish the foundations of qualitative paradigms of knowing.

Social experiences can be extracted by using a variety of research methods. Approaches to research methods are not only confined to data collection, sampling, and data analysis but they are based on set beliefs and assumptions about the world, nature of reality and how the reality can be known (Holloway & Wheeler, 2010). A paradigm as defined by Guba and Lincoln (1994), is a "Set of propositions that explain how the world is perceived and a paradigm of inquiry informs a researcher as to what is important, what is legitimate, what is reasonable concerning systematic inquiry" (p.106).

A qualitative approach of inquiry relies on set assumptions about the nature of reality (ontological issue), the nature of the relationship between the knower and what can be known (epistemological issue) and principles and processes on which researchers base their procedures and strategies (methodological issue) (Annells, 1996; Guba & Lincoln, 1994; 2005). By acknowledging and valuing these assumptions, the qualitative researcher engages with the world of participants, and gains understanding of their interpretation of reality. Denzin and Lincoln (2011) consider the above stated assumptions as key premises which are embedded within the interpretive and constructivist paradigm of qualitative research.

Constructivist Paradigm

This vision of social sciences so called, 'constructivist', views reality as relativism, claiming that it can be apprehended in the form of multiple mental constructions, and may change as the constructor becomes more informed (Guba & Lincoln, 1994). Based on this assertion, constructivist researchers assume multiple and dynamic realities that are context dependent. They embrace an ontology that denies the existence of an external knowledge which exists

outside and independent of researchers' interpretations of it (Searle, 1995). In social constructivism, individuals seek understanding of the world in which they live and work. They develop subjective meanings of their experiences, which are varied and multiple, leading the researcher to look for complexities of views, rather than confining them through a few categories or ideas. The goal of research is to rely as much as possible on participants' views and meanings of the situation. Often these realities are not simply confined to individuals but are formed through interaction with others (Blaikie, 1993; Holloway & Wheeler, 2002). Rather than starting with a theory (as in positivism), inquirers generate or inductively develop a theory or pattern of meaning (Corbetta, 2003). This is explained by Holstein as:

> If we are to study lives, including selves in social interaction, we must study them from within the social contexts they unfold, not separate from them…. human beings don't settle their affairs with meaning once and for all. Rather, they continually engage in the interpretive process, including the interpretation of what they mean to themselves….. the methodological directive here is to document the articulation and emergence of meaning in rich detail as it unfolds, not in lifeless analytic categories and statistical tables (Holstein, 2000, p.33).

In summary, the constructivist paradigm assumes multiple realities (a relativist ontology), and that knowledge is created between a participant and researcher (a subjective epistemology) in the natural world, using a set of procedures (methodological approach) (Guba & Lincoln, 1994). Hence, a constructivist epistemology, based on a relativist ontology, informed this study. Further, in this study a qualitative research approach utilising grounded theory methodology was chosen. Within the constructivist paradigm of qualitative methodology, a grounded theory approach enabled the researcher to identify and understand underlying processes and issues associated with teaching and incorporation of EBP within the Australian nurse education context. Grounded theory methodology is a widely used approach

in qualitative social sciences and was most appropriate for this study as it focuses on generating theory, and is grounded in data, rather than using an already existing explanatory framework. Qualitative researchers are interested to seek information about how people construct meanings in social contexts (Merriam, 2009). Therefore, qualitative research methodology is suitable to use when the researcher focuses on exploring how and why a phenomenon occurs, desires to understand phenomenon in certain contexts, or aims to generate theory to explain a certain phenomenon (Creswell, 2007), which were the purposes for this research.

Understanding grounded theory from its ontological, epistemological and methodological premises, recognises that reality is perspective-based, with the resultant theory being relative to the perspectives of the persons producing it (Rennie 2000, p.481). Furthermore, grounded theory relies upon meaning being constructed between researcher and participant, however the extent of this construction is a source of debate about what constitutes a true grounded theory (Fassinger, 2005). Methodologically, grounded theory acknowledges that the researcher brings their unique assumptions and ideas. Researchers are encouraged to explore and acknowledge assumptions that affect the social processes constituting each stage of inquiry (Charmaz, 2006). These premises encouraged the researcher to acknowledge the following assumptions in relation to the current study:

- Nurse academics interpret their experiences of teaching and integration of EBP into their teaching practices differently. Therefore, individual experiences needed to be explored and acknowledged;
- Contextual factors, personal and professional experiences influence the teaching practices of academics. It was important to interpret individual experiences in the context of social, cultural and professional influences;

- Through interpreting academics' experiences collectively, understanding processes and factors influencing EBP integration in undergraduate nurse education would be gained.

3.3 Symbolic Interactionism: A Philosophical Underpinning of Grounded Theory Methodology

Consistent with a constructivist paradigm, symbolic interactionism was the underlying theoretical perspective on which this study was based. Symbolic interactionism is a study of human conduct, which leads individuals to structure the external world by their perceptions and interpretations of events occurring to them (Annells, 1996; Munhall, 2007). The foundation of symbolic interactionism was laid in the early 1900s by George Herbert Mead, a social psychologist from the Chicago sociological tradition. Mead (1934) advanced the symbolic interactionist thought by defining the 'human being' as a biological organism possessing a mind, and through social interaction within a society becomes a rational being (Chenitz & Swanson, 1986).

The basic idea proposed by Mead was the notion of "self". He asserted that the self consists of the subjective "I" that is natural or spontaneous, and the objective "me" that sees self as a reflection of what others see. The 'I' and 'me' constantly communicate with each other through their inner conversation, before an act and behaviour takes place. The capacity to reflect upon oneself, and through the process of taking the role of the other to create means of translating the other's symbols enables human beings to develop the sense of social self (Chenitz & Swanson, 1986). Mead's idea was further advanced by his student, another sociologist from the University of Chicago, Herbert Blumer (1969). Blumer was much more concerned with symbolic interaction as a sociological theory and a research approach.

Blumer (1969) further elaborated and explained three basic premises of symbolic interaction: (1) people act towards things, and on the basis of meanings they have for them, (2) meanings stem from interactions with others, and (3) meanings are modified through an interpretive process which is used to manage their social worlds (Lincoln & Guba, 1994). Symbolic interactionism assumes people construct reality through interactions with others and that "individuals are active, creative, and reflective, and that social life consists of processes" (Charmaz, 2006, p.189). When humans interact they find meanings in a situation, which influences their behaviour and actions. According to Blumer, "all human behaviour is the result of vast interpretive processes in which people singly and collectively guide themselves by defining the objects, events and situations they encounter" (Blumer, 1969, p.132). Additionally, Blumer proposed the methodological position for symbolic interactionism is to understand the world from participants' actions and interactions which change and evolve constantly. The researcher must be able to actively interact with the persons being researched and view things from their perspectives in their situational contexts. Therefore, adopting the symbolic interactionist approach, the researcher needs to be actively engaged in the world of the study (Blumer, 1969).

The symbolic interactionist perspective has several implications for research activity. Firstly, human behaviour should be understood in view of its interaction. Secondly, the setting, events and factors which influence behaviour need to be analysed. The full range and variation of behaviour in a setting or in relation to a particular phenomenon is examined to produce self or groups' shared meanings and definitions (Blumer, 1969; Denzin, 1970). Finally, in order to understand fully, the researcher ought to take the role of the other and understand the world from participants' perspectives. Therefore, the researcher must be both a participant in the world and an observer of the participants' worlds (Chenitz & Swanson, 1986).

Using a symbolic interactionist perspective, a grounded theory approach provides a way to study human behaviour and interaction. This approach is particularly useful to conceptualise interactions and associated behaviour in complex situations to understand the impact of new ideologies (Charmaz, 2008a; 2009). Like most forms of qualitative research, grounded theory makes its contribution in areas in which actions, behaviours and processes are to be identified. One of the key uses of grounded theory has been in preliminary, exploratory and descriptive studies (Glaser & Strauss, 1967). The specific focus of the methodology on theory generation adds an important dimension to data analysis. Thus, there are several levels of analytic complexity that researcher pursues during the study to generate a theory, that are grounded in data (Speziale-Streubert & Carpenter, 2011).

3.4   Why Grounded Theory Methodology (GTM)

The term 'grounded theory' refers to both a method of inquiry and to the product of inquiry (Charmaz, 2005; 2008). As a methodology, it reflects a discipline or branch of knowledge, whereas, as a method it essentially offers a set of flexible analytic guidelines that enable researchers to focus on data collection and to build inductive middle-range theories through successive levels of data analysis and conceptual development (Charmaz, 2005). A major strength of this method is the simultaneous collection of data and analysis with each informing and focusing the other throughout the research process (Schreiber & Stern, 2001; Charmaz, 2006; Munhall, 2007). Grounded theory is a highly systematic research approach for the collection and analysis of qualitative data for the purpose of generating explanatory theory related to the phenomena of search. This methodology is suitable to use when:

- The purpose is to generate an inductive theory for situations in which a change, process or transition is expected over time in stages or phases (Morse & Richards, 2002);

- Understanding phenomena of interest when little is known about it (Corbin & Strauss, 2008);

- Seeking to construct theory about issues of importance in people's lives. Issues of importance involving actions and interactions between people (Glaser 1978; Creswell, 2009);

- Relationships between concepts are not identified or poorly understood (Bryant & Charmaz, 2007).

Grounded theory method is now among the most widely used approaches of carrying out qualitative research when understanding the phenomena of interest and generating theory are the researcher's aims. This mode has widely spread from its original sociologists' use to other disciplines such as education, nursing, medicine, public health, management and business (Bryant & Charmaz, 2010). It describes a method for studying social patterns which account for variation in interaction around a phenomenon or problem. Grounded theory has its roots in the social sciences, particularly in the symbolic interactionist tradition of social psychology and sociology (Chenitz & Swanson, 1986). Therefore, this methodology was well suited for investigating the current research aim which was to identify social processes, constructed in the context of undergraduate nurse education.

3.5   A Closer Look-The Emergence of Grounded Theory Methodology

Grounded theory methodology was developed by two sociologists, Barney Glaser and Anslem Strauss (Glaser & Strauss, 1967; Glaser, 1978; Bryant & Charmaz, 2010), in collaboration during their studies of dying in hospitals. Glaser and Strauss observed the process of dying and health professionals' attitudes when dealing with deaths in hospital settings (Holloway & Wheeler, 1996). Although Glaser and Strauss came from different philosophical traditions, they contributed equally towards the emergence of the methodology. Both researchers derived the grounded theory method through analysing their own research paradigms, most prominently their way of analytical procedures and practices dealing with dying patients. Quantitative methods of research paradigms and development of middle range theories were influential in Glaser's background, and symbolic interactionism and pragmatism with the work of Mead (1934), Dewey (1922) and Bulmer (1969) being influential in Strauss'(Bryant & Charmaz, 2010). Glaser and Strauss' individual backgrounds and trajectories brought them together at the University of California, San Francisco in the 1960s and early 1970s, from which the grounded theory methodology emerged. The positivist influence of Glaser has been evident through the structure and process of grounded theory method itself. However, the symbolic interactionist perspectives brought by Strauss have provided the philosophical direction to the methodology (Melia, 1996; Cooney, 2010).

Earlier quantitative researchers viewed qualitative research as imprecise, unsystematic, and biased. The priority was towards replication and verification, resulting in ignorance of human problems and research questions that did not fit positivist research paradigms (Strauss & Corbin, 1994; Charmaz, 2011). In response, Glaser and Strauss proposed systematic strategies for qualitative research practice and focused on logical qualitative analysis leading to theory development (Strauss & Corbin, 1994). They aimed to move qualitative inquiry

beyond descriptive studies by providing abstract conceptual understanding of the studied phenomena (Munhall, 2007).

From a symbolic interactionist perspective, Glaser and Strauss criticised the overspecialised deductive use of pre-established grand theories in sociology and put forward their idea of data analysis method utilising a systematic approach (Mills, Bonner & Francis, 2006). This approach intends to ground the theory which Glaser and Strauss thought was possible by employing a unique method of systematic comparative analysis. The methodological pivot is the inductive process of data collection and analysis in which the generation or development of theories about social processes is carried out systematically (Strauss & Corbin, 1994). The key features of grounded theory, as discussed by Glaser and Strauss (1967), Glaser (1978) and Strauss (1987) were that the researcher should be simultaneously involved in data collection and analysis. Using the comparative method of data analysis, codes and categories are constructed during each stage resulting in development of a middle range theory (Bryant & Charmaz, 2010).

Through developing this method, Glaser and Strauss aimed to provide a clear basis of systematic qualitative research. They intended to demonstrate how such research projects could produce outcomes of equal significance to those produced by the pre-dominant statistical quantitative survey methods and analysis. Their first seminal text, *The Discovery of Grounded Theory* (1967), accounts as the first published literature exploring social processes and revealing the human characteristics of anticipating and responding to various life circumstances (Glaser & Strauss, 1967). Both researchers' explicit strategies and call for developing theories have inspired a new generation researchers from social sciences and health to pursue qualitative inquiry (Charmaz, 2000; 2006).

Grounded theory is associated with the sociological tradition of symbolic interactionism. This link between grounded theory and symbolic interactionism is apparent in

the literature, particularly in nursing (Stern, 1994; Milliken & Schreiber, 2001; Morse, 2001). However, Glaser (2005) strongly refutes to relate GTM to any theoretical orientation by claiming that the theory emerges from the reality of a person's behaviour and actions, and is not dependent on any theoretical underpinnings.

3.6   The Evolution of GTM

Grounded theory has evolved since its inception almost 40 years ago. The classic texts (Glaser & Strauss, 1967; Glaser, 1978) continue to provide the original overview. Strauss' approach to grounded theory has altered over time and this shift has been captured in his later texts (Strauss & Corbin, 1990; 1998). In the 1990s, differences between the two originators of the method were disclosed, identifying their approaches as Glaserian and Straussian. The union of two different schools of thoughts have ultimately placed grounded theory into divergent directions. Heath and Cowley (2004) suggested that this divergence occurred mainly due to their methodological aspects rather than ontological and epistemological aspects of the methodology as described by Annells (1997a). Charmaz (2009) pointed out the overall difference between Glaser and Strauss arises in the areas of: (1) philosophical underpinnings, (2) methodological strategies, and (3) assumptions about what the theory is and how it is constructed or discovered (Charmaz, 2009).

Over time, grounded theory has developed in somewhat conflicting positions. Glaser (1992) proposed the process of grounded theory as inductive in nature and theories arise from or are grounded in data, having no presumed assumptions in contrast to deductive theories. Much of his original work was what he considered an alteration to the grounded theory approach first by Strauss (1987), and then Strauss and Corbin (1990; 1998). A review of Glaser's texts (1978; 1992) has revealed that for him the inductive method for generating

theory, and the analytical process of abstraction and conceptualisation, were the most important aspects of grounded theory. He paid little attention to the philosophical underpinnings and warned researchers to ignore its underlying philosophy.

For years, Glaser remained consistent with his method and defined grounded theory as a method of discovery where categories emerge from data, precision in data analysis methods and the role of researcher is believed to be a distant observer. The epistemological assumptions, logic and systematic approach of grounded theory methods reflect Glaser's quantitative school of thought. Glaser advocated for codifying the data and middle range theories consisting of abstract explanations of social phenomena are grounded in data (Charmaz, 2006). Glaser's text *Theoretical Sensitivity* (1978) is the evidence of his described rigorous codified methods, and his précised analytical procedures (Charmaz, 2006). In contrast, Strauss, and later with his colleague Juliet Corbin, advanced a different version of grounded theory, which they have considered a result of maturation of the classical approach as discussed in *Basics of Qualitative Research* (1990). Strauss and Corbin (1990; 1998) fully described analytical procedures where the disparity between the two methods were evident.

A Glaserian approach to data analysis is relatively simple and straightforward and proposes that the theory emerges from data. However, Moore (2010) found more limited methodological direction in the Glaserian approach than Straussian. Strauss and Corbin (1990; 1998) have directed researchers towards prescriptive data analysis methods by involving additional tools and techniques in relation to coding and memo writing. In their version of grounded theory, techniques for enhancing theoretical sensitivity, the conditional matrix and strategies for verification were introduced. However, their procedures have been criticised for being over-prescriptive and deductive in nature (Cutcliff, 2005). An additional issue of debate was to attain verification. Strauss and Corbin (1990) have referred to verification as validating the process and generated findings. In response, Glaser (1992) raised issues relating to

verification at the expense of generation of findings in Strauss' version of grounded theory, that validation is inherent in the approach if applied correctly.

The Straussian approach has explained procedural techniques such as coding, memoing and analysis which further categorise the procedure into open, axial and selective coding. Strauss and Corbin recommend using the Paradigm model (1990, p.99), in which a set of relationships is identified denoting causal conditions, phenomena, context, and intervening conditions so that a problem can be managed (Annells, 1997b). However, Glaser has strongly argued for this approach and claims that this is a distortion from the original methodology by referring to their approach as "full conceptual description" that forces the data, rather than allowing the theory to emerge (Glaser, 1992). Annells (1997b) argued against Glaser's claim about Strauss and Corbin's version of conceptual description, and pointed out that Strauss and Corbin's approach is an evolutionary response to the prevailing concerns of lack of methodological direction and lack of rigour in qualitative methods of research.

According to Stern (1994), Glaser's version of grounded theory insists on allowing the theory to emerge, whereas Strauss preferred a method which is more prescriptive. The key difference between both versions is the question each researcher asks during the course of data analysis. While examining the data, Strauss stops at each word and asks, what if? Whereas, Glaser keeps his attention on data and asks: what do we have here? Strauss focused on every possible contingency that could relate to the data, whether it appears in the data or not. In contrast, Glaser focused his attention on the data to allow the data to tell its own story (Stern, 1994).

The philosophical underpinning of Glaser's classic mode is characterised as critical realist and modified objectivist, and Strauss and Corbin's (1998) as relativist and subjectivist (Annells, 1997a). However, Charmaz (2000) suggested that both present a realist ontology and positivist epistemology, but with some differences. Positivist epistemology is based on the

supposition that the social world can be investigated in the same way as the natural world. Glaser assumes an objective, external reality and a neutral observer who discovers data in an objective and neutral way, thus discovering the theory (Glaser, 1992; Glaser, 2002). Strauss and Corbin's (1990) views proposed an objective external reality, aiming toward unbiased data collection. Charmaz (2000) responded to the above assertions that it is possible to use grounded theory without embracing the above two and added another position of stance. Underpinned by their relativist position, and demonstrated in their belief that the researcher constructs theory as an outcome of their interpretation of the participants' stories, a student of Glaser and Strauss, Charmaz (2000; 2006; 2014) emerged as a leader in constructivist grounded theory. Table 3.1 summarises the modifications of grounded theory approach since its origin.

Table 3.1: Modifications to GTM

Theorists	Modifications/ Evolution
Glaser (1992)	Continued to remain to the original method developed by Glaser and Strauss (1967), however placed emphasis on discovery and emergence of theory from data.
Strauss and Corbin (1998)	A lot more emphasis on prescriptive data analysis procedure by moving towards verification.
Charmaz (2006)	Brings constructivist and interpretivist approaches to grounded theory methodology and places emphasis that theory is constructed, rather than discovered by active involvement of the researcher and participants.

3.7   Constructivist Grounded Theory (CGT)

The ontological and epistemological grounds of grounded theory have shifted and been challenged by the emergence of a constructivist approach. Charmaz, a leading proponent of constructivist grounded theory, produced a contemporary revision of Glaser and Strauss (1967; Glaser, 1978) and Strauss and Corbin's (1990; 1998) versions of grounded theory. "Shifting the grounds of grounded theory fosters renewal and revitalisation of the method by integrating recent methodological developments with the original classic statement of the method" (Charmaz, 2009, p.135). Ontologically relativist and epistemologically subjective, the constructivist approach views knowledge as socially constructed and acknowledges the mutual relationship between research participants and theorist (Charmaz, 2009). Charmaz (2000; 2008b) explained that knowledge is produced as a result of social construction and by dealing with empirical problems. Research processes and products are constructed under certain conditions and are influenced by researchers' perspectives, positions, beliefs and interactions. Hence, the role of the researcher in interpreting how and why participants construct meaning from their experiences is a key feature of the constructivist approach (Charmaz, 2006; 2009).

According to Charmaz (2009), "Constructivists enter participants' liminal world of meaning in ways classic grounded theorists don't" (p.131). Constructivists strive to understand research participants' beliefs, actions, and reasons for their actions, and interactions from their perspectives. These constructions extend beyond the recalling of events and description of experiences to the researcher's own interpretation of the phenomena (Birks, Chapman & Francis, 2006a). Thus, constructivist theorists view data as constructed rather than discovered, and their analysis as interpretive rather than objective, as they report on the particular phenomena (Bryant, 2003; Charmaz, 2006). Constructivist theorists heavily rely on the reflexive stance in their approach. Taking a reflexive approach throughout the research and during the writing phase, researchers recognise how one's own interpretation can impact on

116

the research process and outcome (Morse, Stern, Corbin, Bowers, Charmaz, & Clarke, 2009). However, Cutcliff (2000) argued that adopting a reflexive stance potentially brings bias towards the generated theory. In response, Charmaz (2005; 2006) claimed that by being reflective, the researcher is able to interpret meanings in wider cultural, social and temporal contexts.

Grounded theory in its constructivist version is a highly interactive method (Charmaz, 2014). It adapts to be inductive, comparative, an emergent and open-ended approach of Glaser and Strauss' version. When constructivist grounded theorists encounter a surprising finding during data collection, the researcher considers all possible ideas that could have accounted for the findings. The researcher then returns to the field and gathers more data to put the ideas to the test, and adapt findings to the most applicable interpretation (Charmaz, 2006; 2014). The process of moving back and forth between the data and theoretical concepts is characteristic of grounded theory. Grounded theory begins with inductive analysis of data but moves beyond induction to create imaginative interpretation of the studied phenomena (Charmaz, 2009).

There are fundamental differences in assumptions between objectivist and constructivist approaches, reported in the literature. The objectivist approach emerged from positivism and assumes discovery of data in an external work by a neutral but expert observer. Data are separate facts from the observer and should be treated without preconceptions. Objectivists focus on developing abstract generalisations from the context (Charmaz, 2006; 2009), whereas the constructivist approach has pragmatic roots, assumes multiple realities and multiple perspectives of these realities. Data are mutually constructed between the participant and observer. The constructivist approach views generalisations as partial, conditional and situated in time, space, positions, actions and interactions (Charmaz, 2014).

Constructivists aim for an interpretive understanding of the studied phenomena. The resultant theory is credible, original, resonant and useful to its application to the broader context

(Charmaz, 2006; 2014). According to Charmaz (2009), constructivist grounded theorists reflect what is "real" as problematic; they move two steps back in understanding the multiple definitions of reality and the meanings for people, and take a large step forward into interpretive social science. Constructivists enter the research participants' world to the extent they can. They seek to find a range of variations in their data and look for relationships between the emerging categories, within participants' historical locations and social circumstances (Charmaz, 2009). In Glaser's version, the resultant theory is discovered from data, contrary to constructivist approach in which theory can be constructed through past and present involvements and interactions with people, perspectives and research practices (Charmaz, 2009; Birks & Mills, 2011). Research participants' implicit meanings, experiential views and the researcher's finished grounded theories are constructions of reality.

A constructivist grounded theory distinguishes between real and true. Reality is a construction that is made by human beings, thus a grounded theorist constructs an image of a reality, not the reality that is objective, true and external. Categories emerging from the data should be consistent with the studied phenomenon, and codes and categories should reflect the experiences in a form of a story (Charmaz, 2000; 2006; 2009). McDonald and Schreiber (2001) stated that evolutional changes in grounded theory are legitimate. It is constructed and re-constructed from positivist to post-modernist views of methodology. Supporting their view, Annells (1997b) concluded that debate of key concepts of grounded theory in a post-modern world would continue to drive the evolution of grounded theory.

3.8   The Fundamental Tenets of GTM

3.8.1   Data Collection in GTM

The parallel nature of data collection and analysis are evident in GTM. Data collection and analysis are linked from the beginning of the research and take place simultaneously (Strauss & Corbin, 1998). In order to generate a credible theory, the methodology allows using data from a variety of sources such as observations, interview transcripts, documents and images (Charmaz, 2006) throughout the research process. Unstructured or semi-structured in-depth interviews are often preferred data collection methods by grounded theorists, either used in combination with other source or a single approach (Polit & Beck, 2006). Charmaz (2006) outlined that:

> Grounded theorists evaluate the fit between their initial research interests and their emerging data and do not force preconceived ideas or theories directly upon the data. Rather they follow leads that they define in the data or design another way of collecting data to pursue initial interests (p.17).

Glaser and Strauss (1967) have not directed researcher toward any preferred data collection method. However, Charmaz and Belgrave (2012) guided researchers towards correct techniques of interviewing such as setting the tone, seeking in-depth information, reflecting, and searching for narration. Interview data consists of direct quotations from people about their experiences, feelings, opinions and knowledge gained either by face-to-face or over the telephone. Data from observation provides detailed descriptions of people's activities, their behaviours and actions, and their interpersonal interactions. Documents include excerpts, organisational records, personal diaries and any written charts (Munhall, 2007). Charmaz (2006) proposed that the research problem shapes the data collection methods researchers choose. Certain research problems invite researchers to choose several methods in combination

or sequentially. For Glaser (1998) and Stern (1994), small samples and limited data are sufficient to produce a rich grounded theory. However, Charmaz (2006) emphasised that researchers seek information to the point where all categories become saturated.

3.8.1.1   *Theoretical sampling*

At the beginning of the study, the researcher engages in initial decisions about recruitment of participants and the setting, which is known as purposive sampling, using predetermined criteria. As preliminary data is collected and analysed, further data collection is influenced by the emerging categories (McCann & Clark, 2003a; Birks & Mills, 2011). Glaser and Strauss (1967) define theoretical sampling as "the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges" (p.450). Theoretical sampling in grounded theory is considered a unique approach to data collection procedures, as it is purely driven by codes that emerge and the direction indicated by the evolving theory (Strauss & Corbin 1990; 1998; Charmaz, 2011; 2014).

This process involves the researcher identifying emerging categories, analysing them and returning to the field for further data collection. The process continues until all possible categories are identified and are considered to be saturated (McCann & Clark, 2003a). This might direct the researcher to return to the field multiple times to gather further information or to seek clarification of information collected earlier in the research process (Strauss & Corbin, 1998). Saturation of categories occurs when no new data emerges relevant to the identified categories, and all variations in the categories can be explained (Strauss & Corbin, 1990; 1998). Glaser (1978) asserted that in the initial stages of data collection, decisions are based only on a general subject or problem area which is then superseded by theoretical sampling as the data

highlights the future direction for research. The purpose of theoretical sampling is to explicate the categories, which are reflective of participants' experiences and offer a useful tool to understand them.

3.8.1.2   *Theoretical Sensitivity*

Knowledge of theoretical literature has relevance to the researcher's theoretical sensitivity. Theoretical sensitivity refers to the ability to develop insight, understanding and give meaning to the data, and also to detach the relevant from irrelevant (Strauss & Corbin, 1990; 1998). According to Glaser (1978), "theoretical sensitivity is an individual's ability to render theoretically their discovered substantive grounded categories" (p.1). Thus, it belongs to the researcher's personal capacity to have theoretical insights related to the data and their relationships between concepts and personal experiences. Strauss and Corbin (1990; 1998) claimed that theoretical sensitivity comes from several sources such as literature, professional and personal experiences of the researcher.

3.8.2   Data Analysis in GTM

The different traditions in grounded theory have resulted in varying data analysis techniques and procedures. Glaser (1978) described two types of coding processes (substantive and theoretical). Substantive coding consists of stages of open and selective coding. Theoretical coding further conceptualises the substantive codes to generate theory. Moving forward, Glaser (1992) identified 18 different possible coding families with complex techniques involved (Kendall, 1999), whereas, Strauss and Corbin (1990; 1998) outlined three phases of coding comprising open, axial and selective. The terminology used by Glaser and Strauss sounds similar, but has differences in the timing, implementation and intention in the application.

Strauss (1987) emphasised that induction, deduction and verification are essential steps during data analysis. However, Glaser's approach to data analysis is inductive in nature and less structured. Melia (1996) expressed concern towards Strauss and Corbin's detailed analysis approach by saying "the technical tail is beginning to wag the theoretical dog" (p.376). In response to Melia, Strauss and Corbin (1998) clarified their positions and as a result, provided some flexibility in their approach.

The aim of the constructivist approach is to develop theoretical interpretation of the data. Charmaz (2000; 2006) focuses on three coding procedures encompassing initial, focused and theoretical coding. She further incorporates four different phases in developing concepts and theoretical frameworks including: (1) creating and refining the research and data collection procedures, (2) raising terms to concepts, (3) asking conceptual questions, and (4) clarification of concepts through writing and re-writing. Charmaz (2006; 2014) allows flexibility in her approach of data analysis as these steps are interwoven and not discrete when applied by the researcher.

3.8.2.1 *Coding and Categorising*

Coding is an active process drawn from the phenomenon of interest, the researcher's knowledge, experience and extent theory (Glaser, 1998). The first analytic turn in the grounded theory journey brings the researcher to code the data. Grounded theory requires the researcher to stop and ask analytic questions about the data (Charmaz, 2006; 2011). The process of beginning to define what data is about constitutes a first analytic step. Coding means "naming segments of data with a label that simultaneously categorises, summarises and accounts for each piece of data" (Charmaz, 2006, p. 43). Coding is the first step in moving beyond concrete statements to interpret them analytically, and it is an essential link between collected data and the emergent theory (Charmaz, 2000). Constructivist GTM coding consists of three main

phases: (1) an initial coding which involves naming each word, line and segment of data, (2) focused coding which is used to sort, synthesise and organise the large amounts of data, and develop sub-categories and categories, and (3) theoretical coding undertaken to raise data to an abstract level that specifics the possible relationship between the categories and has power to tell an analytic story that demonstrates coherence (Charmaz, 2006). The constructivist approach also advocates four different phases in developing concepts including: (1) creating and refining the research and data collection procedures, (2) raising terms to concepts, (3) asking conceptual questions, and (4) clarification of concepts through writing and re-writing. However, the above phases are interwoven and not discrete when applied by the researcher (Charmaz, 2006). Grounded theory researchers interact with data over and over many times to understand participants' views from their perspectives (Birks & Mills, 2011).

<u>Initial Coding</u>

Initial coding is the first and essential step in grounded theory data analysis. It is synonymous to what Glaser (1978) and Strauss and Corbin (1990) refer to as 'open coding' and Charmaz (2006) described as 'initial coding'. The researcher conducts initial coding by reading through the transcripts and selecting phrases, words or stories that individually contain single units of meaning. The researcher tries to use the original words of participants while labelling the unit (Schreiber & Stern, 2001). First level coding can be executed through line-by-line analysis, word-by-word or whole paragraph. Usually data directs the researcher to choose the approach of coding (Glaser, 1992). During initial coding, all interview transcripts are analysed line-by-line and codes applied to phrases, sentences or groups of sentences within the data that represent common concepts. During this process, descriptive labels are attached to each concept (Charmaz, 2006). At some stage in initial coding, the researcher compares incident to incident, to identify similarities and differences (Birks & Mills, 2011).

For many grounded theorists, line-by-line coding is the first step in the coding procedure. It works particularly well with detailed data about empirical problems or processes obtained from interviews, observations, and documents (Charmaz, 2006). In the initial phase word-by-word, line-by-line, segment to segment, and incident to incident coding generate a range of ideas and interpretations on which theory is constructed. In this early stage of data analysis, the researcher should strive to view actions in each segment of data rather than applying pre-existing categories to the data. While remaining open-minded, the researcher allows other analytical possibilities and creates codes that best fit the data. In addition, initial coding also guides the researcher if there are any loops or gaps in the data (Charmaz, 2006). The following steps listed by Charmaz (2006) help researchers to code initial data:

1. Breaking the data up into their components parts or properties

2. Defining the actions on which they rest

3. Looking for tacit assumptions

4. Explicating implicit actions and meanings

5. Crystallising the significance of the points

6. Comparing data with data

7. Identifying gaps in the data (Charmaz, 2006, p. 50).

Initial coding is a reflexive activity during which researchers constantly question the coding process, which assists them to avoid forcing any theoretical codes (Glaser, 1978; Strauss & Corbin, 1990). While examining the data, Glaser (1978, p. 57) and Charmaz (2006) advocate four questions be asked:

1. What is this data a study of? (Glaser, 1978, p.57)

2. What does the data suggest? Pronounce?

3. From whose point of view?

4. What theoretical category does this specific datum indicate? (Charmaz, 2006, p.47).

Strauss and Corbin (1990; 1998) also suggest questioning the data during early analysis, yet their questions are based on a coding paradigm. Grounded theorists refer to special terms as *in vivo* codes. By producing *in vivo* codes, participants' original ideas are retained in the coding itself. These codes do not stand on their own, rather are integrated into a theory. Initial coding proceeds until categories begin to emerge. Line-by-line coding is considered to be very useful in the early stages of analysis, and assists the researcher to gain full control of data. During the coding process, ideas, insights, thoughts and feelings of the researcher about the data and its relationship with the emerging theory are documented in the form of memos (Schreiber, 2001).

Focused Coding

As the number of first level codes expand, the researcher engages in second level coding, collapsing codes into categories or higher level concepts (Schreiber, 2001). The goal of second level coding is generation of "an emergent set of categories and their properties which fit the data, work and are relevant for integrating into a theory" (Glaser, 1978, p.56). The second step in the coding process is to categorise, re-categorise and condense all the first level codes into categories. Categorising moves the coding process to a higher level of abstraction. This type of coding is called axial (Strauss, 1990), selective (Glaser, 1978) and focused (Charmaz, 2006). Strauss and Corbin (1990) define this stage as " a set of procedures whereby data are put back together in new ways after open coding, by making connections between and within categories, while elevating the level of conceptual analysis" (p. 96). Once categories begin to emerge, the literature can be reviewed to help generate further questions (Corbin & Strauss, 2008).

Focusing coding is the second major analytical step in the grounded theory. The codes are more conceptual and selective than word-by-word, line-by-line and incident to incident.

Focused coding allows the most significant and frequently appearing codes to fit with the large amount of data (Charmaz 2000; 2006; 2014). The researcher begins focused coding when similarities of concepts are identified in the initial coding. In doing so, the researcher constantly compares initial codes against any existing and incoming data and identifies relevant categories, which are further compared to data and codes. This comparison enables the researcher to identify gaps in the data where more information is required (Glaser, 1978). At this stage, the concepts are raised to a level of abstraction by naming and fitting them into categories through this iterative process (Strauss & Corbin, 1990).

Categories develop as a result of grouping the codes, and may contain sub-categories which together explain the broader concept. One of the key tasks of this stage of analysis is to link categories and their properties. Using comparative analysis methods, emerging categories are compared with each other to identify holes and gaps in data collection (Birks & Mills, 2011). This phase of coding will further lead to development of relational statements which operate at a conceptually high level by integrating the categories (Strauss & Corbin, 1998).

Theoretical Coding

Theoretical coding is an advanced stage of coding which follows the codes the researcher has selected during focused coding. Once the researcher successfully collapses the initial concepts into focused categories, relationships between and among the categories are examined. The researcher formulates hypotheses, tests them against existing data and returns to the field for further data collection using theoretical sampling (Schreiber, 2001). Theoretical codes help researchers to clarify what each category is in relation to other categories, and thus develop theoretical links between categories, and eventually these links integrate into theory (Glaser, 1978).

The final process of this stage involves saturation of categories and identification of a core category. 'Theoretical saturation' is a term used by Glaser and Strauss (1967) as to when to stop data collection pertinent to a category. Charmaz (2006) explains to "stop when categories are saturated"…"when gathering fresh data no longer sparks new theoretical insights nor reveals new properties of your core theoretical categories" (p.113). Theoretical saturation should be the aim of the researcher involved in grounded theory methodology as suggested by Charmaz (2006).

3.8.2.2 *The Core Category*

The purpose of grounded theory, according to Glaser (1978), is "to account for a pattern of behaviour which is relevant and problematic for those involved" (p. 93). The researcher does this by generating a theory around a core category that emerges from the data. The core category is the central phenomenon viewed from participants' viewpoints. Finding and developing the core category requires theoretical sensitivity. According to Glaser and Strauss (1967), the core category is identified when the researcher notices a category or variable occurring again and again and seems to link other categories. Finding a core category has conflicting views from Glaser and Strauss. Glaser (1978; 1992) contends that the core category is there in the data and seems to appear. However, considerable manipulation of the data is necessary before a core category emerges (Strauss & Corbin, 1990; 1998). As further data is collected, the researcher compares concepts and codes with the emerging core category and with each other, to discover similarities and differences (Strauss & Corbin, 1998). Once the core category is identified, the researcher is able to shape, refine and integrate each theoretical concept to a higher level of abstract explanation in the form of a theory grounded in data.

3.8.2.3 *Constant Comparative Analysis*

Constant comparative analysis is the principle approach to data analysis in the theory integration (McCann & Clark, 2003b). Constant comparison involves comparing data with initial codes, and then with the categories as they emerge. The emerging codes and categories are constantly checked against the data that is collected, allowing the researcher to interpretively analyse the information (Charmaz, 2006). Ultimately, this iterative nature of data collection and constant comparative analysis raise the basic concepts to a higher level of abstraction, which offers explanation and interpretation of participants' worlds (Birks & Mills, 2011). The substantive theory is dependent on the constant comparative method and the researcher's engagement with data. This unique feature of concurrent data collection and constant comparative analysis differentiate grounded theory from other qualitative research designs (Charmaz, 2011).

3.8.2.4 *Diagrams and Memos*

Diagrams and memos are used as essential elements of the analytical process. Diagrams visually present the conceptual relationships between categories (Strauss & Corbin, 1990; 1998). Memos are thoughts, reflections and ideas written by the researcher throughout the study. Glaser (1978) put forward great importance on writing memos, considering this an essential step in grounded theory. Strauss and Corbin (1998) recommended memo writing to enhance conceptual growth of the researcher that would be evident in the final product (Fassinger, 2005). Memoing raises the conceptual understanding of the researcher by encouraging thinking beyond single incidents and looking for themes and patterns in the data. Memoing also enables the researcher to keep track of ideas which may possibly be valuable later in the study. When writing memos, the emphasis is on writing freely without any

limitation. The process should begin early on as the codes begin to emerge, and continue until the theory is developed (Charmaz, 2006).

3.8.3   Theory Integration

Interplay between researcher and the data using strategies to produce dense, saturated categories, and linking concepts and categories, results in the final outcome of theory integration (Birks et al., 2006b). For Strauss and Corbin (1998), theory means "a set of well-developed concepts related through statements of relationship, which together constitutes an integrated framework that can be used to explain or predict phenomenon" (p.15). However, for Charmaz (2006), theory focuses on understanding rather than prediction. "A theory states relationships between abstract concepts and may aim for either explanation or understanding" (Thornberg & Charmaz, 2012, p.41).

Theory develops as a result of the skilful application of techniques, and is described as substantive or formal. Substantive theories reflect the particular phenomena or situation, whereas formal theories are general in nature, conceptually abstract and derived from a variety of substantive areas (Holloway & Wheeler, 2002). Glaser (1992) points out that theory generation should be an outcome of the grounded theory. However, Strauss and Corbin (1998; 2008) argue that not every grounded theorist aims to generate theory. Findings can be utilised to produce useful descriptions about the research Phenomenon. For Glaser, the final theory should be open to modification and broad in nature, however Strauss and Corbin emphasise producing dense and detailed descriptions to explain phenomena (Birks et al., 2006b). The middle range substantive theories developed using grounded theory methodology have the potential to explain research phenomena. Applied to the profession of nursing, GTM contributes to a substantive body of knowledge in the area of nurse education and practice.

3.9 Constructivist Grounded Theory Method-A Chosen Approach

In this study, the choice of grounded theory method was directed by the research questions, together with consideration of the applicability and feasibility of method in the context of the phenomena of interest. The goal of the study was not to test or verify existing theories or hypotheses, rather to generate a substantive theory which could assist better understanding of academics' teaching practices towards evidence-based practice. Annells (1996) determined that the worldview of the researcher about a study assists in formulation of the research question and the nature of reality is embedded within the researcher's philosophical beliefs.

In seeking a research methodology that would best fit ontologically, epistemologically and methodologically, a constructivist grounded theory approach underpinned by the paradigm of constructivism was considered the way to follow. Constructivist approach is rather practical and challenges assumptions of abstract theories; the generated theory is the result of social constructions of participants and the researcher within a context. A constructivist method enables depth into the phenomena without isolating the researcher from its context, in order to gain a deeper level of understanding of the roots of the issue being studied (Charmaz, 2006; 2014).

In this study, data representing multiple realities required a flexible but interpretive approach. As suggested by Creswell (2007), Charmaz's constructivist grounded theory method orientation represents a flexible and interpretive approach to data generation and analysis, which suited this research. In the contemporary research world, Charmaz (2006; 2014) puts forward open, flexible, precise and practical methods to application particularly for neophyte grounded theorists. Her method offers a set of principles and practices which differs from the more prescriptive Glaserian and Straussian methods. Charmaz (2006) encourages the reader to

tailor her methods according to their research needs when exploring "the experience within embedded, hidden networks, situations and relationships, and making visible hierarchies of power, communication, and opportunity" (Creswell, 2007, p. 65).

Since the mid-1990s, the constructivist approach has gained popularity in a variety of disciplines. As Charmaz (2011) stated, data do not provide a window on reality, rather the discovered reality arises from the interactive process within its temporal, cultural and structural contexts. Focusing on data, Charmaz used grounded theory to elicit multiple meanings. By following Charmaz, researchers need to go beyond surface meanings in the data, searching for and questioning existing values, beliefs and ideologies discovered in the data. Charmaz's work provides guidance in creating meaning from the data and invites interpretation of participants' experiences as close as possible while writing the final text. Mills et al. (2006; 2007) stated the application of a constructivist approach enables researchers to ensure reciprocity between themselves and participants. Consequently, the generated theory is grounded in participants' and researchers' experiences. Constructivist grounded theory aims to counteract the traditionally objectivist position of the researcher by building in-depth meaningful relationships with participants.

By the mid-twentieth century, Glaser's (1978; 1992) work had moved grounded theory towards positivism emphasising logic, analytical procedures, comparative method, conceptual development and assumption of an external world with the eyes of an unbiased observer and discovered theory. On the other hand, Strauss' version of grounded theory emphasised meaning, action, process consistent with the roots of pragmatism and symbolic interactionism. These roots seem disjointed with his précised methodological strategies introducing verification. As a novice researcher, during this mental quest, it was felt a constructivist approach towards grounded theory would better address the researcher's beliefs of realities and social constructs. "We can use basic grounded theory guidelines with twenty-first century

methodological assumptions and approaches" (Charmaz, 2006, p.9). Given these important considerations, a flexible research methodology that was sensitive to background assumptions and had contemporary approaches of data collection and analysis methods was adopted to inform the study.

3.10   Evaluating the Quality: Trustworthiness of Grounded Theory Study

Establishing criteria to assess trustworthiness of grounded theory studies varies among grounded theorists. Glaser and Strauss (1967) in their earlier text recommended the concepts of fit, work, relevance and modifiability to evaluate the quality of the study. *Fit* refers to how well the theory is close to the reality, and *work* describes its explanation and prediction in the social context. Additionally, the significance of theory establishes its criteria for *relevance* and the ability of theory to adjust and modify reflects its *modifiability* criteria (Lomborg & Kirkevold, 2003). For Corbin and Strauss (2008), the evaluation criteria in which findings should have conceptual density, that is, categories should be theoretically dense, richly dimensional, and tightly linked with one another. In addition, developed theory should be judged in terms of "the range of variations and the specificity with which they are analysed in relation to the phenomena that are their source" (Corbin & Strauss, p.18). Their criteria were more complicated than presented by Glaser and Charmaz. The constructivist approach for evaluating a constructed grounded theory involves four criteria: credibility, originality, resonance and usefulness (Charmaz, 2006; 2014), which are discussed in depth in the conclusion chapter. Table 3.2 provides an overview of evaluative criteria proposed by an early and contemporary grounded theorists.

Table 3.2: Criteria to Evaluate Quality of GTM

Glaser (1978)	Corbin & Strauss (1990)	Charmaz (2006)	Corbin & Strauss (2008)
Fit	Data quality	Credibility	Fit
Work	Research Process	Originality	Applicability
Relevance	Empirical grounding	Resonance	Concepts are dense and varied
Modifiability		Usefulness	Concepts are contexualised
			Logical flow of ideas
			Depth of findings
			Variation within findings
			Creativity
			Sensitivity
			Evidence of memos
			13 additional criteria can also be considered

Apart from using evaluative criteria described by earlier grounded theorists, criteria for overall qualitative research methodology may be useful for establishing the trustworthiness. Credibility (truth value), transferability (applicability), and dependability (consistency) have been used to evaluate the trustworthiness of qualitative inquiry (Guba & Lincoln, 1994) and are applicable for both grounded theory and qualitative analysis. In order to increase the credibility of study findings, several strategies may be employed, such as triangulation, member checking, showing representative quotations, and peer debriefing. Triangulation via the use of multiple and different data sources, perspectives, sites, and theories is one of the basic strategies to evaluate a credibility of the study. Moreover, Graneheim and Lundman (2004) suggested the selection of "the most suitable meaning unit" (p. 110) and the capacity of categories and themes to cover data are the other strategies to ensure credibility. To facilitate

transferability, researchers provide "background data to establish [the] context of [the] study and detailed description of [the] phenomenon in question to allow comparisons to be made" (Shenton, 2004, p.73). Additionally, dependability can be enhanced through an audit trail that includes records of decision making, notes on methodology, and documents produced during the research process. The application of the above criteria in relation to this study is discussed in the next chapter.

3.11 Conclusion

In chapter three, the philosophical underpinning of the methodology chosen for this study was discussed. A constructivist grounded theory methodology orientation within the qualitative research tradition was provided, along with its foundational tenets for data collection and analysis were discussed in detail. Application of the fundamental tenets in the context of this research is outlined in the next chapter.

Chapter Four: Applying Grounded Theory Methods to Investigate EBP Integration in Undergraduate Nurse Education

4.1 Introduction

In this chapter, how grounded theory methods were employed to investigate the teaching practices and processes utilised by nurse academics when embedding EBP into undergraduate nursing curricula across Australian universities are discussed. In doing so, grounded theory as an emergent methodology was chosen to answer the research questions:

1. What processes occur as nurse academics undertake to incorporate EBP into their teaching practices?

2. What teaching and learning strategies do academics employ to teach EBP?

3. How is EBP integrated in undergraduate nursing curricula?

Constructivist grounded theory method (CGTM) is a qualitative research approach which is used to explore the basic social processes present within human interactions. This chapter examines how this was enacted and explores the researcher's position in relation to the diverse paradigms of grounded theory and impact of following one particular school of thought on the development of theory.

4.2   Applying Foundational Tenants of CGTM

4.2.1   Planning a grounded theory study

A study to investigate inclusion of EBP into undergraduate nursing curricula across Australian education providers offering BN programs was designed. To date, no such studies have been published in the Australian context. The study concept builds upon the researcher's masters study, exploring EBP from clinical educators' clinical coaches' and clinical nurse specialists' perspectives. The study recommendations, gaps in the literature and the initial discussion with the study supervisors laid the foundation for the current study.

During the planning phase of the study, CGT was found to be the most suitable method to investigate the research problem. In a very short period of time, the researcher collected and read extensive grounded theory literature and decided to position herself as a novice researcher, following the constructivist approach, proposed by Kathy Charmaz.

4.2.2   Researcher's philosophical positioning

The researcher's assumptions about multiple realities and how meanings are constructed through social interactions were acknowledged and supported by Charmaz's approach. Thus, from the planning phase, Charmaz's approach has been followed. Being an educator in BN programs over recent years, the researcher acknowledged that she had assumptions regarding the area of interest and challenged them throughout the study. Some preliminary assumptions were negative about lack of preparation of baccalaureate prepared nurses in using EBP in clinical areas, and absence of well-integrated curricula across undergraduate education. As the researcher embarked on doctoral studies, she began to question, and felt the need to explore in-depth processes by which EBP is taught and embedded into undergraduate nursing curricula.

4.2.3 Data Collection Methods

Based on symbolic interactionism, a constant interaction with participants, and engagement with study data and with one's self as a researcher gives rise to the key activities using grounded theory methods. This includes revealing participants' perceptions and interpreting their meaning through concurrent generation and analysis of data. Data can be collected by using a variety of sources to understand how research participants construct and define their realities in the social context. Mostly, semi-structured or unstructured in-depth interviews are preferred methods for obtaining data by grounded theorists. However, observations, reading relevant documents, and published literature can be added to enrich analysis (Holloway, 2005).

The choice of data collection methods for this study was guided by the underlying philosophy of grounded theory methodology, and research aims and questions. In the current study, interviews, observations and reviews of curriculum documents, as key methods to obtain information. These are discussed in detail in the following sections.

4.2.3.1 Interviews

Interviews were the primary method of data collection used in this study. Interviewing in the qualitative research is considered a common method of data collection which involves conversation between researcher and participants, exploring their experiences and stories relating to the research topic (Charmaz, 2014). Key characteristics of interviewing considered by any researcher are comprised of:

1. Selection of research participants who fit the research questions,

2. In-depth exploration of participants' experiences, feelings and perceptions,

3. Following up with implicit information,

4.   Seeking clarification, and

5.   Validating the researcher's interpretation of findings (Charmaz, 2014).

Grounded theorists may prefer to conduct intensive interviews which involve in-depth exploration of participants' experiences and interpret their meanings. This allows participants to relate to their experiences, and at times develops insights which were not known to them earlier (Charmaz, 2014). The researcher plays an important role by encouraging participants to talk, listening to the conversation and observing with sensitivity (Kvale & Brinkmann, 2009). Intensive interviewing is a technique which can have flexibility and control, is interactive in nature and allows the researcher to seek clarification from participants immediately or at later stage (Kvale & Brinkmann, 2009).

For the current study, ethical approval was obtained from Monash University Human Research Ethics Committee (MUHREC), who considered this study as low risk and granted approval to undertake the study (Appendix 1). Following receipt of ethical approval, data collection was commenced in early February 2014. In line with the study questions and by employing purposive sampling, nurse academics from Australian universities and colleges of higher education offering Bachelor of Nursing (BN) programs were invited to participate. Nurse academics were considered to be key people in instilling the concepts of EBP among undergraduate nursing students, therefore their participation towards this study assisted in identifying and exploring the processes they adopted while incorporating EBP into their teaching and learning practices. Invitation letters were sent out to the heads of nursing schools of all universities and colleges offering undergraduate nursing programs across Australia. The department heads then distributed the email invitations to potential participants who subsequently expressed interest in participating by directly contacting the researcher who

forwarded the Explanatory Statement. Interested individuals returned consent forms agreeing to partake either in interviews/observations or both.

Participants who consented to participate were approached individually to arrange interview times and places which were convenient to them. Interested participants returned the consent form expressing their interest to be either interviewed, observed or both. Altogether nine interviews were conducted at participants' workplaces, however twelve interstate participants were interviewed via telephone with mutual agreement between the participants and the researcher. A couple wished to be interviewed in person requiring travel to conduct the interviews. Participants were interviewed one-on-one using a semi-structured format with some guiding questions. Interviews were approximately 45 to 90 minutes in duration, were audiotaped and later transcribed verbatim. Each interview was begun by outlining the study purpose and reiterating the explanatory statement. Participants were also ensured of protection of their identity and how the information obtained would be stored.

Constructing an interview guide assists researchers to reflect on the questions each time before and after interview and to grasp better control of when they should be asked during the interview (Holloway, 2005). Although it may require skill and a lot of practice, questions must relate to an investigator's area of interest and fit with participants' experiences (Kvale & Brinkmann, 2009). Additionally, developing a set of open-ended questions assists the researcher to be insightful of his or her own understanding of research concepts, assumptions and the use of language (Holloway & Biley, 2011). Peer review or supervisors' review can be useful particularly for novice researchers. For the current study, having guided questions helped the researcher to remain focused on the topic, and also facilitated new theoretical renderings, which were taken into consideration through employing theoretical sampling. In the beginning, the researcher used a short demographic survey and a couple of guiding questions (Appendix 2) to reveal participants' understandings and experiences, for instance:

*How do you incorporate EBP into your teaching and learning practice*s? *What do you think about how EBP is integrated in your undergraduate curriculum*?

As the study progressed, the interview questions became more focused and allowed in-depth explanation and linkages of emerging concepts and categories. As Strauss and Corbin (1998) recommended, the initial interview guide should be provisional and revised as concepts begin to emerge. With the permission of research participants, the researcher used an audio-recorder and wrote field notes to follow-up with questions. As a novice researcher and having had minimal prior experience in interviewing, the researcher listened to each audio-recording several times to identify participants' experiences and their meanings beyond what they expressed. In the beginning, interviewing appeared to be intensive, at times asking awkward or unrelated questions disrupted the entire flow of communication. Nevertheless, the researcher gained confidence with subsequent interviews by engaging in reflective processes and having discussions with the study supervisors. Engaging with a reflective process following each interview enhanced the researcher's sense of capturing moments when participants were fully immersed in expressing their experiences relating to the research phenomenon. Some interstate participants preferred telephone interviews, which were scheduled later once the researcher gained confidence with face-to-face interviews. Telephone interviews had their own limitations, however the researcher strived for clear, focused and uninterrupted interviews.

A constructivist approach to interviewing differs from other traditions of grounded theory as this allows a mutual co-construction of knowledge based on participants' experiences and stories between researcher and participants. The researcher also analyses hidden meanings behind participants' silences (Charmaz, 2006). By using active listening during each interview, participants' concerns, perspectives and stories were heard, and were interpreted in their own context. Understandings developed through the conversation, enabled the study researcher to develop theoretical sensitivity to the developing theory (Birks & Mills, 2011).

Moving back and forth between data collection and analysis in the early stages of research assists researchers to shape their analysis as an iterative process, leading to seek further events, processes, experiences and stories (Charmaz, 2014). In the initial phase of the study, purposive sampling enhanced the likelihood of uncovering a wide range of realities (Strauss & Corbin, 1988). However, as the study progressed, theoretical sampling was employed which involved a two-step process. First, academics with varied nursing and teaching experiences, involved with theoretical and clinical subjects at various year levels were targeted. They shared some similarities and some differences with regard to experiences relating to EBP integration into teaching practices. As categories began to construct, further data were collected to develop the emerging categories and their properties. For example, to fully develop a category, those academics who were involved with teaching and coordinating research and EBP units of study within undergraduate programs were included. Hence, theoretical sampling allowed categories to fully develop, elaborated their meanings, clarified relationships between categories, assisted in seeking new theoretical renderings and defined gaps to fully explore a range of processes in relation to academics' teaching practices. It resulted in a diverse group of participants comprising a range of professional experiences, expertise, positions from lecturers to associate professors, and involved in theoretical and clinical teaching at various year levels across a number of Australian universities.

When a grounded theorist asks the question how many interviews should I conduct?, Charmaz (2014) clarifies that the grounded theorist's aim should be to saturate emergent categories and concepts, and not to saturate data. Saturating data differs from obtaining adequacy of categories because it requires less engagement with research participants and data. Hence, in this study simultaneous data collection and analysis were continued until categories had been fully developed and the researcher was confident that categories were fully saturating. The sample size for this study was considered satisfactory when the emerging categories from

the data reached saturation and further data collection did not produce any new information or concepts (Morse, 2000). In total, 23 interviews with nurse academics were conducted across five Australian states including Victoria, New South Wales, South Australia, Western Australia and Queensland. After the twentieth participant interview, reoccurrence of themes was noted; however three additional participants were included in the study to verify the emerging concepts and to provide further elaboration of categories.

Amongst the 23 recorded interviews, fifteen were transcribed personally. Although the remaining were transcribed by a professional transcription service, the generated transcripts were checked against original recordings to determine errors and to ensure accuracy. Additionally, once the transcripts were generated, participants were contacted to confirm the content and if there was any change to be made. Each participant confirmed the transcript and no change was advised. Memos in the form of descriptive and narrative notes were written after each interview, and were further followed up after listening to each recording. The researcher made efforts to analyse interview data following each interview, at times required to be prepared in a short time frame. On a couple of occasions, a preliminary analysis was performed before the next scheduled interview. With continued memo writing, the researcher was able to keep records of conceptual ideas and how these were raised to an abstract level in the form of categories. This process further assisted the researcher to adhere to the principles of CGTM and provided an audit trail of decision-making used to reach to the stage of theory development.

4.2.3.2   Observations

Along with interviews and document analysis, the researcher observed teaching practices of participants to substantiate study findings and to reveal any new theoretical possibilities. This method has clear advantages when the purpose is to understand social processes people engage

with, and how these processes alter with different situations and over time. The use of observation as a data collection method when the researcher intends to investigate processes, roles and cultures within a social context has a long tradition within social sciences research (Denscombe, 2010). This method has equally gained attention in contemporary nursing research with both interpretive and positivist inquiries (Munhall, 2007). Within the qualitative research paradigm, observations of participants/situations/events enable understanding of the context, routine practices, validation of interview findings, and are used in combination with interviews and documents to substantiate findings (Holloway, 2005).

For this study, interested participants who wished for their teaching practices to be observed indicated their agreement on the consent forms and returned them to the researcher. In total, nine participants consented to be interviewed and observed during lectures/ laboratory/ tutorial teaching with undergraduate students. Upon receiving their consent forms, participants were contacted to discuss suitable times, settings and type of teaching sessions they were comfortable for the researcher to observe. Nine observations were undertaken across four states including Victoria, Queensland, South Australia and Western Australia. Each observation was of at least two hours in duration and follow-up meeting was arranged with each participant immediately post-observation to seek clarification as needed. Before the observations occurred, participants and the researcher informed students of the purpose of the observations and assured them that students' activities would not be reported in any stage of the research process. Field notes were taken during observations. For this study, field notes were initially handwritten and later typed.

Observations can be used in two distinct ways, structured and unstructured. Within the positivist paradigm, structured observation is commonly considered to record physical or verbal actions using a predetermined checklist/proforma (Munhall, 2003). In contrast, the aim of unstructured observation within a constructivist paradigm is to co-construct knowledge

between researcher and participant, which provides insights into processes, shedding light onto participants' physical, social and psychological environments (Munhall, 2003). Additionally, it also offers some context to incidents and behaviours that can be utilised as reference points for subsequent interviews (Munhall, 2007). What is observed is determined by the research questions, methods of data collection and purpose of observation. Usually the researcher intends to observe a list of elements in any setting that includes:

1.   The physical setting: What the physical environment is like, the context, objects, resources and technologies in the setting.

2.   The participants: Who is in the scene, participant numbers and their roles, relevant characteristics of the participants, expected and unexpected people.

3.   Activities and interactions: What is going on? How people interact with each other? What kind of activities participants are engaged in? Communication and interaction frequency and patterns. Are there any rules or structure of activities?

4.   Conversation: The pattern of conversation, who speaks to whom, who listens most, verbal and non-verbal conversations among participants and others.

5.   Subtle behaviours: Informal and unplanned activities, any activity not expected to happen.

6.   Researcher's behaviour: one's role whether as a non-participant observer or as a participant affecting the scene, thoughts during observations, field notes, and writing patterns (Holloway, 2005; Munhall, 2007; Charmaz, 2014).

In line with the above elements, the researcher observed the teaching spaces where observations were conducted. Participants' activities, along with details of each activity, were noted without making any assumptions. Additionally, when participant observations were conducted during classes, specific questions were asked of participants in relation to who was involved in designing the content, the participant's role, their communication with the teaching team and

any change or modification in the content they preferred before the activity or after completion. Participants' behaviours were observed, particularly how they embedded EBP in the content delivered, and how students were encouraged to translate EBP concepts into practice.

The process of collecting data through observations comprises three stages including: entry, data collection and exit. Entry begins with obtaining permission of gatekeepers. This step can be very easily accomplished by having important contacts in the setting, however sometimes researchers face issues before entering into the field. Once permission is obtained, the researcher can begin collecting data by establishing rapport with study participants and being flexible with participants' routines and activities. Much hard work and concentration is required in this phase of observation. Even short observation can be exhausting due to unfamiliar settings and the researcher may not have an idea as to what is important to observe and record (Munhall, 2003). Exiting the field can be much harder than the entry and will depend on the saturation of information; however on some occasions, scarcity of resources could lead to earlier exit. It is important for researchers to have a plan for exit strategy, rather than abruptly ending the observation (Munhall, 2007; Walshe, Ewing & Griffiths, 2011).

Within this study, no major issues were encountered before entering into the fields. Most heads of schools provided permission immediately, however a couple required local ethical approval and requested the researcher to submit the relevant paperwork. Upon submission of the required documents, permission was granted to undertake observations. Before each observation, the researcher tried to obtain as much information as possible about the context of the activity, topic of the class, and any other team member involved. During the observation, the researcher made every effort to take the above elements into consideration and write field notes accordingly. Most of the time, points were jotted down at the field and detailed notes written following the observation. As the observations were of short duration (preferred by participants) this made it relatively convenient for the researcher to exit the field. Follow-

up meetings conducted post-observation assisted with seeking clarification, at the same time facilitated smooth exits.

An observer's role within an observational research setting can be considered on a continuum from complete participant observer to a complete observer (Gold, 1958). An observer can be fully immersed into the setting being observed or remain as a complete observer with minimal or no interaction with those being observed. An observer usually acquires one of the listed roles during any observation:

1.   The complete observer whose role is hidden and researcher objectively observes;
2.   The complete participant role who interacts within social context but is hidden;
3.   The observer as participant, whose role is known and undertakes interviews and observation alongside;
4.   The participant as observer, who immerses themself in all activities and the role is known (Gold, 1958).

With regards to the above listed roles, in this study the researcher's role as an observer and interviewer was known to the participants, however the researcher was not involved with any classroom activities conducted by participants. Researchers have obligations towards their participants to inform them about observations, which may generate a potential limitation to identify the trueness or reality. This may also create an observer-effect and may change the setting (Munhall, 2003). By employing a reflexive framework recommended by Munhall, (2003; 2007) asking five key questions being 'who', 'what', 'where', 'when' and 'why', this limitation can be addressed. Table 4.1 provides a description as to how the current researcher applied these questions to address the issue.

Table 4.1: Observation Process

Who are the people participating?	Nurse academics
What roles are they performing? What is the researcher intending to observe? What is going on?	They were lecturing, tutoring or facilitating laboratory teaching. Researcher intended to observe the actions and processes undertaken by nurse academics while they incorporated EBP into their teaching practices.
Where is the process/actions/ behaviours taking place? Context/ setting	University setting / in class, lecture theatre or in clinical laboratory setting.
When do processes take place? Do they change with different situation and over the period of time?	Processes took place during lecture/tutorial/laboratory preparation and delivering content Hard to observe if processes change over the period of time due to one off observations.
Why do participants behave in certain ways? What impacts their behaviour?	Contextual determinants including facilitators and challenges in academic settings, curricula and practice settings can influence the way participants behave in certain ways. Also, self-motivation, passion and engagement with EBP impacts their behaviour.

Munhall (2003; 2007)

Although observations can provide a valuable insight into research participants' worlds, they can give rise to issues relating to their application (Harrison, 2010). Some of the issues highlighted in the literature include lack of clarity with the researcher's role in the field, accessibility to research participants, recording of observations, researcher's anxiety associated with entering into new settings and ethical issues of confidentiality and anonymity (Harrison, 2010). In addition, participants perceive observations as more intimidating and threatening than other methods of data collection (Carnevale, MacDonald, Bluebond-Langner & McKeever, 2008), however with careful planning and paying attention to expected problems, researchers can surmount potential methodological issues.

In the current study, these issues were addressed by obtaining permission from heads of schools which minimised possible problems related to entering into the field. Additionally, participants were assured that at any time before and during the observations, they could ask

the researcher to leave the room. Even if participants decided to withdraw after the observation, they could do so, and as a result, their activities would not be reported. The researcher's anxiety with relation to entering into a new setting was dealt by engaging with short, two-hour duration observations. The researcher also requested participants to send information prior to the observations which offered insight as to what was expected. Nevertheless, the researcher discussed with participants interpretations of what was observed, clarified concerns and asked questions in the post-observation meetings, which reduced the possibilities of assuming participants' actions and certain behaviours. It also provided opportunities for participants if they wanted any information to be removed.

Written observation notes become raw data from which study findings emerge. Written accounts of observations, 'field notes', are similar to interview transcripts (Harrison, 2010). Recording of observations varies from researcher to researcher, some prefer to write sketchy notes and others prefer not to write at all during the observation, however this requires the researcher to rely on their memory to write detailed descriptions later (Holloway & Wheeler, 2002). Additionally, writing observation notes can take several forms such as writing detailed narrative notes, summarising or outlining observations, drawing diagrams of the setting or concept/mind maps. Timely recording is essential following every observation, the more time the researcher takes before recording notes, the poorer recall will be and less likely the researcher will get the recording done precisely and accurately (Munhall, 2007).

Field notes based on observations should be recorded in a manner which can be easily accessible and can be analysed. Field notes should be descriptive, reflecting participants being observed, demographic details if possible, setting and activities being observed, participants' behaviours and the purpose for which the observations are being undertaken (Harrison, 2010). In addition, notes must capture the researcher's feelings, reactions, and interpretations, thus adding reflective dimensions to the field notes. Qualitative researchers have recommended

maintaining an audit trail so readers can follow actions and decisions made by the researcher, thus establishing credibility and reliability (Holloway, 2005; Munhall, 2007; Merriam, 2009).

In line with the above suggestions, the researcher recorded detailed narrative field notes during and post-observations, specifying: physical settings where observations were conducted, activities of participants, in what ways participants incorporated EBP into their teaching, any special activity/event occurring during the observation and personal reflection relevant to the observation (see Appendix 3 for field note examples). Additionally, the researcher's assumptions, thoughts and interpretations of activities were also recorded. Those assumptions were later challenged after seeking clarification from participants during follow-up meetings and through literature review. After each observation, transcripts were generated and analytical decisions made. As proposed by Charmaz (2014), interview transcripts and field notes were analysed alongside each other.

4.2.3.3   *Documents-Unit Guides*

Qualitative researchers seek to understand participants' worlds from their perspectives, thus value an 'emic' approach, rather than 'etic' perspective derived from theories and literature. Hence, documents are underutilised in qualitative research. Furthermore, documents are not always produced for research purposes, yet researchers may undervalue their use to produce or validate study findings (Miller & Alvarado, 2005; Prior, 2008). Despite some of the limitations, documents are a good source of data for various reasons. They may add richness to data along with observations and interviews due to being objective, and on some occasions may guide interview questions or observations. Additionally, documents provide a valuable source of information on topics which pose limitations to be discussed or observed (Charmaz, 2006; 2014). For the current study, unit guides, also referred to as subject outlines or course outlines,

shared by some participants were used to enrich study findings and to elicit further information on subject descriptions that were difficult to obtain during interviews and observations due to time constraints.

Documents refer to a wide range of written, visual, digital, and physical material relevant to the study at hand and could be available online or as hard copy. When using documents as a part of the research process, authenticity and accuracy must be determined. In order to establish authenticity of documents, the researcher needs to determine the purpose for which documents were produced and the value they add to research findings (Ralph, Birks & Chapman, 2014). Two types of documents are commonly used in qualitative research including elicit documents, which are produced by research participants in response to a researcher's request, and extant documents, constructed for reasons other than the research purpose (Ralph et al., 2014). Common examples of elicited documents comprise survey questions or participants' written excerpts (Charmaz, 2006), whereas extant documents are often considered to support interviews and observation findings and can be treated as data of its own (Charmaz, 2006).

In the current study, with the participants' permission, 20 subject guides comprising theoretical and clinical subjects were accessed and reviewed. The primary purpose was to explore the learning outcomes, content, teaching strategies, assessments and resources to determine: (1) how research and EBP concepts were taught, and (2) how EBP concepts were integrated into each theoretical and clinical course. A comprehensive document was developed to consolidate the information reviewed in each subject guide, which was later treated in a similar manner as interviews and observations transcripts.

When using documents to enrich findings, it is essential to establish their contextual positioning. This enhances interaction between the researcher and documents in a more reflexive manner (Ralph, et al., 2014). In support, Charmaz (2014) further advocated the idea

that written text be used to explore, explain, and showcase actions. Whilst working with the unit/subject guides, the researcher followed Ralph et al.'s (2014) proposed questions due to its structured and systematic approach to contextualise extent documents.

1. Who produced and edited the unit guide?

2. What purpose does the unit guide serve? What are the potential benefits of having a unit guide? What value does it bring to the current study?

3. When was the unit guide produced and how often do they get updated?

4. Where was the unit guide developed? Which institution does it belong to?

5. Why was the unit guide used to collect information for the current study? What does it add to the current study?

Working through the above questions, contextual positioning of the unit guides was established. Other than this, learning outcomes, graduate attributes, topic schedules, assessments, resources given and other information within the unit guides were consolidated in a single document, which was later coded. Additionally, clarification from participants was sought when needed. Data generated from interviews, observations and unit guides added depth and breadth to the study findings, and facilitated construction of knowledge of the social processes involved in the integration of EBP in nurse education.

4.3 Ethical Considerations

Ethical and legal issues in research are primarily taken into account to protect participants' dignity. The purpose is to minimise physical, psychological, and sociological harm to participants in all possible ways (Schneider, Whitehead, LoBiondo-Wood & Haber, 2013). The National Health and Medical Research Council provides comprehensive guidelines to ensure a

high standard of quality in the conduct of research. Research across Australia must be conducted in accordance with the Australian Code for the Responsible Conduct of Research (NHMRC, 2007). In line with the code, researchers are required to ensure integrity in the research process throughout the conduct, and during dissemination of results.

4.3.1 Obtaining Informed Consent

Obtaining voluntary, informed consent from study participants is essential in the conduct of ethical research. Consent is an agreement given by research participants without any threat or fear to partake in the study. Informing refers to providing essential information by the researcher to participants, who then decide to either participate or not to take part (Franklin, Rowland, Fox & Nicolson, 2012). Informed consent usually comprises four elements including disclosure of essential study information, comprehension of the information, capability to be able to provide consent and voluntary consent without any fear or monetary benefits to participants (Burns & Grove, 2007).

Disclosure of study information

Considering the important aspects of informed consent, an explanatory statement and consent form were distributed to the potential participants via email (Appendix 4). Prior to the interviews and observations, the researcher ensured that participants had read and understood the study explanatory statement and clarified any concerns if raised. If participants had not read the explanatory statement and were not clear in their thoughts about the study, the researcher shared the essential aspects of the study and gained their consent to begin the interview/ observation. During this process, participants were assured that participation was voluntary. If participants wished to withdraw from the study completely or did not want to be involved in

any of the procedures, they had a right to do so at any stage. Participants could consent to participate in either or both methods of data collection.

It was identified that minor inconvenience might be experienced by participants as a result of the interview process and observation. However, participants could ask the researcher to conclude the interview or leave the room any time before or during the observation. The researcher was also able to arrange counselling services for participants should the need arise. However, this was not required. The researcher was honest and made clear to participants the time required to be engaged in interview and observation. Qualitative interviews have limitations that sometimes they could provoke anger or distress which requires time from both ends to work through, instead of a sudden termination of interview (Kvale & Brinkmann, 2009), however this did not occur.

Voluntary Consent

An individual's ability to participate in a research project could be violated if they are forced or being deceived. Coercion involves offering some kind of benefits or threatens them to an extent which allows participation, whereas deception includes misinforming participants regarding any aspect of the study purpose or methods (Schneider et al., 2013). In the current study, participants were neither forced to participate nor offered any monetary benefits. They were not contacted directly by the researcher and were free to make decisions based on their willingness to partake upon receiving the study information. Voluntary consent was obtained once all the essential information was imparted to prospective participants. Written consent was obtained before conducting interviews and undertaking observations.

4.3.2   Right to Anonymity and Confidentiality

Research participants have the right to anonymity and to be assured that information shared by them will be kept confidential. Confidentiality refers to the information provided by research participants not being linked to their names and contact details (Kaiser, 2009). Although in most qualitative research the researcher is aware of the identity of research participants, they need to ensure that identities are kept confidential during the entire research process (Burns, Grove & Gray, 2011). A breach of confidentiality occurs when the researcher deliberately, or by accident, reveals the identity to someone unauthorised to gain access to data. Confidentiality can also be breached while reporting and publishing the study results (Kaiser, 2009). In addition, confidentiality is of a matter of concern particularly in qualitative research due to smaller numbers of participants, and if the study is undertaken in similar organisations to which the researcher belongs. Therefore, care needs to be undertaken when reporting of results which requires a great deal of description to understand and interpret participants' worlds.

Confidentiality and anonymity were maintained throughout this research. Information obtained from participants was not identifiable at any stage of data analysis and reporting. All participants were offered opportunities to review their interview transcripts and had opportunity to change or clarify any comments before analysis. A couple of participants made minor changes and only one indicated that certain information could not be reported. Once the final transcript was received from participants, pseudonyms were assigned to each transcript. The transcripts and analysis were presented to the research supervisors with pseudonyms and participants' and their organisations' identities would only be revealed to the supervisors if they wished to listen to the audiotapes. Study results were also reported using pseudonyms and details of participants' organisations were not included at any stage of reporting.

4.3.3 Right to Protection from Discomfort and Harm

Applying the ethical principle of beneficence, the researcher has an obligation to do good and no harm to participants. Discomfort and harm in the form of physical, emotional, financial, social or combination of any of these, need to be avoided (Shaw, 2008). In the current study, the researcher was aware that directly contacting the research participants might threaten them or educational institutions they were working with, therefore a careful approach was undertaken by contacting the heads of schools and a request made to circulate the information to potential participants. Upon receiving information, interested individuals contacted the researcher directly. In addition, a counselling service was also organised for participants should they require it as a result of participation in interviews and/or observations.

4.3.5 Storage of Data

Data was protected in two ways. Firstly, data were kept in password protected electronic files on the researcher's personal computer. Secondly, following the university's policy, hard copy data was secured in locked filing cabinets at Monash University, and will be kept for five years upon the completion of the research. Only the student researcher and her supervisors can access the data. Participants have the right to access the results of the study and the information collected. They received the researchers' contact details in the explanatory letter to request results or raise any concerns in relation to the study.

4.4 Data Analysis Approach

Grounded theory method requires the researcher to be fully immersed in data. Immersion in data enables the researcher to understand the meanings participants give to their ideas, feelings,

experiences and perceptions (Birks & Mills, 2011). The aim of the constructivist approach is to develop theoretical interpretations of data by being flexible in approach and not being prescriptive.

4.4.1 Engaging with Initial Coding

In the current study, the researcher immersed herself with initial coding by reading through the interview transcripts, field notes and unit guides alongside each other. During initial coding, phrases, words or stories that individually contained a single unit of meaning were selected. Additionally, the researcher used participants' original words while labelling units (Schreiber & Stern, 2001). Charmaz (2000; 2006) firmly believes in the use of gerunds (nouns formed from verbs) as they reflect the enacted processes and actions of individuals. Through initial coding, the researcher was open to explore theoretical possibilities, which helped to later define categories. The researcher also adhered closely to the data, and attempted to code data as *actions.* Coding for actions prevents researchers focusing on individuals' trends and qualities, rather reflects what is happening in the data (Charmaz, 2006). This process further directed the researcher to make comparisons between data and create linkages to the emerging categories.

Performing Line-By-Line Coding

Line-by-line coding assists researcher to identify implicit and explicit processes and events by pulling them apart and analysing in depth (Bryant & Charmaz, 2010), thus making the processes visible, and giving new insights. In the present study, first level coding was executed through line-by-line analysis using gerunds and action verbs. Along with interview transcripts, field notes generated from observations and a compiled document from unit guides were analysed using similar coding procedures executed for interview transcripts, although

separately for each. Published literature on grounded theory analysis was referred to aid understanding of the coding process.

Additionally, data were managed by using the software program for qualitative analysis NVivo 10. Initial coding was performed manually and files were uploaded to the software. Later stage coding, including focused and theoretical, was performed. Earlier grounded theorists' opinions lie to be open-minded and not to bring any preconceived ideas during analysis (Glaser, 1978; 1992). However, the researcher's prior ideas and knowledge should be acknowledged (Charmaz, 2014). A reflexive log was maintained to identify previously known knowledge, and any personal and professional assumptions, which could potentially have affected development of codes and findings. Following Charmaz's (2014) guidelines, the researcher treated the initial codes as provisional, later replaced by codes that fitted tightly to the data.

For the purpose of line-by-line coding, the study data was fragmented and coded by defining actions and processes. An attempt was made to identify and explain explicit and implicit meanings and actions. As the codes evolved, they were compared with other codes and gaps were identified which prompted for further data collection using theoretical sampling. Being flexible with initial coding, new ideas were illuminated which were pursued to fill in gaps and the researcher was able to move into further analysis with confidence and being open-minded. Initial coding enabled the researcher to move from concrete events to theoretical insights, which were further analysed through focused coding. During this process, the researcher noted that the initial phase of data analysis through word-by-word, line-by-line, and incident to incident coding generated a range of ideas and interpretations on which the theory was based.

4.4.2 Category Formation through Focused Coding

Focused coding is the second major analytical step in CGTM. The codes are more conceptual and selective than word-by-word, line-by-line and incident to incident. Focused coding allows the most significant and frequently appearing codes to fit with the large amount of data. Through comparing data with data, the researcher engages in focused coding and raises concepts to a higher level into sub-categories and categories (Charmaz 2000; 2006). Following initial coding, the researcher immersed herself with focused coding. Initial codes were collapsed into more focused codes and were organised in NVivo 10 (See Appendix 5 for an example). In doing so, the researcher constantly compared initial codes against focused codes and any existing and incoming data. As a result of this constant comparative process, relevant sub-categories were identified. The sub-categories were further compared with codes, concepts and data to seek relevance and fitting. This comparison facilitated identification of further gaps in data, and by using theoretical sampling, identified gaps were filled.

As focused coding proceeded, concepts were elevated to provisional categories. Through the iterative process, categories were grouped together to build overarching categories where links were made between a category and its sub-categories. In this process, the researcher made decisions about the codes that made the most analytical sense and elevated them higher to construct categories. Moving forward, the researcher used the emerging categories to engage in further data collection and evaluate the relevance of emerging categories to newly identified concepts. Focused coding moved the analysis into theoretical direction and immersed the researcher into an exciting journey of creating relationships between categories and concepts. The researcher then determined the theoretical adequacy and conceptual strength of initial codes by comparing them with the categories. Using the Charmaz (2014) approach of analysis, the researcher considered the following questions during initial and focused coding process:

1. What do you find when you compare your initial codes with data?

2. In which ways might your initial codes reveal patterns?

3. Which of these codes best account for the data?

4. Have you raised these codes to focused codes?

5. What do your comparisons between codes indicate?

6. Do your focused codes reveal gaps in the data? (Charmaz, 2014, p.141).

During this phase, the researcher came across events, interactions and perspectives which had not been considered before. Charmaz (2014) reminds researchers that initial and focused coding procedures in grounded theory are emergent, therefore researchers should look for theoretical possibilities beyond what is explicit and what the researcher has anticipated to see. One code might illuminate another if the researcher asks the question: "what kinds of theoretical categories do these codes indicate?" (Charmaz, 2014, p.144). By reflecting on this question, the researcher moved ahead with the conceptual journey, thus gaining further theoretical sensitivity about codes and emerging concepts. Finally, four inter-related categories were constructed encompassing: *Valuing and Engaging with EBP*, *Enacting EBP Curriculum, Influencing EBP Integration* and *Envisaging the Use of EBP*. Tables 4.2 and 4.3 provide an overview of data analysis steps undertaken, and an audit trail for a category, "*Valuing and Engaging with EBP*". Chapter five provides a detailed discussion on the categories constructed as a result of engagement with the iterative process.

Table 4.2: Overview of Data Analysis Approach

Initial Coding
• Interviews and observations were transcribed into transcripts and field notes. Information from unit guides was consolidated in a single document.
• Line-by-line analysis was performed. Transcripts, field notes and unit guides were read multiple times to identify actions, processes, consequences and causes.
• Labels were assigned to each line directed by questions such as: "What is going on?" "What is being said here"? "What does the participant mean"? "Who is involved?" and "Into what context?", "What process do they suggest"? "When, why and how does the process change" (Charmaz, 2006; 2014, p.127).
• Labels were written on the transcripts, field notes and unit guides.
• Data were compared to other data and codes.
• Further data collection was directed by emerging concepts and codes (theoretical sampling)
• Memo writing continued.
• Discussion with research supervisors.

Focused Coding
• Identified codes and concepts were raised to an advanced level-focused codes.
• Identified focused codes were constantly compared with initial codes, data and with emerging concepts.
• Relationships between the concepts were explored.
• Concepts were raised to construct sub-categories and the sub-categories were compared with data to seek relevance, and fitting.
• Sub-categories were further raised to a level where the emerging categories could be examined.
• Each category was constantly compared with the data, codes and sub-categories.
• A concept map was generated to examine the link between the sub-categories and categories.
• Memo writing continued.
• Discussion with the research supervisors.

Theoretical Coding
• The emerging categories were further refined and examined against data until a core process/ category was identified.
• The core category was refined and integrated to a higher level of abstract explanation in a form of theory, grounded in data. This further provided the linkages between categories and the core process.
• Theoretical model was used to explain the relationship between theoretical construct, its transitional stages, categories, sub-categories and contextual conditions.
• Memo writing continued
• Discussion with the research supervisors.
• Generated theory and the model explaining categories, transitional stages and contextual determinants were discussed with three study participants.

Table 4.3:   Audit Trail for a Category   "Valuing and Engaging with EBP"

Examples of raw data	Codes	Sub Categories	Category
"We have to consider the three aspects of evidence-based practice, which is: What is best practice? What are the patients' preferences? What is the doctor, or the health professional's preferences, along with the resources that are available?" (Jacki)	Sharing the key aspects underpinning EBP	Demonstrating some understanding of EBP	**Engaging and Valuing EBP**
"but the subject is really more utilisation of research, which is another term for evidence-based practice, isn't it?" (Simone)	Relating research utilisation to EBP		

"I think it's also important that we value EBP" (Karen) "There's 100 projects that need to be done around this area. It's certainly an area that I'm keen to investigate further myself" (Josh)	Expressing interest in the area of EBP	Committing and Embracing EBP	
"Me, me I read all the time. I don't think anybody has any problem keeping updated nowadays" (Barbara). "use Joanna Briggs a lot. If I don't have time, I can shrink a little summary and I can download the article and read when I have time" (Stacey). Observation with Melissa revealed that she was up-to-date with practice guidelines and relevant current evidence with the use of respiratory devices during her laboratory teaching.	Keeping abreast of literature	Keeping up to date	
We lead by example in our teaching by basing our teaching on evidence (Ann) "Academics need to therefore respond and integrate this across their curricular. Yes, that does require them to embrace more. By doing that, they're actually being role models that evidence-based practice is important to good clinical decision-making. It has to be reinforced when students go out on placement"(Kate)	Being role models for students	Leading by Example	

4.4.3 Achieving an Advanced Level of Coding

Theoretical coding is an advanced stage of coding which follows the codes selected by the researcher during focused coding (Charmaz, 2006). Once the researcher had successfully collapsed the initial codes into categories, the relationships between and among the categories were examined. Theoretical codes assisted clarifying what each category was in relation to other categories, thus developed theoretical links between categories, and eventually these links integrated into theory. The purpose of theoretical coding was to theorise focused codes and categories to a higher level by which these codes tell an analytical story which was coherent and linked to data. However, the tension in theoretical coding lies between emerging and applying and has yet to be resolved (Charmaz, 2006; 2014).

In addition, a concept map (Appendix 6) was developed identifying relationships between each category and generated codes. During this stage, a series of steps were undertaken to confirm that theoretical saturation was reached: (1) no new codes and categories emerged from data analysis, (2) concepts relevant to the core process/category were being coded as existing codes, and (3) information recorded in memos was already being included while coding (Charmaz, 2006). These processes assisted the researcher to determine the categories were fully saturated and no new concepts were revealed during the analysis. Additionally, at this stage each category and its properties was examined for credibility, originality, resonance and usefulness; criteria proposed by Charmaz (2006; 2014) to evaluate study findings.

4.4.4 Executing Constant Comparative Analysis

Constant comparative analysis is the principle approach to data analysis in the theory integration (Charmaz, 2005). Constant comparison involved comparing data word-by-word, line-by-line or incident to incident, and then with the categories as they emerged. In this study,

the emerging codes and categories were constantly checked against data during analysis, which allowed the researcher to interpretively analyse the information and to develop a theory closely linked with data. This showed the substantive theory developed was very much dependent on constant comparative method and the researcher's engagement with data.

4.4.5 Developing Diagrams and Memos

Memos are thoughts, reflections and ideas the researcher writes throughout the study (Charmaz, 2014). In the present study, memo writing occurred from the study's inception. At each stage of data collection and analysis, notes were written describing the researcher's thoughts, reflections, concerns, information to be revealed for the next interview, participants' actions, issues identified and strategies used by participants, to name a few (An example of memo is presented in Appendix 7). These notes later evolved into more conceptual ideas by encouraging the researcher to think beyond single incidents and look for themes and patterns in the data. This also enabled the researcher to ask conceptual and theoretical questions which yielded collection of further focused data. Additionally, with the help of memoing, the researcher was able to acknowledge own assumptions, relate categories, and engaged with constant comparative analysis, which further raised the categories into theoretical codes, and later integrated into a theory. Memos were written manually which assisted to link them with initial, focused and theoretical codes.

Diagrams visually represent the conceptual relationship between categories (Strauss & Corbin, 1990; 1998). A few conceptual maps were developed to identify relationships between each category and their properties, constructed in the process. Finally, a theoretical model illustrating key elements of the theory was created to explain the core process undertaken by study participants.

4.4.6 Constructing the Theory

The interplay between the researcher and data, using the strategies to produce dense and saturated categories, and establishing relationships between categories, resulted in the final outcome of theory development. During theoretical coding, categories were elevated to a higher level, where a core process/category was constructed, which further integrated into theory. Developing a core category is not always essential for constructivist grounded theory approach, as Charmaz disregards the relevance and necessity to create a core category, rather taking a broader approach that explains how categories interrelate with sub-categories to form a substantive theory about the research inquiry (Charmaz, 2006). A commonly used approach was taken in identifying a core category which explicates a basic social process undertaken by current study participants (Charmaz, 2006). The construction of a core category was seen as valuable for this study as it possessed an ability to link all other categories, and analytically has a power to convey theoretically about the research phenomena.

The constructed core category, "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*" is at the heart of the theory, which explicates a core process utilised by all participants and offers understanding of participants' actions and processes, embedded in categories. The core category is the central phenomenon viewed from participants' perspectives. The theory is apparent in three transitional stages comprising: *Embarking on a journey-Being prepared, Experiencing challenges* and *Moving ahead-Linking EBP theory to practice*. These transitional stages create linkages between categories which are embedded within these stages. The core process is common to all participants and they move to and from between the three transitional stages.

A theoretical model explaining the relationships between categories, sub-categories and contextual factors influencing them was developed, and is presented in the theory chapter. This

theory meets the criteria proposed by Charmaz (2006), that theory offers understanding and interpretation rather than explanation and prediction. Interpretive theories assume multiple realities, provide meanings to those realities and are fully compatible with Mead's view of symbolic interactionism (Charmaz, 2006). Once the theory was constructed, participants were contacted to discuss the theory, eventually three participants confirmed the constructed theory was a true interpretation of participants' meanings in a particular context.

In constructing theory that is well grounded in data, Charmaz (2014) outlined four theoretical constructs to consider, including: theoretical plausibility, direction, centrality and adequacy. Theoretical plausibility of ideas occurred in the initial phase of research. Gathering in-depth and broad nature data strengthened theoretical plausibility and minimised issues around accuracy which many grounded theorists' desire. As the study progressed and codes began to emerge, the study analysis started taking the theoretical direction. Initial analysis and memoing directed researcher towards future data collection by focusing on specific questions and events to explore. Theoretical direction being an instrumental construct to gain, led the researcher to pursue theoretical centrality. Focused coding and emerging categories had guided the researcher to collect further data by pursuing theoretical sampling, thus determined the theoretical centrality. In the later part of the study, the researcher aimed to gain theoretical adequacy by saturating the emerging categories. Additionally, theoretical direction, centrality and adequacy were achieved by immersion with simultaneous data collection and analysis procedures.

Using the evaluative criteria suggested for qualitative studies, the researcher established trustworthiness of the study findings by using various data collection methods, hence collected multiple perspectives in the form of interviews, observations, documents and literature. As a result, constructed categories represented the meanings and interpretation of participants' experiences, feelings, thoughts and silences, thus enhanced the study credibility. In addition,

verifying transcripts with participants, reporting of participants' excerpts, and debriefing with research supervisors further confirmed the credibility of study findings. Memoing and maintaining an audit trail of all levels of coding demonstrated the constructed codes and categories fitted the raw data and the resultant theory, which met the evaluative criteria of transferability and dependability. Specific to constructivist approach, the criteria proposed by Charmaz to establish rigor are discussed in full detail in the concluding chapter.

4.5   Conclusion

In this chapter, the researcher examined the experience of using grounded theory methods to investigate EBP inclusion in undergraduate education. Through exploration of grounded theory methods, the researcher has demonstrated understanding of methodological principles, her own philosophical positioning and how they have been applied over the course of the study. Adhering to constructivist grounded theory approach, the researcher was able to investigate processes and produced study findings, which the next chapter explores in detail.
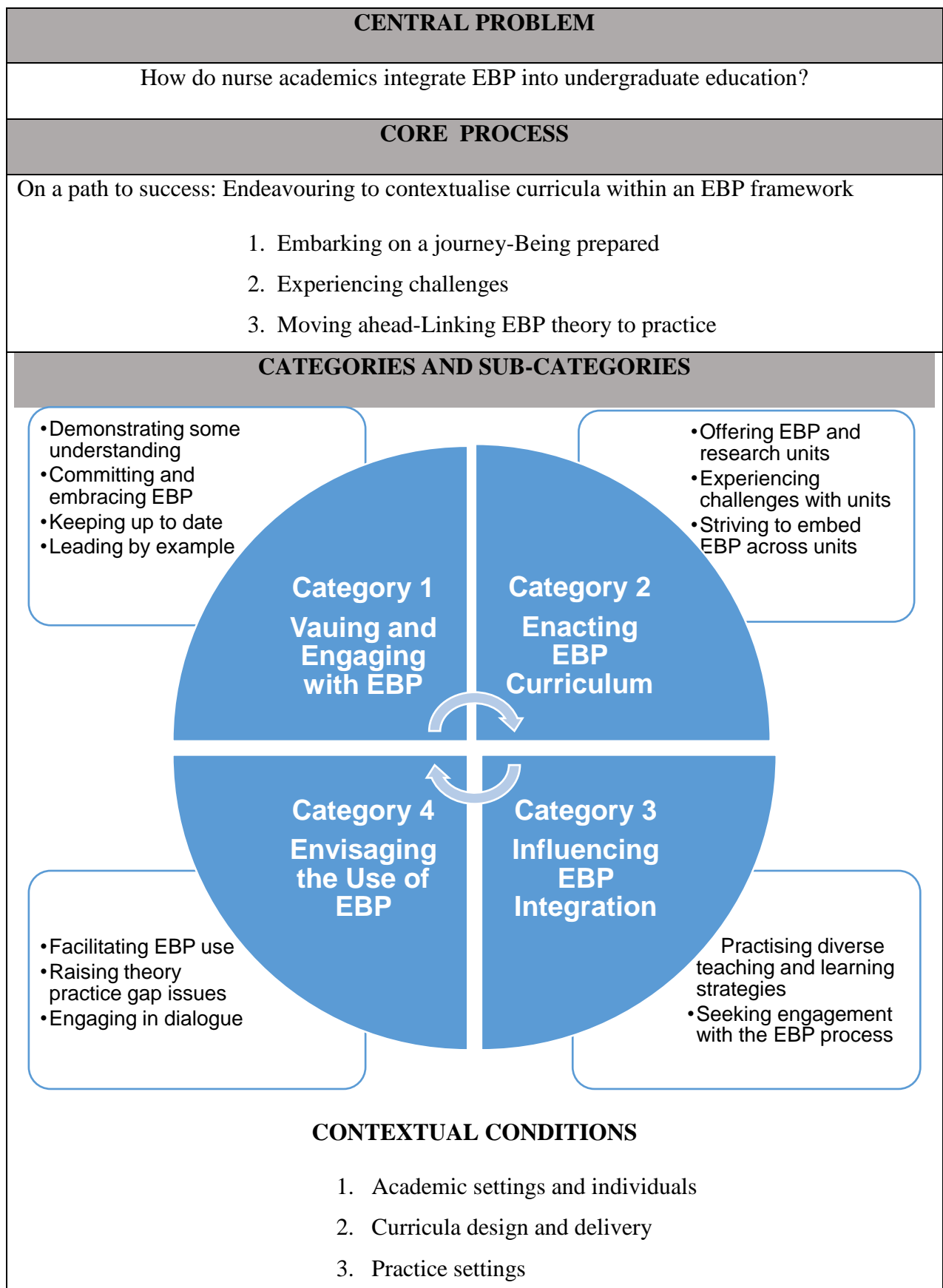
Chapter Five: Study Results

5.1 Introduction

Applying the principles of CGT approach discussed in chapter four, a detailed overview of the data collection methods and analysis utilised in this study to answer research questions was provided. In this chapter, the key research findings, including a description of participants' demographic information and four manuscripts, each presenting one category constructed from interviews, observations and document analysis are presented. All main categories explained in this chapter are embedded within the core category and represent the actions, meanings and processes undertaken by participants in relation to their EBP teaching practices. As Charmaz (2014) emphasises "the potential strength of grounded theory lies in its analytic power to theorize how meanings, actions and social structures are constructed" (p.285). All four categories are closely inter-linked and participants engaged in some or all over the period of time. Although some of the responses varied and were attributed to contextual conditions, the core process is common to all participants. Grounded theory methods strongly suggest linking categories within and between as an essential step in the analytical process (Charmaz, 2006).

The core category, "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*", encapsulates the resulting theory, and offers an abstract interpretive understanding of the research phenomenon constructed from the data. This core social process is apparent in three transitional stages: (1) Embarking on a journey-Being prepared, (2) Experiencing challenges, and (3) Moving ahead-Linking EBP theory to practice. Four inter-related categories and sub-categories comprising: (1) Valuing and Engaging with EBP, (2) Enacting EBP Curriculum, (3) Influencing EBP Integration, and (4) Envisaging the Use of EBP

are embedded within the three transitional stages. Figure 5.1 presents an overview of research findings.

Figure 5.1: Overview of Research Findings

CENTRAL PROBLEM
How do nurse academics integrate EBP into undergraduate education?

CORE PROCESS

On a path to success: Endeavouring to contextualise curricula within an EBP framework

1. Embarking on a journey-Being prepared

2. Experiencing challenges

3. Moving ahead-Linking EBP theory to practice

CATEGORIES AND SUB-CATEGORIES

- Demonstrating some understanding
- Committing and embracing EBP
- Keeping up to date
- Leading by example

- Offering EBP and research units
- Experiencing challenges with units
- Striving to embed EBP across units

Category 1 Vauing and Engaging with EBP

Category 2 Enacting EBP Curriculum

Category 4 Envisaging the Use of EBP

Category 3 Influencing EBP Integration

- Facilitating EBP use
- Raising theory practice gap issues
- Engaging in dialogue

Practising diverse teaching and learning strategies
- Seeking engagement with the EBP process

CONTEXTUAL CONDITIONS

1. Academic settings and individuals

2. Curricula design and delivery

3. Practice settings

5.2   Description of Participants' Demographics

In total, **23** nurse academics participated in the study. Demographics revealed that a majority (n=**20**, 87%) were women. With regards to age profile, nearly half of the participants (n= **11**, 48%) were aged between 41 and 50 years, and about the same numbers (n=**11**, 48%) fell between 51 and 60 years. Only one **(n=1**, 4%**)** participant was between 31 and 40 years. Regarding qualification, **13** (56%) held a PhD/doctorate as their highest qualification earned, with nine (**n= 9**, 39%) having a masters degree, and one (**n= 1**, 4%) with a graduate certificate.

Data showed that six (**n= 6**, 27%) participants had over 20 years of teaching experience and about the same numbers had between 11 and 15 years, followed by five (**n=5**, 22%) and four (**n=4**, 16%) who had 6-10 years and 0-5 years respectively. Only two participants (**n=2**, 9%) fell between 16 and 20 years of teaching experience. With regards to their current positions, just over half (**n= 13**, 56%) were lecturers, seven (**n=7**, 30%) were senior lecturers and three (**n=3**, 13%) were associate professors. Except for one participant who was involved in curriculum development for the BN program, all participants were involved in teaching undergraduate students. Amongst them, **14** (61%) participants were involved in teaching both theoretical and clinical units, and nine (**n=9**, 39%) taught into theoretical units within undergraduate curricula.

Table 5.1: Participants' Demographics

		N=
States/ Territories	New South Wales	03
	Victoria	08
	South Australia	03
	Queensland	06
	Western Australia	03
Gender	Female	20
	Male	03
Age (yrs)	31-40	01
	41-50	11
	51-60	11
Position	Associate Professor	03
	Senior Lecturer	07
	Lecturer	13
Qualification	PhD/Doctorate	13
	Masters	09
	Graduate Certificate	01
Employment status	Full time	22
	Part time	01
Nursing Experience (yrs)	16-20	03
	>20	20
Teaching Experience (yrs)	0-5	04
	6-10	05
	11-15	06
	16-20	02
	>20	06
Current Undergraduate Teaching	Years 1, 2 & 3	03
	Years 1 & 3	12
	Year 3	07
	Curriculum Designer	01
Units Taught	Theoretical/Clinical	14
	Theoretical	09

5.3 Presentation of Findings

There is no prescribed way to present grounded theory study findings. For this study, it was decided to present the findings in journal manuscript format for publication. Papers on each of the four categories, the theory and contextual determinants presented in this thesis have either been published or submitted for peer review to selected journals. Due to the rigorous double blind review process associated with publication, not all papers have been published at the time of submission. Two articles have been published and two are currently under review. As a result of each journal's requirements, some repetition of ideas, such as study background, methods, aim and questions, data analysis approach, and limitations is evident. Additionally, in CGTM, data can be assigned to more than one category (Charmaz, 2006), thus some quotations and concepts appear in more than one category paper. Although thesis with publication provides an opportunity to disseminate study results before they become out-of-date, this clearly has a number of challenges too. Papers presenting the study findings appear in this section as they have been submitted to the journals for publication. Although each category is presented separately, they are closely related. This chapter presents four manuscripts, each exploring one category and its sub-categories encompassing:

Paper 2: Valuing and Engaging with EBP (Published)

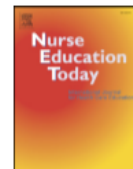Malik, G., McKenna, L., & Griffiths, D. (2016). How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. *Nurse Education Today, 41*, 54-59.

Paper 3: Enacting EBP Curriculum (Under Review)

Malik, G., McKenna, L. & Griffiths, D. (Under Review). Enacting the curriculum: Teaching and embedding evidence-based practice concepts in undergraduate nursing curricula across Australian universities. *Nursing Research* (Submitted in June, 2016)

Paper 4: Influencing EBP Integration (Published)

Malik, G., McKenna, L. & Griffiths, D. (2016). Using pedagogical approaches to influence evidence-based practice integration- Processes and Recommendations: Findings from a grounded theory study. *Journal of Advanced Nursing,* doi:10.1111/jan.13175

Paper 5: Envisaging the use of EBP (Submitted Revision)

Malik, G., McKenna, L. & Griffiths, D. (Under Review). Envisaging the use of EBP: How nurse academics facilitate EBP use in theory and practice across Australian undergraduate programs. *Journal of Clinical Nursing* (Submitted in July, 2016)

Category 1: Valuing and Engaging with EBP

Paper 2: How Do Nurse Academics Value and Engage with Evidence-Based Practice Across Australia: Findings From a Grounded Theory Study

Published: Nurse Education Today

How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study

Gulzar Malik *, Lisa McKenna, Debra Griffiths

School of Nursing & Midwifery, Clayton Campus, Clayton, Monash University, Vic 3800, Australia

ARTICLE INFO

ABSTRACT

Background: Integrating evidence-based practice (EBP) into undergraduate education and preparing future nurses to embrace EBP in clinical practice becomes paramount in today's complex and evolving healthcare environment. The role that EBP plays in the practical lives of nursing students will depend on the degree to which it is promoted by academics, how it is incorporated into courses and its application to clinical setting. Hence, nursing academics play a crucial role in influencing its integration into curricula. Drawn from a larger doctoral study, this paper presents findings discussing how nurse academics value and engage with EBP.
Methods: Grounded theory was employed to explore processes used by nursing academics while incorporating EBP into teaching and learning practices. Twenty-three academics across Australian universities were interviewed. Nine were also observed while teaching undergraduate students. Data were collected from semi-structured interviews and non-participant observation. In keeping with the tenets of grounded theory, data collection and analysis continued until theoretical saturation was reached. In total, four categories emerged. This paper focuses on the category conceptualised as *Valuing and Engaging with EBP.*
Results: How nursing academics valued and engaged with EBP was closely associated with meanings they constructed around understanding it, attitudes and commitment to implementation while teaching and working clinically. Different opinions also existed in regard to what actually constituted EBP. However, they engaged with and valued EBP by keeping themselves up-to-date, being involved in research activities, using evidence in teaching, therefore leading by example. Participants identified a number of barriers influencing their engagement with EBP including heavy workloads, limited time, lack of commitment within their schools, lack of confidence with teaching EBP, and complexity of EBP application. Faculty clinical practice, committed academics, workload management and continuing education were highlighted as facilitators.
Conclusion: A number of barriers prevented academics from fully engaging with EBP at academic or practice levels. Academic institutions and practice settings need to employ strategic planning to overcome such barriers.

1. Introduction

Educating future nurses can be seen as a daunting challenge, particularly equipping them with adequate knowledge and skills of EBP to influence patient outcomes. Evidence-based practice has gained momentum globally as practitioners strive to make decisions about patient care based on the best available evidence. EBP has been described as a decision-making process for patient care that uses the best evidence available combined with practice experience and patients' own values and preferences to guide care (Sackett et al., 1996). Whereas, research utilisation refers to the use of research findings based on one single study and this concept is now recognised as a part of the broader concept of EBP (Melnyk and Fineout-Overholt, 2011).

Nurse academics can no longer focus entirely on clinical skills mastery and content knowledge, but must also prepare nurses to develop a spirit of inquiry and skills to search for evidence to support clinical reasoning and thinking in their practice (Finotto et al., 2013). Because academics shape future practice of nurses through education and role modelling, it is important they incorporate EBP into their own teaching and learning practices (Hung et al., 2015).

To date, there is a paucity of studies examining nursing academics' understanding and engagement with EBP. In particular, how they engage and commit themselves to EBP in the context of clinical practice before imparting these skills to students remains an important area of investigation. To be successful in integrating EBP into undergraduate curricula, one must address academics' understanding, engagement and level of commitment towards EBP. While most faculty members demonstrate knowledge and competencies in traditional research processes, many do not have adequate knowledge, attitudes or competencies in EBP to be able to successfully incorporate it into teaching (Stichler et al., 2011).

Nurse academics have been slow to adopt the paradigm shift to EBP and have related concerns about the time it takes to integrate knowledge and skills in already full curricula, and their lack of ability to incorporate

* Corresponding author.
  E-mail address: gulzar.malik@monash.edu (G. Malik).

EBP into teaching and learning practices (McInerney and Suleman, 2010). A study by Stichler et al. (2011) explored perceptions of 125 faculty members with baccalaureate and master's degrees from two schools of nursing in the south western region of the United States. They found that attitudes of academics towards EBP were much more positive than their knowledge, skills and engagement with EBP. Barriers cited included misconceptions about EBP, lack of frameworks for curriculum design, limited mentorship, time, information literacy skills, administrative support, organisational resources, and inadequate statistical skills. In addition, participants indicated insufficient knowledge and skills in adopting EBP in their teaching practices. The researchers recommended continuing education opportunities for faculty to improve engagement with EBP in a way that encouraged faculty to seek more opportunities to incorporate it into their teaching practices, courses and student activities (Stichler et al., 2011).

Despite a plethora of literature on what evidence-based practice is, its inclusion in nursing education is still limited and requires investigation into teaching approaches, academics' engagement and EBP related course objectives and outcomes. Studies have reported that decisions to implement EBP in undergraduate programmes have not been made explicit, thus its incorporation represents an area of limited knowledge (Al Hadid and Al Barmawi, 2012; Waters et al., 2009). It is believed that adopting evidence-based practice in nursing education commences with undergraduate preparation and is carried further through graduate and doctoral studies (Melnyk and Fineout-Overholt, 2011). Therefore, exploring how nursing academics engage with, and influence integration of EBP into undergraduate curricula is vital in preparing graduates to adopt EBP into their practice. Hence, this paper draws upon findings from a grounded theory study that aimed to explain processes used by nurse academics while incorporating EBP into their teaching and learning practices. The key question underpinning the study was: What processes occur as nursing academics undertake to incorporate evidence-based practice into their teaching and learning practices? Findings presented in this paper focus on ways nurse academics engaged with and committed themselves to EBP.

2. Methodology

Grounded theory methodology (GTM) underpinned by symbolic interactionism was employed for this study. Grounded theory is an inductive, qualitative research approach ideal for the study as it focuses on human interaction and social processes (Munhall, 2007). Underpinned by symbolic interactionism, this research methodology emphasises process and relates to context, so was particularly suitable to answer the study question. GTM is appropriate to exploration of areas where little is known and the researcher aims to develop a substantive theory to understand and explain the social processes grounded in data (Annells, 1997). An important characteristic of GTM is allowing data collection using a variety of sources to understand how research participants construct meanings and define their realities in specific situations (Charmaz, 2006). Charmaz (2006) asserts that in order to produce credible theory, grounded theorists should focus on using various data collection methods such as observations, interview transcripts, documents and images throughout the research process.

3. Data Collection

Prior to commencing data collection, ethical approval was obtained from the relevant university ethics committee. Approvals were also obtained from heads of schools and written consent was obtained from all participants wishing to partake.

Data were collected through interviews and non-participant observation. Employing purposive sampling, nurse academics teaching undergraduate nursing curricula across Australian universities and colleges offering undergraduate nursing programmes were invited to participate in the study. Letter of invitations were sent to heads of schools for distribution to their academic staff. Potential participants expressed their interest in participating by contacting the researcher. Twenty-three nurse academics teaching into undergraduate nursing courses across Australian universities and colleges were interviewed. Nine consented to be observed while teaching undergraduate nursing students.

Participants were given the choice to participate in both or either of the data collection methods. Interstate participants were interviewed via telephone with mutual agreement between participant and researcher. Participants were interviewed one-on-one using a semi-structured format with some guiding questions. Interviews were approximately of 45 to 90 min in duration, were audiotaped and later transcribed verbatim.

Observations of participants teaching undergraduate students were conducted during laboratory, tutorial and lecture sessions. Nine observations were undertaken across four states including Victoria, Queensland, South Australia and Western Australia. Before observations occurred, participants informed students regarding the purpose of the observation and the researcher assured that non-participant activities would not be reported in any stage of research process. Field notes were taken during the observations. To maintain participants' confidentiality and anonymity, pseudonyms were used throughout data analysis and communication of findings.

4. Data Analysis

Data were analysed using Charmaz's (2006) approach of open, focused and theoretical coding. Interviews and observations were transcribed into transcripts and field notes. They were read multiple times to generate codes to identify actions, processes, causes and behaviours. These codes were constantly compared with focused codes, data and with emerging concepts. These comparisons generated sub-categories and categories, which were further compared to codes and data to identify linkages between them. Charmaz (2006) asserts that grounded theory analysis depends on constant comparative method by continually engaging and interacting with data. This method enhances the conceptual understanding of the researcher and provides sense of direction in which the analysis is going (Charmaz, 2006). Theoretical memos and reflective diary were maintained throughout the study as a means of conceptualising the data. In keeping with the tenets of grounded theory, data collection and analysis continued until theoretical saturation was reached. NVivo 10 was utilised to organise data into codes and categories. As a result of this iterative and interactive process, four categories emerged. This paper focuses on the first category conceptualised as *Valuing and Engaging with EBP*. Other three categories were: *Enacting the Curriculum*, *Influencing EBP Integration* and *Envisaging the use of EBP*. Nurse academics instil EBP knowledge and skills by introducing EBP and research units in curriculum and integrating EBP into various units of study. Academics influence EBP integration by employing a variety of teaching and learning strategies and expecting students to apply EBP in theory and practice.

5. Findings

The category identified as "*Valuing and Engaging with EBP*" describes methods through which academics engaged with and committed to EBP. By having knowledge and understanding of EBP concepts, they kept themselves up-to-date with latest evidence. They further embraced it by undertaking research, disseminated research findings and incorporated evidence into their teaching and learning practices, therefore setting positive examples for their students and colleagues. This category is further conceptualised through sub-categories: *demonstrating some understanding of EBP*, *committing to and embracing EBP*, *keeping up to date*, and *leading by example*.

5.1. Demonstrating Some Understanding of EBP

This sub-category discusses participants' understanding of EBP concepts and its application in clinical settings. Wide variation was evidenced in participants' views and opinions about EBP. Many viewed EBP as a process of using the best evidence in combination with the clinician's experiences as well as patient preferences and values. As Barbara explained:

We have to consider the three aspects of evidence-based practice, which is: What is best practice? What are the patients' preferences? What is the doctor, or the health professional's preferences, along with the resources that are available?

A deeper and more complex understanding of EBP on the possibilities for positive patient outcomes was presented by Josh who recognised EBP as a clinical decision-making process, emphasising that:

I always come back to this, because at the end of the day, that's what the heart of evidence-based practice is about, is good clinical decision-making to achieve better patient outcomes.

[(Josh)]

However, some participants considered research utilisation as another terminology for EBP which could be used interchangeably:

Oh, well research utilisation… To be quite honest, I'm not actually sure, but research is EBP when it's been tested, the evidence has been tested in a practical field, that works, but the subject is really more utilisation of research, which is another term for EBP isn't it?

[(Karen)]

Others considered EBP a challenging concept to understand, practise and make students understand. Beliefs about the value of EBP in improving clinical practice and patient outcomes were strong, however implementation of EBP into practice did not appear to be as positive:

It's quite complicated, so certainly I think that people are very committed to the notion of EBP, but I think it's far more complicated than we recognize. So EBP to me, is probably something I would love to aspire to, but I think it is a challenge; a huge challenge.

[(Theresa)]

On further exploration, Theresa and others highlighted that limited time, scarcity of resources and lack of organisational support were hindering factors for academics and for students who were at the beginning of embracing EBP. EBP being a challenge and complicated concept to understand was also supported by Stacey:

No support from the organisation for nurses to embrace research and evidence. So I guess in a convoluted way, that's what EBP is to me. It's complicated, it's ideal; but it's not always engaged appropriately.

Misconception existed between research participants trying to link EBP to research critique. Some perceived that getting students to critique research articles was equivalent to preparing them to be evidence-based practitioners, as Linda suggested:

That's where the evidence-based comes back in, where you get them to start looking at well, here's a piece of research or here's three articles. Go off and critique them and say would you base your practice based on any of these and choose a good, bad, and ugly.

However in response to this Josh emphasised academics re-oriented their thinking around EBP and incorporated principles of EBP in their teaching and learning practices:

It just means that academics have to re-orient their thinking in their subject. They can do that over a period of time, It can be something that happens, say, over two or three years, where they re-orient towards the curriculum more towards evidence-based practice.

5.2. Committing to and Embracing EBP

Participants demonstrated commitment to EBP by conducting research, or being part of research projects. Some of them were also actively involved in hospital quality assurance and related committees:

I do 40% academic teaching, 40% research and 20% of admin. I've actually got a research project that's happening myself in a regional hospital. It's so exciting. (Linda)

I'm on a Clinical Practice Guidelines Working Party, so we go and assess the evidence, and develop practice guidelines that are specifically designed. (Karen)

Research participants also valued EBP by being consumers of research and considered this equally important as generating evidence:

I don't have research projects attached to me. But I base all my teaching on the current evidence and try to link evidence to practice, this is how I keep up with EBP.

[(Henry)]

Many participants identified that having positive attitudes and engagement with EBP either at academic or practice level could influence their teaching practices and help them to motivate their students in the use of EBP:

…if we keep trying to be as up with the evidence as we can, if we keep mentioning to the students that we're linking evidence to practice so that they start to get that mindset that everything we do has to be provable then I think we will get there.

[(Donna)]

However, participants were cognisant of the fact that this would not be achieved without having committed faculty members. Commitment within schools was identified and emphasised by many participants as a facilitating factor to embracing EBP:

There does have to be a commitment … within a school of nursing or with whatever the institution happens to be… by the staff to EBP. Because otherwise how does it get to the student if the staff aren't using it? I mean we make comments in lectures and we make comments in the lab that the latest research tells us that we should be doing this and hopefully that's putting it into the mind of the student that that's also something they should be asking. Is this the latest research or is this just something that has become practice because of habit?

[(Josh)]

Along these lines, participants identified the need for faculty clinical practice and emphasised its significance for their practice and research. They recommended it to be part of their employment to provide opportunities to embrace EBP in practice settings:

…faculty practice is part of EBP because that would then have us taking what we've learnt from our own research and apply it in our practice and impacting on others who we work with".

[(Joanne)]

It would give us credibility with our students and it would let us see what's happening out there in the clinicians' area and I mean a lot of academics do work in the industry as well as … but that's on top of your employment. It's not recognised as part of your employment.

[(Katrina)]

5.3. Keeping Up to Date

Participants kept themselves current by using a variety of sources. Some specifically mentioned using Joanna Briggs Institute to search

for and use evidence into their teaching and learning practices while others maintained currency by attending training sessions and workshops:

I use Joanna Briggs a lot. If I don't have time, I can shrink a little summary and I can download the article and read when I have time.

[(Henry)]

We do have a whole of school retreat every year and these sorts of topics come up for discussion. We have guest speakers come in and speak to us and university itself has usually every two weeks or three weeks, they have sessions where staff can go.

[(Michelle)]

Other than attending training sessions, many participants had become members of professional organisations to stay current with practice changes, and endeavoured to keep colleagues informed of such changes.

…trying to make sure that we, as nurses, are up-to-date with some of their clinical practices…things like wound management, things like hand hygiene and there's a myriad of ways of doing that; and one of them would certainly to be through our professional bodies, that would be probably the easiest way.

[(Theresa)]

I made that my job to advise my colleagues when there was a change, which came out of the Australian Resuscitation Council meetings and recommendations for change, to go into 2015.

[(Ann)]

Practice changes were incorporated into teaching and learning practices either by face-to-face teaching or through online mode.

That's the way we incorporate changes to the evidence into their practice. With the online teaching we added that to the micro-sim standard that sits behind, when the students do the online participation, and the classroom teaching.

[(Ann)]

Some participants identified challenges in staying current. Limited time to search for literature and incorporate it into teaching, lack of commitment from other academics, heavy workloads, evolving nature of evidence and plethora of information were described as key obstacles.

Change in practices is happening all the time. That's one of the hardest things to keep up to date with.

[(Barbara)]

The time restraint of course is always the issue.

[(Henry)]

It's very difficult to keep up to date with everything with the plethora of information available.

[(Jacki)]

5.4. Leading by Example

Getting students to a mindset of using evidence by modelling the behaviour that academic teaching is informed by latest evidence, and inculcating lifelong learning philosophy among students was seen to be the aim of teachers:

I'm presenting my interim audit at a research forum. I've been able to invite my students to come and hear my presentation. Not putting a feather in my cap, but saying to them, come and listen to what I have for 15 minutes to present, what I am up to with my research.

[(Kate)]

Having positive attitudes towards research and EBP, participants mentioned that if academics believed research to be an evil, this translated through their teaching and students picked up on the subtle cues:

If you're teaching a course and you're not at all interested in research and you don't have an understanding of it yourself,…you fall on deaf ears. You haven't got the passion to put the message across. Students are very impressionable and they pick up on the subtle cues if we roll our eyes about the research aspect of this condition or this scenario. We have to kind of clean up our own house before we start telling the students that they should love research.

[(Karen)]

Academics were seen to lead by example, through commitment and positive attitudes to embracing EBP. By role modelling, academics could generate interest and create love for practices based on EBP among students:

… we were academic role models. So how we teach and what we say and how we say it, and our attitude can very much influence students. They almost become who you are or they carry attitudes. So in a way…that can be a positive and a negative. If you instil an attitude that is open and positive towards EBP then that's carried through.

[(Lyn)]

If you can get commitment from the staff then the students hear that message and if they hear it often enough, it becomes part of the way they envision themselves as nurses…that's the first step, even with all the financial restrictions and the workplace issues, if we can get a graduate who has a questioning mind, then we've succeeded.

[(Deon)]

Participants were in consensus about using EBP terminology as early as they could in the degree programme, for example:

We need to start as early as possible, demonstrating to them that we have used research in preparing what it is we're teaching them and that research is the basis of everything that we change in nursing.

[(Melissa)]

The findings highlight differences in participants' opinions with regard to what EBP meant to them. However, they were committed and engaged with EBP by getting involved in research activities, using literature and attending continuing professional development sessions to keep current, incorporating evidence into their teaching and learning practices, and therefore, leading by example. During these processes, academics identified some challenges with fully engaging with EBP.

6. Discussion

Models aimed at successful EBP implementation including the ACE Star Model (Heye and Stevens, 2009) and the Johns Hopkins EBP Model (Newhouse et al., 2007) suggest that academics are pivotal in preparing undergraduate nursing students with EBP competencies. The knowledge that academics possess, their credibility and status within the profession could meaningfully influence nursing students' uptake of EBP (Melnyk and Fineout-Overholt, 2011). Findings from the sub-category 'demonstrating some understanding of EBP' reflect that nursing academics attributed very different meanings and interpretations to the phrase 'evidence-based practice'. For some participants in this study, EBP was synonymous with 'research utilisation', while for others EBP was understood in relation to the broader aims of EBP leading to clinical decision-making. In nursing literature, 'research

utilisation' has referred to the translation of research into practice, whereas EBP is described as the process of using research evidence together with patients' values, clinicians' expertise and available resources. Thus, EBP cannot be achieved by solely translating research to practice (Christie et al., 2012). One consequence of nursing academics holding a range of views about EBP is that it could lead to passing on mixed messages of what EBP is to students and how this relates to research. Findings of this study correlate with another Australian study (Waters et al., 2009) and other global studies (Rolfe et al., 2008; Stichler et al., 2011). While it is not surprising that understanding of EBP is greatly influenced by academics' past and present experiences, it is of concern that teaching content and incorporation of EBP concepts into nursing curricula will be largely based on their assumptions and understandings (Waters et al., 2009). With the current impetus for EBP, these findings challenge nursing academics to re-orient their thinking upon which their EBP education is based.

Educational interventions can serve as effective means for increasing knowledge and understanding of EBP process and implementation (Sherriff et al., 2007). A study by Al Hadid and Al Barmawi (2012), exploring factors influencing adoption of evidence-based principles in nursing education in Jordon, reported that many of the educator participants were prepared to be researchers and had expertise in their area of study. However, their focus was very limited in transferring elements of EBP into their teaching courses. Another study exploring knowledge, beliefs and teaching strategies of EBP among educators in nursing institutions in Nigeria concluded that a majority of participants claimed to have knowledge of EBP however, they lacked knowledge on the EBP process, and teaching methods promoting EBP in clinical practice (Enuku and Adeyemo, 2014). Current study participants held positive attitudes towards EBP and had shown their commitment by embracing EBP in several ways, such as involvement with research, attending seminars and workshops, staying current with practice changes and keeping up-to-date with literature as described in the second and third subcategories. These findings are in line with Melnyk et al. (2008). There is a link between understanding of EBP, valuing EBP and confidence in its teaching within the literature (Melnyk et al., 2008; Stichler et al., 2011). Enhancing knowledge of EBP will help nurses to see the value of EBP to their own work, which will eventually increase implementation. Participants from a study by Upton et al. (2015) identified positive attitudes to EBP were important to its uptake. Furthermore, that study recommended continuing professional development opportunities would enhance academics' understanding and their uptake of EBP.

An innovative way to facilitate EBP use among faculty members is implementation of faculty practice. Faculty practice refers to a formal arrangement between an academic institution and clinical agency, allowing faculty to be engaged in direct patient care, supervise students' clinical experiences or involved in consultative roles for clinical staff (Elliott and Wall, 2008). Faculty often navigates the difficult process of engaging students and busy staff by either being involved in patient care or more recently by having joint appointments between academic and clinical organisations (Moch et al., 2015). Adopting an educational model that requires academics and students to work hand-in-hand could be one method for promoting collaborative work and in improving adoption of evidence-based principles among students. (Moch et al., 2015). Joint research between academic and clinical sites would provide boosts for academics to incorporate their findings into practice and see the value of their work (Upton et al., 2015). Acknowledging the value of faculty practice and incorporating it into academics' workload could positively contribute to maximum faculty engagement in the use of EBP (Aquadro and Bailey, 2014). Hankemeier and Van Lunen (2011) explored clinical instructors' perspectives on implementation strategies in EBP for athletic training students concluding that self-discovery, promoting critical thinking, sharing information and role modelling have shown to be effective strategies to encourage EBP use among students and clinicians. Study participants rated personal commitments as facilitators to teaching and incorporating resources into practices.

Professional modelling is believed to be one of the most helpful characteristics for clinical instructors leading to student learning and engagement with EBP reported by Hankemeier and Van Lunen (2011). Instructors encourage students to be curious of their practices, ask meaningful questions, find relevant evidence and apply evidence to their patients in light of their preferences and values (Hankemeier and Van Lunen, 2011). Role modelling and integrating the skills necessary to develop EBP into theoretical and clinical units are vital in instilling positive attitudes towards EBP among students (Winters and Echeverri, 2012). Nursing academics could lead by example by including evidence for each content area covered in theoretical and clinical units (Winters and Echeverri, 2012). However, this could only be achieved if nursing academics were up-to-date with literature and practice changes.

The rapidly changing nature of health information was found as a stimulus in Felicilda-Reynaldo and Utley (2015), however limited time to search for evidence and update teaching content, complexity with EBP application, insufficient resources, limited confidence in teaching EBP, plethora of information, and traditional mindsets or attitudes of staff towards research and EBP were identified as key challenges to engage with EBP in the present study. These barriers coincide with national and international studies (Kalb et al., 2015; Stichler et al., 2011) and have been consistently raised over the years. Commitment within school, effective workload management, provision of resources and inclusion of faculty practices in the job description of academics have been considered facilitators to successful EBP engagement and commitment among nursing academics (Malik et al., 2015; Rickbeil and Simones, 2012; Aquadro and Bailey, 2014). Nurse academics act as EBP champions by facilitating organisational and educational strategies, translating evidence for policy and practice, and modelling specific behaviours in influencing EBP use (Upton et al., 2015), therefore strategies targeting to increase their engagement with EBP and aiming to overcome identified challenges are recommended.

6.1. Implications for Education and Research

In light of the growing focus on EBP, current study findings have clear implications for education and research. Academics play a vital role in preparing undergraduates to practise within an EBP framework, therefore their commitment and engagement with EBP could influence their teaching and learning practices. With regard to EBP definition, varying opinions existed among academics, which requires faculty development to assist clarity and agreement around EBP concepts. In addition, barriers identified by research participants invite both academic and practice settings to implement steps to minimise obstacles. Further research could examine the effectiveness of educational programmes and implemented strategies on academics' engagement with EBP and integration of EBP into their teaching and professional practices.

7. Limitations

Findings of this study need to be considered in the light of potential methodological limitations. Grounded theory places emphasis on processes and meaning within a local context and therefore the findings cannot be generalised. However, the aim of the study was to provide adequate detail to offer valuable insights into what extent nursing academics engage and commit to EBP. It is possible that nurse academics who were passionate either positively or negatively were more likely to participate.

8. Conclusion

This study has taken a unique approach in exploring processes used by nursing academics while integrating EBP into undergraduate education. This paper has discussed academics' engagement with EBP as a

process, influencing EBP integration into their teaching and learning practices. There were differences in opinions among nursing academics in regard to what evidence-based practice was. However, they participated in and valued EBP by keeping up-to-date, engaging in research activities, incorporating evidence into their teaching and therefore, leading by example. Academics have identified barriers with engaging fully with EBP, inviting academic institutions and health care settings to implement strategies and programmes to attain maximum engagement.

References

Al Hadid, L.A., Al Barmawi, M., 2012. Factors influencing the adoption of principles of evidence-based principles in nursing education: a Jordanian perspective. J. Nurs. Educ. Pract. 2 (2), 71–79.

Annells, M., 1997. Grounded theory method, part I: within the five moments of qualitative research. Nurs. Inq. 4, 120–129. http://dx.doi.org/10.1111/j.1440-1800.1997. tb00085.x.

Aquadro, L.C., Bailey, B.J., 2014. Removal of nursing faculty practice barriers in academia: an evidence-based model. J. Nurs. Educ. 53 (11), 654–658. http://dx.doi.org/10.3928/ 01484834-20141027-04.

Charmaz, K., 2006. Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis. SAGE Publications LTD., Los Angeles.

Christie, J., Hamill, C., Power, J., 2012. How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper. J. Adv. Nurs. 68 (12), 2789–2801. http://dx.doi. org/10.1111/j.1365-2648.2012.05994.x.

Elliott, M., Wall, N., 2008. Should nurse academics engage in clinical practice? Nurse Educ. Today 28 (5), 580–586.

Enuku, C.A., Adeyemo, F.O., 2014. Knowledge, beliefs and teaching strategies of evidence-based practice among nurse educators/lecturers in nursing institutions in Benin City, Edo State, Nigeria. Int. J. Collab. Res. Intern. Med. Public Health 6 (1), 1–10.

Felicilda-Reynaldo, R.F.D., Utley, R., 2015. Reflections of evidence-based practice in nurse educators' teaching philosophy statements. Nurs. Educ. Perspect. 36 (2), 89–95. http://dx.doi.org/10.5480/13-1176.

Finotto, S., Carpanoni, M., Turroni, E.C., Camellini, R., Mecugni, D., 2013. Teaching evidence-based practice; developing a curriculum model to foster evidence-based practice in undergraduate student nurses. Nurse Educ. Pract. 13, 459–465.

Hankemeier, D.A., Van Lunen, B.L., 2011. Approved clinical instructors' perspectives on implementation strategies in evidence-based practice for athletic training students. J. Athl. Train. 46 (6), 655–664.

Heye, M.L., Stevens, K.R., 2009. Educational innovations. Using new resources to teach evidence-based practice. J. Nurs. Educ. 48 (6), 334–339. http://dx.doi.org/10.3928/ 01484834-20090515-06.

Hung, H.-Y., Huang, Y.-F., Tsai, J.-J., Chang, Y.-J., 2015. Current state of evidence-based practice education for undergraduate nursing students in Taiwan: a questionnaire study. Nurse Educ. Today 35 (12), 1262–1267. http://dx.doi.org/10.1016/j.nedt. 2015.05.001.

Kalb, K.A., O'Conner-Von, S.K., Brockway, C., Rierson, C.L., Sendelbach, S., 2015. Evidence-based teaching practice in nursing education: faculty perspectives and practices. Nurs. Educ. Perspect. 36 (4), 212–219. http://dx.doi.org/10.5480/14-1472.

Malik, G., McKenna, L., Plummer, V., 2015. Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. Int. J. Nurs. Pract. 21, 46–57. http://dx.doi.org/10. 1111/ijn.12366.

McInerney, P., Suleman, F., 2010. Exploring knowledge, attitudes, and barriers toward the use of evidence-based practice amongst academic health care practitioners in their teaching in a south African university: a pilot study. Worldviews Evid.-Based Nurs. 7 (2), 90–97. http://dx.doi.org/10.1111/j.1741-6787.2009.00180.x.

Melnyk, B.M., Fineout-Overholt, E., 2011. Evidence-based Practice in Nursing & Healthcare: A Guide to Best Practice. Wolters Kluwer/Lippincott Williams & Wilkins.

Melnyk, B.M., Fineout-Overholt, E., Feinstein, N.F., Sadler, L.S., Green-Hernandez, C., 2008. Nurse practitioner educators' perceived knowledge, beliefs, and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs. J. Prof. Nurs. 24 (1), 7–13.

Moch, S.D., Quinn-Lee, L., Gallegos, C., Sortedahl, C.K., 2015. Navigating evidence-based practice projects: the faculty role. Nurs. Educ. Perspect. 36 (2), 128–130. http://dx. doi.org/10.5480/12-1014.1.

Munhall, P., 2007. Nursing Research: A Qualitative Perspective. fourth ed. Jones and Bartlett Publishers, Boston.

Newhouse, R.p., Dearholt, S.L., Poe, S.S., Pugh, L.C., White, K.M., 2007. Johns Hopkins Nursing Evidence-based Practice Model and Guidelines. Sigma Theta, Indianapolis, IN.

Rickbeil, P., Simones, J., 2012. Overcoming barriers to implementing evidence-based practice: a collaboration between academics and practice. J. Nurses Staff Dev. 28 (2), 53–56. http://dx.doi.org/10.1097/nnd.0b013e31824b4141.

Rolfe, G., Segrott, J., Jordan, S., 2008. Tensions and contradictions in nurses' perspectives of evidence-based practice. J. Nurs. Manag. 16, 440–451.

Sackett, D.L., Rosenberg, W., Gray, J.A.M., Haynes, R.B., Richardson, W.S., 1996. Evidence-based medicine: what is it and what it isn't? Br. Med. J. 312, 71–72.

Sherriff, K.L., Wallis, M., Chaboyer, W., 2007. Nurses' attitudes to and perceptions of knowledge and skills regarding evidence-based practice. Int. J. Nurs. Pract. 13, 363–369.

Stichler, J.F., Fields, W., Son Chae, K., Brown, C.E., 2011. Faculty knowledge, attitudes and perceived barriers to teaching evidence-based nursing. J. Prof. Nurs. 27 (2), 92–100. http://dx.doi.org/10.1016/j.profnurs.2010.09.012.

Upton, P., Scurlock-Evans, L., Williamson, K., Rouse, J., Upton, D., 2015. The evidence-based practice profiles of academic and clinical staff involved in pre-registration nursing students' education: a cross sectional survey of US and UK staff. Nurse Educ. Today 35 (1), 80–85. http://dx.doi.org/10.1016/j.nedt.2014.06.006.

Waters, D., Rychetnik, L., Crisp, J., Barratt, A., 2009. Views on evidence from nursing and midwifery opinion leaders. Nurse Educ. Today 29 (8), 829–834. http://dx.doi.org/ 10.1016/j.nedt.2009.04.006.

Winters, C.A., Echeverri, R., 2012. Teaching strategies to support evidence-based practice. Crit. Care Nurse 32 (3), 49–54.

Category 2: Enacting EBP Curriculum

Paper 3: Enacting the Curriculum: Teaching and Embedding Evidence-Based Practice Concepts in Undergraduate Nursing Curricula Across Australian Universities

Under Review: Nursing Research

Enacting the curriculum: Teaching and embedding evidence-based practice concepts in undergraduate nursing curricula across Australian universities

Abstract

Background: Evidence-based practice (EBP) is a key underlying principle on which modern healthcare should be based. Literature reports that in Australia, as internationally, inclusion of EBP concepts and principles are often not addressed adequately within undergraduate education.

Methods: Using constructivist grounded theory method, this study aimed to explore processes used by nurse academics whilst integrating EBP concepts in undergraduate nursing curricula across Australian universities. Twenty three academics were interviewed and nine were observed during teaching of undergraduate students. Additionally, 20 unit guides were analysed to add richness to data.

Results: The category "*Enacting EBP Curriculum*", describes academics engagement with developing and teaching EBP and research units, and striving to embed EBP concepts across courses within undergraduate curricula. Concerns were raised by academics regarding research and EBP units content, delivery and outcomes. Additionally, embedding EBP concepts into each unit of study was considered demanding and intensive.

Conclusion: Study Findings have identified key issues within Australian undergraduate curricula which require attention at school and accreditation body levels to initiate approaches, promoting facilitators and overcoming barriers to EBP integration.

Introduction

In a complex and constantly changing healthcare environment, evidence-based practice has become a gold standard for quality improvement. Emphasis on EBP requires nurses to be sufficiently prepared during their undergraduate studies for its implementation. Although EBP has been underlined to influence patient care outcomes, its implementation in nursing has not yet been fully embraced. Nurses in clinical practice have reported their educational preparation for accessing and using EBP to be insufficient (Malik, McKenna & Plummer, 2015; Geum Oh et al., 2010). Yet, nurses utilise evidence-based approaches to patient care when there is sufficient emphasis placed by academics during educational experiences (Levin & Feldman, 2006).

Nurse academics play a key role in promoting EBP education. They prepare EBP clinicians and future leaders who will be engaged in evidence-based clinical practice, and will support organisational change based on EBP (Melnyk & Fineout-Overholt, 2011) Therefore, it is paramount that EBP is embedded in all undergraduate and graduate program curricula and academics are well prepared in fulfilling this responsibility (Levin & Feldman, 2006). Literature has reported that only when teachers are well prepared with EBP knowledge, skills, and possess positive attitude to its implementation, that they actually incorporate EBP into their teaching, and support students learning (Melnyk, Fineout-Overholt, Dadler & Green-Hernandez, 2008; Stichler, Field, Chae & Brown, 2011). Stichler et al. (2011) explored faculty (n=40) knowledge, attitudes and perceived barriers to teaching EBP in nursing programs across bachelor and masters level programs in Southwestern United States, concluding that further

research was needed to examine integration of EBP concepts into course content and learning outcomes, as well as into academics' professional practice.

Although EBP has been considered in many undergraduate nursing programs globally, limited evidence is available reflecting its teaching and integration across programs, particularly in the Australian context. According to the revised accreditation standards for undergraduate programs in Australia, research and evidence-based practice inquiry need to be incorporated in the content and delivery of the program (Australian Nursing & Midwifery Accreditation Council, 2012). To comply with this, nurse academics have attempted to include research knowledge and EBP concepts into curricula, aiming to prepare nurses with the required EBP knowledge and skills. However, little is published regarding the curriculum design of EBP and research units, and particularly how academics have incorporated EBP concepts into course content, assignments, and students' clinical experiences.

An analysis of curriculum outlines from tertiary education providers exploring how EBP was incorporated into Bachelor of Nursing programs across Australian universities revealed that amongst 35 education providers, three did not appear to offer any units on research or EBP. Twenty-five providers combined units on research and EBP with major emphasis on research designs and process. In regards to EBP integration into curricula, a majority of the providers appeared to embed EBP related concepts between one and twelve units of study. Additionally, significant variations were found between universities in regards to when these units were introduced (Malik, McKenna & Griffiths, 2015). This analysis has given insight to some extent into EBP education in undergraduate programs across Australia, however conclusion cannot be drawn based on the analysis and further investigation into processes academics undertake to incorporate EBP concepts into various units of study within undergraduate programs was needed, which this study aimed to explore.

Research Methods

 A constructivist grounded theory was employed to explore processes used by nurse academics when incorporating EBP into undergraduate curricula. Grounded theory methodology focuses on social interaction and facilitates development of theory grounded in data (Corbin & Strauss, 2008). The study drew upon the theoretical framework of symbolic interactionism which aims to understand the way meaning is derived for individuals in social situations and how these are constructed between participants and researcher (Charmaz, 2006). Underpinned by symbolic interactionism, this research methodology emphasises process and relates to context, so was particularly suitable for this study. This study used semi-structured interviews, observations and unit guide analysis as key methods to collect data.

Data Collection

Considering the research aim, nurse academics teaching undergraduate nursing curricula across Australian universities and colleges offering undergraduate nursing programs, were invited to participate in the study during 2014. Invitations were sent to the respective heads of schools for distribution via email to potential participants. Interested participants expressed interest by directly contacting the researcher, and were recruited for the study. Purposive sampling was used initially and later theoretical sampling directed data collection and development of emerging concepts. Twenty-three academics were interviewed, and nine consented to be observed during teaching sessions with students. Individual interviews were conducted at participants' work premises, or other mutually agreed location for approximately one hour. Some participants were interviewed by telephone for geographical reasons. Interviews were conducted using a semi-structured format with some guiding questions. With participants' permission, these were audio-recorded and subsequently transcribed.

Participant observations were conducted during lectures, tutorials or laboratory classes. In total, nine observations were undertaken across four states including Victoria, Queensland, South Australia and Western Australia. During this process, students were informed of the purpose of the observation and ensured that non-participant activity would not be reported in any stage of the research process. In addition to the interviews and observations, 20 unit guides were analysed using grounded theory coding methods.

Ethical Considerations

Ethical approval was obtained from the relevant university ethics committee. Prior to data collection, participants provided written consent indicating their agreement to be interviewed and/or be observed. To maintain confidentiality and anonymity, pseudonyms are used to communicate study findings.

Data Analysis

In accordance with grounded theory methodology, data collection and analysis were simultaneously performed throughout the research process and continued until the categories were theoretically saturated. Data were analysed using Charmaz (2014) approach of open, focused and theoretical coding. Interview transcripts, field notes and unit guides were coded using initial and focused coding methods. Similar codes were grouped to construct sub-categories which were compared with data to seek the relevance, and fitting. Moving forward, those sub-categories were further raised to a level where the emerging categories could be examined. Each category was constantly compared with data, codes and emerging concepts. Theoretical memos were created throughout the study as a means of conceptualising the data.

Additionally, NVivo 10 was used to manage the large volume of data. As a result of this iterative process, four categories emerged: *Valuing and Engaging with EBP (Malik, McKenna & Griffiths, 2016), Enacting EBP Curriculum, Influencing EBP Integration, and Envisaging the Use of EBP.* This paper focuses on the category conceptualised as "*Enacting EBP Curriculum*".

Findings

The category identified as "*Enacting EBP Curriculum*" reflects academics engagement with designing and teaching EBP and research units, and working towards embedding EBP across units within undergraduate curricula. This was evident through interviews and observations that teaching into research and EBP units created some challenges for academics with regards to unit content, delivery and outcomes. Additionally, embedding EBP concepts into all units of study was considered time consuming and intensive to achieve fully embedded curricula underpinned by EBP principles. This category is further conceptualised through sub-categories: *Offering research and EBP units*, *Experiencing challenges with units,* and *Striving to embed EBP across units*.

Offering Research and EBP units

Participant interviews, observations and unit guide analysis revealed that some academic institutions had devoted separate units to research, some had dedicated units on EBP and some combined them covering research and EBP related objectives in a single unit. There were also a couple of education providers who did not have any units encompassing research or EBP education and were progressing new curricula to be accredited with these units included.

Analysis of some unit guides showed that research and EBP units were combined and offered as single units in which research concepts and methodologies were emphasised to a large extent. However, EBP concepts, process and its application in nursing and healthcare were very briefly explored:

> *We used to have a research subject and an EBP subject, and then we combined them in the new curriculum" (Jacki).*

> *All students do EBP subject and research subject as well, so in first year, we start off with a subject called nursing research and in third year they are exposed to evidence-based practice subject and that's a subject that will introduce the concepts of both evidence and research (Lyn).*

Research units appeared to be heavily focusing on the intricacies of generating research. Exposing students to various research designs, data collection methods, sophisticated data analysis procedures seemed to be stressed heavily:

> *We talk about the designs of research, we talk about the methodologies, we talk about sampling, we talk about data analysis and we talk about data collection obviously" We also look at how that research is structured using the PICO outline. EBP gets a little attention (Jacki).*

> *But the subject is really more utilisation of research, which is another term for evidence-based practice, isn't it? They have a lecture on qualitative research and a lecture on quantitative research, and we do a tutorial on systematic review (Donna).*

Considering the offered units were research-focused, a few participants expressed concerns towards preparation of graduates with EBP knowledge and skills. Undergraduate curricula

seemed to insufficiently prepare graduates to embrace EBP in the clinical setting, rather occupying much time imparting research knowledge and skills. Participants emphasised the value of teaching EBP and highlighted this as an issue to be addressed:

Evidence-based practice is not about undertaking research. Those steps are common steps, asking the right question, going and finding information, appraising that information, implementing it, and evaluating the outcome. It's quite a systematic process, not dissimilar to the research process, but the heart of it is good clinical decision-making (Josh).

If we keep teaching research skills, a lot of that expertise required to be evidence-based practitioners will disappear among the next generation of nurses coming through. It's going to be a significant problem (Karen).

In line with the above concerns, academics coordinating and teaching into research and EBP units were considered to be in the best position to influence the content and delivery of these units:

There is a lot of confusion out there and academics have to take some responsibility by not separating out research and EBP. Students are taught research, but we know only a minority would be undertaking masters and honours (Josh).

Hence, many participants desired to change the focus of research units from producing evidence generators to evidence consumers and recommended teaching research within an evidence-based framework:

The undergrad level should be teaching EBP, and the focus should be on students being able to use or be consumers of research, rather than the way the subjects are modelled (Elizabeth).

I think you will find that our research probably falls into that category that evidence-based is recognised as a big part of it but that a lot of learning objectives are research theory and that has to change. 99.9% of graduates aren't going to be doing research, particularly as a new graduate (Deon).

Experiencing challenges with units

Many participants reported experiencing challenges with either coordinating or teaching into research and EBP units. Concerns were raised in delivering these units particularly when they were offered online:

Unfortunately the subject that we chose to make fully online was this introduction to evidence-based practice. That's a challenge with respect to teaching a large number of students that message, and the passion for evidence-based nursing through online, don't get across (Joanne).

Research and EBP units were identified as attracting negative attitudes from students and teaching staff. Most students reportedly loathed research units and wished not to embrace research in their future practice. Furthermore, teaching staff did not wish to partake into these units unless they were absolutely passionate about research and EBP:

I have to say that we've struggled to get the students to really enjoy the research unit, you talk about research, and you lose students (Elizabeth).

I think a lot of students hold their breath and just hope it gets better when they're done with subjects. Teaching staff refuse to teach, of course they know it's going to impact their evaluations (Alana).

Feedback from such units was of great concern to nurse academics. It was argued that students did not engage and could not see the value and significance of undertaking these units to their knowledge and practice.

> *This is always a challenge within the undergraduates wanting to or not being able to see the application of this sort of unit, the moment you talk about research and you see an element of rebelling in the form of negative evaluations (Simone).*

Inadequate knowledge and skills of teaching into research and EBP units, difficulty in creating those units engaging for students, and lack of academics' interest in teaching these units were also addressed by a few participants:

> *Well, it's a challenging unit to teach as you can imagine and with academics who have a strong research background think they're teaching EBP but in real fact they are not prepared to enhance students' understanding in EBP (Alana).*

> *Very few academics raise their hands to teach into these units, rather they are interested to teach clinical units in which students are relatively engaged (Katrina).*

Academics were seen to influence the way these units were delivered, they could either ignite interest in research among students or made students see research as boring and unrelated to clinical practice.

> *Initially...it depends on the teacher, really. You can sell if you're good at it. It can be dull and boring, and something that you have to know about, or it can be something that brings light and life to their journey as a student. To me, that's up to the academic to harness that interest and awaken it (Michelle).*

> *We have to translate it and talk about research in really down to earth ways for students and yes, they have to learn the vocabulary and everything else but the way*

... sometimes we define research terms and the definition that we use is just as impossible to understand (Linda).

Commitment by faculty members, their passion in delivering knowledge using interactive approaches of teaching and learning and make these units fun and interesting for students were found as facilitators:

How we deliver that education and design education to get them motivated, get them to like it, to see that it's not complex, it's actually quite straightforward and logical. So that's, you know, it's still that sort of attitude and motivation and the commitment instead of the provision (Josh).

Along with other challenges, placement of these units in undergraduate curricula attracted some attention too. Academics grappled with where to best place these units. There was reportedly vast variation in where these units were placed, as evidenced by unit guides and academics' quotes.

It has over the years moved in the curriculum. We had it in second year and then it went to first year and now it's gone to third year and it's moved backwards and forwards over the years as we try to find a point where the students are best able to absorb what research is (Stacey).

It can be problematic. It's hard to know where to place it, to be honest. In some ways, it's foundational knowledge that needs to go forward into all the further work the students are doing; they form their bed of understanding (Linda).

All participants strongly recommended considering re-designing research and EBP units and teaching research within evidence-based framework. They also desired to integrate these units

into other undergraduate units and contextualise them where students could answer clinical questions, find information, appraise evidence and use evidence to inform their practice:

> *These units should prepare students to demonstrate competence within evidence-based framework (Theo).*

Striving to Embed EBP across units

Data from interviews, observations and unit guides showed that those academics who were not directly involved in teaching research and EBP units, worked towards embedding EBP concepts into various units of study across curricula. Integrating EBP into units was seen to be about teaching and learning processes, academics' incorporated it wherever possible into assessment tasks, and link EBP to both theoretical and practical learning, which extends across into students' clinical placements:

> *Our theory and practical units all carry EBP. When we're teaching in terms of practice, we're teaching whatever the best practice is at this point in time. It's emphasised into lectures, students' assessments, clinical units and I believe applied across every unit really (Katrina).*

> *Yes, each subject obviously has a particular focus, but I would categorically say in every subject, even the science subjects, yes we do talk about evidence-based. So we sort of embed it, really, across the whole curriculum. But we do have specific subjects that we really do focus strongly on this (Henry).*

It was perceived that integrating EBP into curricula would not be achieved merely by including research evidence into lectures, simulation and assessment items. It needed to be built into academics' teaching and learning strategies in such a way that enabled students' abilities and

knowledge around clinical decision-making. Students should be able to make decisions that incorporate evidence:

> *Reorienting psychomotor skills so it's not just the skill, that skill is taught within an EBP framework where students are asked to locate evidence to inform their decision-making. At the end of the day, good clinical decision-making is the heart of evidence-based practice (Katrina).*

There was general consensus among participants that EBP was, in some ways, included into various units of study. Where a couple of participants were satisfied with the units underpinned by EBP, a number of others were unsure if it was integrated in the entire curriculum and expressed concerns, including limited time to aligning and updating units, crowded curricula, high expectations on academics, heavy workloads, insufficient knowledge and skills of EBP, inexperienced academics in designing curriculum, and lack of support from colleagues preventing EBP from being fully embedded:

> *It's not just the clinical based units in a Bachelor of Nursing, all of the units have to be committed. Every single unit that the student does has to basically re-emphasize the use of research in evidence-based practice, But I need to be realistic and acknowledge that this probably doesn't happen in most cases due to limited time, faculty workload and other expectations are very huge (Joanne).*

> *I am relatively very new to EBP but I can see that unit planning's done a little ad hoc at the moment because everybody's got their own objectives about how everything should be incorporated into the unit. I strongly feel we academics need to learn the ways how we could integrate EBP in better ways. However, I also understand limited time between semesters to update content, expectations to publish and resistance from other colleagues make things worse (Deon).*

Participants expressed wanting to embed EBP more overtly and thoroughly into their curricula where students get an exposure to EBP from each unit, rather from isolated units. Analysis of unit guides also revealed only a couple of units with overt learning objectives on EBP concepts and process embedded into units of study:

> *We're looking at increasing the integration of evidence-based practice principles throughout the whole curriculum, because the literature certainly tells us that it shouldn't be something that sits in a couple of discrete subjects, or even one discrete subject, at the undergraduate level. It needs to be embedded right across the curriculum, and we've got a project going at the moment looking at that very issue (Josh).*

Considering value and significance of a fully integrated curricula underpinned by EBP concepts and principles on graduates' clinical practice, many participants suggested recommendations including: Accrediting body emphasising its integration more overtly, academics needing to re-orient their thinking towards separating research and EBP, spreading EBP content across years, engaging students into clinical projects, unpacking curriculum to identify areas of integration and incorporating evidence leading to decision-making and patient outcomes:

> *Firstly, right across Australia, to have curricula that more thoroughly can demonstrate that EBP is embedded throughout. That's work that universities have to do, that's work that ANMAC, as the accrediting organisation for curricula have to start to focus on a lot more (Josh).*

> *Academics need to respond and integrate EBP across their curricula. Yes, that does require them to embrace more. By doing that, they're actually being role models that EBP is important to good clinical decision-making (Karen).*

Discussion and Recommendations

Study findings revealed that by introducing research and EBP units/subjects as either discreet or combined, nurse academics have endeavoured to instil essential knowledge required by students to embrace EBP in clinical practice. However, variations were reported in terms of the number of units/subjects included, their sequence and related learning outcomes within curricula. Florin, Ehdernberg, Wallin and Gustavsson (2012) investigated nursing students' experiences of research use and capacity beliefs about EBP from 26 different Swedish universities, finding that the extent to which EBP was emphasised varied considerably between universities, and large differences were reported in teaching and the use of EBP principles and process by students. The findings were concerning to researchers and offered clear implications for curricula revision and pedagogical approaches in nurse education.

Traditional research education in nursing typically focuses on preparing students to be evidence-generators and to do in-depth critique of single research studies. This paradigm is no longer adequate for preparing practitioners for the level of practice expected of them, as reported by Melnyk and Fineout-Overholt (2011). Nursing students' attitudes towards research and the belief that research is important to clinical practice have largely been negative globally (Halcomb & Peters, 2009; Brooke, Hvalič-Touzery, & Skela-Savič, 2015). Most traditional research courses build competencies in the conduct of research, rather than the relative role of research within an evidence-based framework. Current study participants expressed concerns towards preparation of EBP practitioners if academics continue to focus on research methodologies and evidence generation. They desired to review undergraduate research and EBP courses, and wanted to reorient their thinking around EBP. Meeker, Jones and Flanagan (2008) reported the outcomes of restructuring their research course, underpinned by EBP concepts and principles. Among the most significant outcomes was the ability to integrate previously fragmented pieces of information and for students to see their relevance for

providing quality patient care in the realm of EBP. They found students' interest and engagement substantially increased as the aim was to move toward development of practitioners who would continue to learn to use research.

To create positive perceptions of research, teaching must incorporate creative and interactive strategies that make it relevant to clinical practice (Melnyk & Fineout-Overholt, 2011). Academics play a critical role in designing and implementing curricula fully underpinned by EBP principles. Their knowledge, skills, understanding and passion for EBP were seen to very much influence curriculum implementation and bring innovative approaches to make research and EBP interesting and relevant to students (Malik, McKenna & Griffiths, 2016; Waters, Rychetnik, Crisp & Barratt, 2009). If the value of research-informed knowledge is not applied throughout educational programmes, there is a risk of developing a 'hidden curriculum' through which students unintentionally learn that research is not relevant to practice (Navarro, 2005).

Teaching research and EBP subjects is demanding and cannot occur without having human, and technological resources (Finotto, Carpanoni, Turroni, Camellini, & Mecugni, 2013). Whilst investigating faculty perceptions in effectiveness of EBP courses, Zelenikova et al. (2014) identified time to update courses, limited class time, insufficient research background of students, negative attitudes of students and staff, lack of faculty expertise in the area of EBP, large class sizes and lack of support from practice areas as key challenges. These findings coincide with the current study where participants identified several challenges associated with research and EBP units.

Including research evidence while preparing lectures, laboratory and tutorial content, was perceived as integrating principles of EBP by participants of the current study. A systematic review by Shaneyfelt et al. (2006) found that mainly literature review and critical appraisal skills are evaluated to assess EBP competencies in medical students. Researchers

recommended developing tools to assess students' abilities to apply evidence in patient decision-making. Academics who are teaching research or undergraduate EBP nursing courses should aim to use teaching strategies that will promote students' development of skills includes asking focused clinical questions, finding relevant evidence, critically appraising the evidence, and applying the evidence within organisation and patient contexts. This will only be accomplished when EBP education is integrated and contextualised into a variety of subjects in degree programs (Brown, Kim, Stichler, & Fields, 2010; Christie, Hamill & Power, 2012).

Most of the current study participants identified barriers in embedding EBP across curricula and strongly recommended strategies for its full integration. The current study findings are in consensus with other studies which found evidence-related issues, organisational issues and teaching-related issues as key barriers to embedding EBP in undergraduate education (Zelenikova et al., 2014; Hung, Huang, Tsai, & Chang, 2015). Largely, there have been only a few published examples found, addressing ways academics have integrated EBP into curricula such as by initiating EBP projects through collaboration between practising nurses and students (Moch & Cronje, 2010), developing nursing care plans and concept maps based on current evidence (Callister, Matsumura, Lookinland, Mangum & Loucks, 2005), working with preceptors to identify practice issues and finding evidence to answer them (Winters & Echeverri, 2012), and students and faculty working collaboratively with librarians to enhance information literacy skills (Lalor, Clarke & Sheaf, 2012). However, there is a need to investigate usefulness of these initiatives on students' abilities to embrace EBP in their professional careers.

Ineffective education seems to be an important barrier to EBP. Traditional research courses focusing solely on high-level research knowledge have been shown to be unrealistic and insufficient in preparing evidence-based practice clinicians. There is a need to shift a mind-set of faculty so that EBP becomes the everyday language of nursing curricula. This means

recognising EBP as a rich framework for clinical decision-making and its importance to improving patient care (Yousefi-Nooraie, Rashidian, Keatin & Schonstein, 2007). Sustained efforts of faculty and academic institutions are critical to ensuring academics are prepared to facilitate EBP education. Robust initiatives are recommended to promote faculty knowledge, skills and understanding of EBP, which may assist them to design a well-integrated EBP curriculum. Furthermore, ensuring access to expert mentors in curricula design may facilitate to overcome cited barriers. The study results have clear implications for curricula revision, particularly the content, delivery and outcomes of research and EBP courses. Additionally, academic institutions should make EBP integration across theoretical and clinical courses as their utmost priority, and offer support and resources for this to occur.

Limitations of the study

Although the aim of the study was to identify and explore how nurse academics incorporated EBP knowledge and concepts in undergraduate education, it has a couple of limitations. Being a qualitative study, results need to be interpreted in the study context. Generated theories that relate to social phenomena are not replicable, they can be verified. Secondly, students' perspectives in relation to research and EBP courses were not explored. Also, their readiness to adopt EBP in clinical practice could have provided valuable insights; these can be considered for future research.

Conclusion

For students to become evidence-based healthcare professionals, EBP teaching has to be effective and integrated across curricula. Creating a culture that uses evidence to inform clinical practice comes from faculty who are influential in curricula design and model this through their

teaching. Study results have identified key issues within Australian undergraduate curricula, which require attention at school, and accreditation body levels. Recommendations are in line with global literature needing to revise research and EBP curricula and integrate the concepts into each course. Faculty preparation, adequate resources and effective teaching and learning strategies are fundamental in designing the undergraduate curricula underpinned by EBP concepts and principles.

References

Australian Nursing and Midwifery Accreditation Council (2012). *Registered Nurse Accreditation Standards*. Retrieved from *http://www.anmac.org.au.*

Brooke, J., Hvalič-Touzery, S., & Skela-Savič, B. (2015). Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today,* 35(7), e6-e11. doi:10.1016/j.nedt.2015.02.026

Brown, C. E., Kim, S. C., Stichler, J. F., & Fields, W. (2010). Predictors of knowledge, attitudes, use and future use of evidence-based practice among baccalaureate nursing students at two universities. *Nurse Education Today,* 30(6), 521-527. doi: http://dx.doi.org/10.1016/j.nedt.2009.10.021

Callister, L., Matsumura,G., lookinland, S., Mangum,S. & Loucks, C. (2005). Inquiry in baccalaureate nursing education: fostering evidence-based practice. *Journal of Nursing Education,* 44(2), 59-64.

Charmaz, K. (2006). *Constructing grounded theory: A Practical Guide through Qualitative Analysis.* Los Angeles: SAGE Publications LTD.

Charmaz, K. (2014). *Constructing grounded theory*. (2nd ed.). Los Angeles: SAGE Publications.

Christie, J., Hamill, C., & Power, J. (2012). How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper. *Journal of Advanced Nursing,* 68(12), 2789-2801. doi: 10.1111/j.1365-2648.2012.05994.x.

Corbin, J. & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. (3rd ed.). Thousand Oaks, CA: SAGE.

Finotto, S., Carpanoni, M., Turroni, E.C., Camellini, R., & Mecugni, D. (2013). Teaching evidence-based practice: developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice*, 13, 459-465.

Florin, J., Ehrenberg,A., Wallin, L. & Gustavsson, P. (2012). Educational support for research utilization and capacity beliefs regarding evidence-based practice skills: a national survey of nursing students, *Journal of Advanced Nursing*, 68(4), 888-897.

Geum Oh, E., Kin, S., Kim, S.S., Kim, S., Cho, E.Y., Yoo, J., Kim, H.S., L.J.H., You, M.A., & Lee, H. (2010). Integrating evidence-based practice into RN-BSN clinical nursing education. *Journal of Nursing education*, 49(7), 387-392.

Halcomb, E. J., & Peters, K. (2009). Nursing student feedback on undergraduate research education: implications for teaching and learning. *Contemporary Nurse,* 33(1), 59-68. doi:10.5172/conu.33.1.59.

Hung, H.-Y., Huang, Y.-F., Tsai, J.-J., & Chang, Y.-J. (2015). Current state of evidence-based practice education for undergraduate nursing students in Taiwan: A questionnaire study. *Nurse Education Today,* 35(12), 1262-1267. doi: http://dx.doi.org/10.1016/j.nedt.2015.05.001

Lalor, J.G., Clarke, M., & Sheaf, G. (2012). An evaluation of the effectiveness of information literacy training for undergraduate midwives to improve their ability to access evidence for practice. *Nurse Education in Practice*, 12 (5), 269-272.

Levin, R.F., & Feldman, H. R. (2006). *Teaching evidence-based practice in nursing: A guide for academic and clinical settings*. New York: Springer Publishing Company.

Malik, G., McKenna, L., & Griffiths, D. (2016). How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. *Nurse Education Today, 41*, 54-59.

Malik, G., McKenna, L., & Plummer, V. (2015). Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. *International Journal of Nursing Practice,* 21, 46-57. doi:10.1111/ijn.12366

Malik, G., McKenna, L., & Griffiths, D. (2015). An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. *GSTF Journal of Nursing and Health Care*, 3(1), 158-164. doi:10.5176/2315-4330_WNC15.66.

Meeker, M., Jones, J., & Flanagan, N. (2008). Teaching Undergraduate Nursing Research from an Evidence-Based Practice Perspective. *Journal of Nursing Education,* 47(8), 376-9.

Melnyk, B., Fineout-Overholt, E., Dadler, L. & Green-Hernandez (2008). Nurse Practitioner Educators' perceived knowledge, beliefs and teaching strategies regarding Evidence-based practice: Implications for accelerating the integration of evidence-based practice into graduate programs. *Journal of Professional Nursing*, 24 (1), 7-13.

Melnyk, B.M., & Fineout-Overholt, E. (2011*). Evidence-Based Practice in Nursing & Health care: A Guide to Best Practice*. (2nd ed.). Philadelphia: Lippincott Williams & Wilkins.

Moch, S. D., & Cronje, R. J. (2010). Part II. Empowering grassroots evidence-based practice: a curricular model to foster undergraduate student-enabled practice change... second of a three-part series. *Journal of Professional Nursing,* 26(1), 14-22. doi: 10.1016/j.profnurs.2009.03.003

Navarro, V. (2005). Constructing an educator of qualitative methods: a reflection. *International Journal of Social Research Methodology*, 8(5), 419-435.

Shaneyfelt, T., Baum, K. D., Houston, T. K., Kaatz, S., Whelan, C., Bell, D., & Green, M. Instruments for evaluating education in evidence-based practice: A systematic review. (2006). *The Journal of the American Medical Association*, 296(9), p.1116- 1127.

Stichler, J. F., Fields, W., Son Chae, K., & Brown, C. E. (2011). Faculty knowledge, attitudes and perceived barriers to teaching evidence-based nursing. *Journal of Professional Nursing,* 27(2), 92-100. doi: 10.1016/j.profnurs.2010.09.012

Waters, D., Rychetnik, L., Crisp, J., & Barratt, A. (2009). Views on evidence from nursing and midwifery opinion leaders. *Nurse Education Today,* 29(8), 829-834. doi: 10.1016/j.nedt.2009.04.006

Winters, C.A. & Echeverri, R. (2012). Teaching strategies to support evidence-based practice. *Critical Care Nurse,* 32(3), 49-54.

Yousefi-Nooraie, R., Rashidian, A., Keating, J. L., & Schonstein, E. (2007). Teaching evidence-based practice: the teachers consider the content. *Journal of Evaluation in Clinical Practice,* 13(4), 569-575.

Zelenikova, R., Beach, M., Ren, D., Wolff, E., & Sherwood, P. (2014). Faculty Perception of the Effectiveness of EBP Courses for Graduate Nursing Students. *Worldviews on Evidence-Based Nursing,* 11(6), 401-413. doi: 10.1111/wvn.12068

Category 3: Influencing EBP Integration

Paper 4: Using Pedagogical Approaches to Influence Evidence-Based Practice Integration-Processes and Recommendations: Findings From a Grounded Theory Study

Published: Journal of Advanced Nursing

ORIGINAL RESEARCH: EMPIRICAL RESEARCH – QUALITATIVE

Using pedagogical approaches to influence evidence-based practice integration – processes and recommendations: findings from a grounded theory study

Gulzar Malik, Lisa McKenna & Debra Griffiths

Correspondence to: G. Malik:
e-mail: gulzar.malik@monash.edu

Gulzar Malik MN RN
PhD Candidate/Nursing Lecturer
School of Nursing & Midwifery,
Monash University Australia, Clayton,
Victoria 3800, Australia
@gulzar_malik5

Lisa McKenna PhD MEdSt RN
Professor
School of Nursing & Midwifery,
Monash University Australia, Clayton,
Victoria 3800, Australia
Editor-in-Chief Collegian
Honorary Professor
School of Nursing & Midwifery, University
of Queensland, Australia

Debra Griffiths PhD LLM RN
Associate Professor & Head School of
Nursing & Midwifery
Monash University Australia, Clayton,
Victoria 3800, Australia

Abstract

Aims. The study aimed to explore the processes undertaken by nurse academics when integrating evidence-based practice (EBP) into their teaching and learning practices. This article focuses on pedagogical approaches employed by academics to influence evidence-based practice integration into undergraduate programs across Australian universities.

Background. Nursing academics are challenged to incorporate a variety of teaching and learning strategies to teach evidence-based practice and determine their effectiveness. However, literature suggests that there are limited studies available focusing on pedagogical approaches in evidence-based practice education.

Design. A constructivist grounded theory methodology, informed by Charmaz was used for this study.

Methods. Data were collected during 2014 from 23 nurse academics across Australian universities through semi-structured interviews. Additionally, nine were observed during teaching of undergraduate students. Twenty subject outlines were also analysed following Charmaz's approach of data analysis.

Findings. 'Influencing EBP integration' describes the pedagogical approaches employed by academics to incorporate EBP knowledge and skills into undergraduate curricula. With the use of various teaching and learning strategies, academics attempted to contextualize EBP by engaging students with activities aiming to link evidence to practice and with the EBP process. Although, some strategies appeared to be engaging, others were traditional and seemed to be disengaging for students due to the challenges experienced by participants that impeded the use of the most effective teaching methods.

Conclusion. Study findings offer valuable insights into the teaching practices and identify some key challenges that require the adoption of appropriate strategies to ensure future nurses are well prepared in the paradigm of evidence-based practice.

Keywords: evidence-based practice, evidence-based practice process, grounded theory, nurse academics, nursing curriculum, pedagogical approaches, teaching strategies, undergraduate curriculum

1

Why is this research/review needed?

- Multiple studies have reported that nurses are insufficiently prepared to adopt evidence-based practice approach in clinical practice.
- Effective teaching is key in preparing students to become successful evidence-based practitioners. Information regarding teaching pedagogies is limited in the literature.
- Academics' preparation and implementation of a variety of teaching and learning strategies are fundamental in designing undergraduate curricula underpinned by evidence-based practice concepts and principles.

What are the key findings?

- Nurse academics have incorporated various pedagogical approaches to influence evidence-based practice education. However, desired to be aware of the most engaging and effective methods.
- Students were introduced with the evidence-based practice process, but literature searching and critical appraisal skills were emphasized to a large extent.
- Participants encountered challenges such as limited time, insufficient resources, heavy workload, students' disengagement, and limited awareness of effective teaching methods.

How should the findings be used to influence policy/ practice/research/education?

- There is a need for academics to be informed about the most engaging and effective methods for teaching evidence-based practice, situating EBP into clinical context.
- Educational institutions and practice settings require to employ strategies addressing the barriers identified by study participants.
- Future research should determine the success and effectiveness of pedagogical approaches integrating evidence-based practice in undergraduate programs globally.

Introduction

Effective and innovative pedagogical approaches integrating evidence-based practice (EBP) competence into undergraduate programs of study is essential to ensure that the future workforce is well-prepared for emerging healthcare challenges. Pedagogical thoughtfulness and implementation of a variety of teaching and learning strategies can provide enrichment to students in adopting EBP into their nursing practices (Johnson *et al.* 2010). Contemporary pedagogical approaches are described as instructional methods, strategies, and learning environments which involve learners as active participants and knowledge is co-constructed between teachers and students. (Horsfall *et al.* 2012). Therefore, nurse academics act as facilitators and play an important role in enabling students to challenge their mode of thinking and shaping their learning through employing a range of teaching activities such as lectures, small group work, clinical practicum projects, postclinical conferences, problem-based learning, online modules, and simulation (Phillips & Cullen 2014). It has been argued that learning about EBP occurs best when integrated into multiple areas of nursing students' education, rather than only during specific research and EBP courses (Christie *et al.* 2012).

Background

Creating a culture that uses evidence to inform clinical practice comes from academics who are expected to use evidence in their academic practices and model this approach through their teaching (Dawley *et al.* 2011). Academics' preparation, positive attitudes and effective teaching and learning strategies are fundamental in designing undergraduate curricula underpinned by EBP concepts and principles (Stichler *et al.* 2011). However, studies suggest that in the current education system, nurse academics strive to maintain quality teaching in the light of increasing numbers of students, declining numbers of experienced faculty, financial constraints in institutions, and complexities in healthcare environments (Heye & Stevens 2009, Zeleníková *et al.* 2014).

A study by Hung *et al.* (2015) investigated the current state of EBP education for undergraduate nursing students in Taiwan across 21 nursing schools, reporting that most schools targeted EBP knowledge in theory but less attention was devoted to its clinical application. Critical issues were highlighted including challenges with clinical facilities, lack of integrated course materials, poor evaluation of learning outcomes, limited resources to implement effective teaching strategies, and lack of EBP training among teachers. Besides this, teachers also reported limited opportunities for students to apply EBP at the bedside, traditional teaching methods and students' disengagement with research and EBP as impeding factors. A shortage of human resources, lack of time, and being unaware of effective instructional techniques have been consistently reported as obstacles to teaching EBP in previous studies (Stichler *et al.* 2011, Hussein & Hussein 2014).

Several pedagogical approaches for teaching EBP are reported in the literature, however, Schmidt (2008)

questioned the effectiveness and success of the strategies reported. The teaching and learning strategies discussed in the literature were mainly results of pilot teaching projects, either applied to a small cohort of students or limited to one unit of study, with only a couple of presented methods implemented throughout the entire curriculum (Moch *et al.* 2010). Effective teaching is key in preparing students to become successful evidence-based healthcare clinicians. Teaching EBP pedagogy is not often a subject of research studies and information about strategies and their effectiveness in nursing education is limited (Geum Oh *et al.* 2010). A descriptive survey was conducted with 79 paediatric nurse practitioner educators across the USA to identify their knowledge, attitudes and beliefs about EBP and the need to integrate EBP into graduate program curricula. Their responses revealed strong beliefs towards the inclusion of EBP into curricula, however, highlighted a knowledge gap in EBP teaching strategies. The authors strongly recommended offering educational courses in EBP and its teaching for educators as knowledge of EBP was highly related to their teaching practices (Melnyk *et al.* 2008).

Available evidence indicates that lack of knowledge, confidence in teaching EBP, information literacy skills, resources, frameworks for curricula, and support are all barriers experienced by nurse academics globally, however, conclusions cannot be drawn in the light of the limited evidence (McInerney & Suleman 2010, Stichler *et al.* 2011). Therefore, further research is needed to seek insights into teaching and evaluation strategies for EBP education and those factors affecting their use by academics. Approaches to teaching EBP can have significant impact on graduates' attitudes and practices, thus academics play an important role in students' development of EBP knowledge, skills, and orientation (Christie *et al.* 2012). It is evident from the literature that nurse academics have struggled to develop teaching strategies that undergraduate nursing students find engaging and meaningful while learning EBP concepts (McCurry & Martins 2010). Therefore, teacher competency is one of the most crucial elements in the learning process and demands expertise, knowledge and skills in creating effective learning environments. However, there is a paucity of studies focusing on the pedagogical approaches employed by academics to influence EBP education, particularly in the Australian context.

The study

Aims and research questions

Drawing on findings from a grounded theory study that aimed to understand processes used by nurse academics

when integrating EBP into their teaching and learning practices, this paper focuses on the pedagogical approaches academics employ to influence EBP integration. The research questions were:

- What processes occur as nursing academics undertake to incorporate EBP into their teaching practices?
- What teaching and learning strategies do academics employ to teach EBP?
- How is EBP integrated in undergraduate nursing curricula?

Design

In seeking a research methodology that would best fit ontologically, epistemologically, and methodologically, a constructivist grounded theory methodology, informed by Charmaz (2006, 2014) was chosen for the study. Charmaz's orientation represents a flexible and interpretive approach to data collection and analysis. She adopted contemporary and more flexible guidelines than traditional grounded theorists by suggesting 'grounded theory guidelines describe the steps of the research process and provide a path through it. Researchers can adopt and adapt them to conduct diverse studies…we can use basic grounded theory guidelines with twenty-first century methodological assumptions and approaches' (Charmaz 2006, p.9). Additionally, a constructivist approach does not support the view that theories are discovered but believes that the studied world needs to be portrayed in an interpretive manner as the interviewee and researcher embark together on the process of constructing realities (Charmaz 2006). Therefore, the constructivist approach was adopted for the study. Furthermore, having its roots embedded in symbolic interactionism, this methodology was suitable for this study as the purpose was to explore processes in a specific context.

Participants/settings

Employing purposive sampling, nurse academics across all Australian universities and colleges offering Bachelor of Nursing programs were invited to participate in the study. Heads of schools distributed email invitations to their academic staff. Potential participants expressed interest in participating by contacting the researcher.

Data collection

Data were collected through interviews, non-participant observations and document analysis during 2014.

3

208

Invitations were sent to all heads of tertiary Australian nursing schools for distribution to interested academics. Twenty-three nurse academics teaching into undergraduate nursing courses volunteered to participate and were interviewed until no new concepts were identified and categories were theoretically saturated. Participants were given the choice to participate in either one or both data collection methods. Participants were interviewed one-on-one using a semi-structured format with some guiding questions at mutually agreed place. Interstate participants preferred to be interviewed on phone. Each Interview was approximately of 45–90 minutes in duration, was audiotaped and later transcribed verbatim.

Two key guiding questions were employed to reveal participants' understandings and experiences through interviews: 'How do you incorporate EBP into your teaching and learning practices?' and 'How is EBP included in the undergraduate curriculum?' As the study progressed, interview questions became more focused allowing for in-depth exploration and linkages of emerging concepts and categories. According to Strauss and Corbin (1998), an initial interview guide should be provisional and revised as concepts begin to emerge.

Additionally, nine participants consented to be observed when teaching undergraduate nursing students during laboratory, tutorial, and lecture sessions. Each observation was approximately 2 hours long, followed by postobservation meeting to discuss the researcher's interpretation of participants' experiences and seek any clarification needed. Before the observation occurred, the researcher ensured that students activities would not be identified during reporting. Several questions guided observations: 'What is happening in the setting (s)? What are people doing? Why are they doing it? How do people in the setting explain what is happening and their actions concerning it? Which actions, experiences, and events routinely occur and which are unusual and surprising? For whom and when? (Charmaz 2014, p.43). Field notes were taken during and after the observations and reflective diary was maintained. In addition to the interviews and observations, 20 subject outlines shared by some participants were analysed.

Ethical considerations

Prior to commencing data collection, ethical approval was obtained from the relevant university ethics committee. Approvals were also obtained from heads of schools and written consent was obtained from all participants wishing to partake. To maintain participants' confidentiality and anonymity, pseudonyms were used during analysis and reporting of the data.

Data analysis

In keeping with the tenets of grounded theory, data collection and analysis were performed simultaneously and continued until theoretical saturation was reached, that is, when further data collection elicited no new theoretical insights around key concepts and linkages between categories were well-established (Charmaz 2006). Interview transcripts, field notes and subject outlines were analysed alongside each other by employing open, focused, and theoretical coding. Initial and focused codes were assigned to each transcript, field note and subject outline which identified processes, incidents, actions, and behaviours. By using the constant comparative method, generated codes were compared with data and emerging concepts and as a result, preliminary sub-categories and categories emerged. Theoretical memos were created throughout the study as a means of conceptualizing the data. NVivo 10 was used to organize data into codes and categories. With the constant engagement of iterative and interactive processes, four categories were constructed. This article focuses on the category conceptualized as *Influencing EBP Integration*.

Rigour

According to Charmaz (2014), a constructivist grounded theorist can establish trustworthiness of study by applying four criteria including credibility (logical and conceptual grounding), originality (significance of the study), resonance (offers meaning and scope for all those for whom it may be relevant) and usefulness (knowledge development and practical application). Credibility was achieved by using a variety of data collection methods, as a result the constructed category present processes, actions and meanings relating to participants' experiences. In addition, researchers' trainings and experiences in grounded theory research, independently assessing transcripts, verifying findings by checking with a few study participants (member checking) and discussions among the research team (peer debriefing) further confirms the credibility. The study findings offered new insights and allowed broader perspectives of academics, also observations of participants allowed the discrepancy between what was said and practice reflects the originality of the study findings. Resonance in the study was ensured by continuing collection of data and analysis until theoretical saturation was reached. Lastly, findings have contributed to the body of knowledge, reflecting the usefulness of the study.

Findings

Demographic characteristics

In total 23 nurse academics participated. The majority (87%) were women. Fifty-six percent of participants held a PhD/ doctorate as their highest qualification. Additionally, a large number were (56%) lecturers, 30% were senior lecturers, and 13% were associate professors. Participants' demographic characteristics are shown in Table 1.

The category 'Influencing EBP Integration', encompasses pedagogical approaches employed by nursing academics whilst integrating EBP knowledge, skills, and concepts into various units of study in undergraduate curricula. With the use of various teaching and learning strategies, academics endeavoured to engage students with the EBP process. However, within the EBP process, information literacy and critical appraisal skills were largely emphasized in students'

Table 1 Participants' demographics.

	n
Gender	
Female	20
Male	03
Age (years)	
31–40	01
41–50	11
51–60	11
Position	
Associate Professor	03
Senior Lecturer	07
Lecturer	13
Qualification	
PhD/Doctorate	13
Masters	09
Graduate Certificate	01
Nursing Experience (years)	
16–20	03
>20	20
Teaching Experience (years)	
0–5	04
6–10	05
11–15	06
16–20	02
>20	06
Current Undergraduate Teaching	
Years 1, 2 & 3	03
Years 1 & 3	12
Year 3	07
Curriculum developer	01
Units Taught	
Theoretical/Clinical	14
Theoretical	09

academic work. During this process, academics encountered challenges with limited awareness of EBP teaching strategies, insufficient resources, students' disengagement, and time-related issues. This category is further conceptualized through two sub-categories: 'Practising diverse teaching and learning strategies' and 'Seeking engagement with the EBP process'.

Practising diverse teaching and learning strategies

This sub-category presents the teaching strategies used by participants to instil EBP knowledge and skills among undergraduate students. Many participants mentioned using lectures, tutorials, laboratory work, online activities, and assignments as standard delivery in undergraduate education:

The subject that I'm teaching at the moment, coming up to week three next week, it's a pretty standard delivery. Lectures and tutorials. The lectures are covering a variety of topics related to evidence-based practice and clinical decision-making for senior nursing and midwifery students (Josh).

It was evident from participant observations that lecture content presented to students reflected the use of latest evidence. Students were encouraged during lectures and tutorials to substantiate their work with relevant current evidence. A couple of participants distributed recent articles to students during tutorials to read and appraise the evidence:

I'd be looking at modelling the behaviour that I expect so I always acknowledge all my sources and make it clear what I expect them to do by doing the same thing myself. But basically it's just using the term 'evidence-based practice', demonstrating that we use it in preparing our lectures, giving them access to some of that evidence, letting them know that Joanna Briggs is out there for them if they want to go and find out what the latest practice might be and then asking them to 'back up' [support] their work with the most updated evidence (Donna).

Participant interviews and observations displayed teaching of EBP concepts and process using an online mode of delivery. Many universities have embedded videos, scenarios, and content in their online learning management systems. Students were exposed to scenarios which unfolded every week and they were encouraged to discuss these scenarios in the light of current evidence:

So some of the activities I might do, for example online, is watch a video in which I talk about finding the evidence, appraising the evidence, evaluating the evidence, putting the evidence into practice rather than overly 'stick' [adhere] to the research process (Joanne).

Some participants tried to engage clinical experts in delivering lectures and facilitating laboratories, however, Theresa and other participants mentioned that limited resources would not allow this to happen all the time:

I certainly try and engage clinical experts. So for example in wounds, which is something I was relatively expert in back in the day, but because I'm not doing that all the time, I would not necessarily be up-to-date with all the evidence. So one of the ways would be to engage a clinician who is specifically up-to-date (Theresa).

...one thing I would really like to see more often, because the universities don't have money these days and I would like to see more guest speakers, people who are known in their field and I would like to see more external things done like visits to relevant places just where people can exposed to the real world (Karen).

Some participants were passionate about using different approaches to deliver content other than lectures, such as using a flipped classroom approach, problem-based learning and inquiry-based learning to facilitate students' learning. During an observation, an inquiry-based learning approach using a virtual simulated environment was instigated. This approach facilitated students' understanding of the importance of asking clinical questions, finding relevant evidence, appraising the evidence and using evidence to inform practice. Students appeared to be highly engaged and keen during the discussion:

Integrating evidence-based practice principles into case studies involving a variety of patients, into any scenario that involves clinical decision-making is highly engaging. We introduce them to inquiry-based learning and flip classrooms right from the start, making a connection with something they already know, going and finding that information, building that, creating a new understanding and it's a continuous cycle (Deon).

A few participants emphasized using laboratories to teach EBP knowledge and skills. Josh and a few others recommended that students should not be merely exposed to psychomotor skills, rather the skill needed to be integrated within an evidence-based framework:

It's something that needs to happen in the simulated environment, in the laboratory. They need to have scenarios that require them to locate the relevant evidence when they're implementing a psychomotor skill. For example if they're giving an injection to a child, what's the evidence they would need to draw on in getting that injection safely in a child? That's how to re-orient the evidence-based practice principles within the curriculum (Josh).

Apart from face-to-face or online delivery of content, academics included EBP concepts and process into assessment items. Unit guide analysis and participant interviews explicitly showed that students were expected to search for literature, critically analyse it, and support their work with appropriate references:

We get them to do their assignments, case studies and we say 'Okay, tell me about the nursing care and then tell me the research you used to back up [support] what it is you decided to do for that patient' so we're trying to get them to use the research (Katrina).

Many participants emphasized using teaching approaches that engaged students. They perceived challenges when teaching EBP related concepts to undergraduate students if pedagogical approaches were not innovative and motivating for students. They desired to be aware of instructional techniques which has potential to engage students and make learning meaningful for them:

... the way that you approach the topic and the kinds of learning activities that you design ... if you just stand there and yap, yap, yap for an hour long lecture or two-hour tutorial, you've taken a potentially boring delivery of it. With this approach, students frequently get disengaged and display negative attitudes towards EBP. So I think all of the principles of best practice and teaching is like you have to be on your best game for it (Melissa).

One other lecturer I know who does a lot of game playing, now I am not good at this, but I have seen it work very well in class where people engage in a game and as they progress through the game each bit of evidence that they come up with turns it into a learning curve. Myself and I know there are other lecturers who struggle to engage students and would like to be educated on the best teaching methods to teach EBP and research (Sarah).

Preparing undergraduates to be evidence-based practitioners was seen to be very much influenced by academics' teaching and learning approaches. They could either positively or negatively influence the practice of future nurses:

... it gets around how we approach teaching of evidence-based practice, how we deliver that education and design education to get them motivated, get them to like it, to see that it's not complex, it's actually quite straightforward and logical. It's still that sort of attitude and motivation and the commitment instead of the provision. I know last year I very reluctantly taught a couple of lectures that ... had already been written before and quite frankly some of them really had to scurry around for more up-to-date references and things like that, this is a real issue (Elizabeth).

Where academics strived to put forward the best teaching strategies, they encountered barriers which prevented the best teaching methods being delivered to students. As a result, students grasped superficial content and were not fully engaged with the content delivered. Academics cited insufficient resources, poor time, lack of knowledge and experience with innovative teaching approaches, academic workload and plethora of information as obstacles to implement innovative teaching strategies:

... didactic teaching in a lecture theatre is limited, full stop. Particularly very difficult with the complex concepts around evidence-based practice. ... there is always pressures of the time in curriculum and that's definitely a barrier. Time to research new teaching strategies is always a challenge. We go easy ways and incorporate content into lectures and tutorials which aren't compulsory and students often don't attend (Donna).

There aren't sufficient resources available to implement innovative teaching strategies such as inquiry-based learning with the cohort of 300 students. (Linda).

Innovations in teaching and finding methods to engage students are probably some of the fastest evolving knowledge that we have. Changes are happening all the time. That's one of the hardest things to keep up to date with. So that's an ongoing struggle I think for anyone working in the clinical area, anyone working in academic environment, It's a struggle to try and stay on top of changes and being innovative' (Alana).

Staff commitment and educational opportunity were highlighted as key facilitators in implementing EBP pedagogies:

... if you can get a commitment from the staff then the students hear that message it becomes part of the way they envision themselves as nurses ... that's the first step, even with all the financial restrictions and the workplace issues ... if we can get a graduate who has a questioning mind, then we've succeeded' (Lyn).

Academics need to re-orient their thinking around evidence-based practice and need to be aware of the best methods to teach these complex concepts to students (Josh).

Seeking engagement with the EBP Process

This sub-category incorporates methods used by nursing academics to engage and motivate students with the EBP process. Participant observations and interviews demonstrated that in the EBP process, students were heavily engaged with database searching skills, either taught by academics or university library staff:

We are trying to do a lot when they first come in, to do some up-skilling about doing database searching so that they're not just looking at the textbooks or even at the how-to articles but that they understand looking at databases to find an original piece of research written by the primary researcher reporting what they did in their study. Students love database searching workshops delivered by our library staff. I think they are the experts and students learn a lot during their first semester which sets them for the next three years of their degree (Alana).

Many participants placed significance on building activities around reading research articles, critiquing research studies, and the conduct of research. Participants perceived these to be vital skills for students to apply EBP in their future practice:

One of the ways that I try to get people to use research and make it evidence-based is by giving them journal articles that are relevant and then asking questions and building activities on those, so they're utilizing research in what they're doing (Ann).

That's where the evidence-based comes back in, where you get them to start looking at 'Well, okay, here's a piece of research or here's three articles. Go off and critique them and say would you base your practice based on any of these (Katrina).

Participant interviews, observations, and subject outlines showed that students were expected to learn database searching skills and use evidence in their theoretical units:

We're actually getting better at ensuring that the students are evidence users by encouraging them to actually go to and find evidence and use them in their assignments (Jacki).

Some participants had specific expectations relating to using references and critical appraisal skills according to students' year level. They perceived that by engaging students in literature searching and referencing their work, it would prepare them to apply EBP in their practice careers:

At a very junior level in first year, they're expected to go and research and use references for their papers. By the time they get into third year, they're expected to critically analyse. Second year, they do an annotated bibliography, third year, they do critical analysis. Incremental steps, I guess that's how they use evidence-based practice process and will be ready to use the process in practice (Joanne).

For several academics, use of literature by undergraduate students was considered a vital skill to be able to find relevant evidence to support their academic work. Whereas, engaging with the entire EBP process, including asking a clinical question, finding relevant evidence, appraising the

evidence, and applying evidence into clinical practice, appeared to be even more meaningful and effective to undertake evidence-based decisions:

> We try very hard to engage students through tutorials to understand things like asking clinical questions, searching the literature, looking for evidence, and applying into practice. This is very important that we teach them EBP process, not just focusing on literature searching or appraising the literature. By the time they graduate, they should develop these skills to inform their decisions (Theresa).

For example, a few participants envisioned the role of students to be evidence-based practitioners and strived to include the EBP process in practice context and directed students to address those clinical problems using evidence-based framework:

> So that's probably the only other thing that I'd say about our curriculum is that within each of the subjects that have clinical placement attached and where they're talking about clinical conditions, nursing interventions, and patient education, that's where we're expecting them to use EBP process. I'd like them to link the evidence they gathered to address their patient's problem and apply it carefully that's what I strongly emphasize in my teaching (Melissa).

Overall, this category reflects participants' teaching and learning practices when integrating EBP concepts in undergraduate curricula. Through lectures, laboratory work, and small classroom activities, academics attempted to contextualize EBP by engaging students with activities aiming to link evidence to practice and providing experiences with the EBP process, were evident in findings. Although, where EBP process was incorporated, literature searching and critical appraisal skills were largely emphasized in students' academic work.

Discussion

Nursing and midwifery education should enable students in their understanding of EBP concepts and outcomes. Lack of value for research in practice has been identified as a key barrier to EBP implementation (Badger *et al.* 2012). Findings from the study reflect that nurse academics incorporated several teaching and learning strategies including lectures, tutorials, laboratory work, inquiry-based learning, a flipped classroom approach, and online management systems to support EBP education. The reported findings correlate with other global studies (Johnson *et al.* 2010, Dawley *et al.* 2011, McCulley & Jones 2014, Hung *et al.* 2015) demonstrating positive results of such initiatives.

Nurses and undergraduate nursing students possess negative attitudes about EBP courses when delivered via a didactic style. Study participants highlighted challenges such as students' disengagement and negative attitudes with EBP when taught in lecture settings. To create positive perceptions of research and EBP, teaching must incorporate creative and interactive strategies that motivate students and have relevance to their clinical practice (Geum Oh *et al.* 2010). McCurry and Martins (2010) reported findings from a study using innovative strategies such as worksheets for collaborative learning, presentations by clinical nurse researchers from diverse clinical and professional backgrounds, joint assignments between theory and clinical units, oral group presentations, research posters, research grand rounds, and the great cookie experiment. The results were significant in engaging students with research and EBP teaching. In addition, Schmidt and Brown (2007) proposed an innovation-decision process teaching strategy (I-DPTS) where students were placed in a small group to simulate being a member of an EBP team and were presented with clinical problems by local healthcare facilities. Students were expected to go through the steps of EBP and present their findings in both oral and poster presentations. This strategy provided real world experience for students and offered an opportunity to influence practice change. The above reported teaching strategies to engage students, differ to the approaches used by the study participants. Hence, to facilitate students' learning and engagement with EBP, participants desired an awareness of effective teaching strategies and recommended to have access to resources for this initiative.

In Finotto *et al.*'s (2013) study, newly graduated nurses indicated that skills learnt during the laboratory's three-year EBP were useful in seeking evidence related to a nursing problem, using them to find solutions and identifying the most appropriate care responses. Similarly, integrating psychomotor skills in an evidence-based framework was highly regarded by participants of this study to design such learning environments where learning can take place in context. Other than traditional teaching methods, a few study participants used problem-based learning, inquiry-based learning, and flipped classroom techniques to facilitate students' learning. In the classroom, problem-based learning strategies have proved to be effective in cultivating critical thinking and facilitating EBP among undergraduate nursing and social work students (Howard *et al.* 2007, Fineout-Overholt *et al.* 2008). Using scenarios from clinical practice and engaging students with the EBP process to make clinical decisions has been used successfully in a few undergraduate nursing

programs (Odell & Barta 2011, Centrella-Nigro & Flynn 2012, Finotto *et al.* 2013). Therefore, effective learning environments enhance students' sense of ownership for their own learning by active engagement in the process (Condie & Livingston 2007).

Use of empirical evidence was enhanced among students when skills such as searching literature and critical appraisal, were embedded in the teaching-learning environment, particularly in the classroom, as evidenced by participants' excerpts. Although literature searching and critical appraisal skills enhance students' knowledge and competency of EBP, the learning process would be meaningless if EBP education focused merely on searching for and using evidence to inform their academic work and limited attention is given to its application in practice. The nurse learner, whether novice or expert, needs a broader scope of knowledge and skills to become a confident evidence-user in clinical decision-making. Therefore, multiple teaching strategies such as a 'focus on EBP' section for each content area covered in class, practice guidelines assigned as readings and follow-up through clinical units, clinical conferences, journal club meetings, and EBP projects may be incorporated into curricula to enhance students' competence of EBP process and its adoption (Aitken *et al.* 2011, Winters & Echeverri 2012). At Lienhard School of Nursing, Pace University, academics assigned students to critically appraise the clinical practice guidelines and use them within an evidence-based context for practice. They found this strategy as a great stimulus for students to engage in EBP. They recommend faculty to give up 'their talking head', 'roll up their sleeves', and implement interactive teaching strategies to facilitate students' engagement (Singleton & Levin 2008, p.383).

The study by Zeleníková *et al.* (2014) focused on faculty perception of the effectiveness of EBP courses, finding the incorporation of EBP teaching as an integral part of the mission of the school, providing students with opportunities to strengthen and apply their skills throughout their degree subjects and teachers' expertise in EBP knowledge and skills were important elements influencing effectiveness of EBP courses. However, faculty reported feeling less competent in implementing innovative teaching strategies due to limited time, lack of knowledge, heavy academic workload, and resistance in clinical settings. These findings coincide with this study where participants verbalized similar obstacles and facilitators affecting incorporation of innovative pedagogical approaches into their teaching and learning practices.

Study findings create a call for educational institutions to address cited barriers through employing initiatives such as managing faculty workload, allowing sufficient time to search for and implement innovative and effective teaching strategies, upskilling academics by identifying their educational needs in EBP and organizing educational sessions on a regular basis, providing opportunities to collaborate with those academics who are involved with current pedagogical approaches to make EBP practically focused for students, offering incentives to academics who employ such initiatives and provision of sufficient resources in school and clinical settings (Zeleníková *et al.* 2014, Hung *et al.* 2015). The continuing connection between theory and practice of EBP influences nurses' adoption of EBP and would ultimately serve to improve patient care and outcomes. Future research should determine the success and effectiveness of pedagogical approaches of teaching EBP in undergraduate programs both nationally and internationally.

Limitations

As participation in the study was voluntary, it is possible that participants who were either passionate, or possessed negative thoughts, about the study topic expressed interest to partake, hence this may not reflect all perspectives. However, the strong point of this study was recruitment across Australia from a range of educational settings, therefore the findings provide a valuable reference for academics working Australia wide across educational settings.

Conclusion

Effective and innovative teaching approaches are essential to prepare nursing students with the knowledge and skills to access, appraise, and integrate evidence into practice. The study findings offer insights into how academics influenced EBP integration by using several teaching and learning strategies and by engaging students with the EBP process. Study results provide a deeper understanding of processes used by academics, therefore contribute to nursing body of knowledge, particularly in the paradigm of EBP. Although, education in information literacy and critical appraisal skills is valuable, engaging students with the EBP process in practice context is imperative to increase their EBP competence. Hence, faculty development in EBP teaching, commitment among academics, provision of resources, and support in school are vital to address reported barriers. It is paramount that student nurses are prepared to make patient care decisions within an EBP framework to be able to improve patient outcomes for years to come.

9

Acknowledgements

Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE(http://www.icmje.org/recommendations/)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

References

Aitken L. M., Hackwood B., Crouch S., Clayton S., West N., Carney D. & Jack L. (2011) Creating an environment to implement and sustain evidence based practice: a developmental process. *Australian Critical Care* 24(4), 244–254.

Badger F.J., Daly W. & Clifford C. (2012) Educating tomorrow's clinical researchers: a review of research preparation in undergraduate education. *Nurse Education Today* 32(7), 737–743.

Centrella-Nigro A.M. & Flynn D. (2012) Teaching evidence-based practice using a mock trial. *Journal of Continuing Education in Nursing* 43(12), 566–570. doi:10.3928/00220124-20120917-27

Charmaz K. (2006) *Constructing Grounded Theory: a Practical Guide through Qualitative Analysis.* SAGE Publications LTD, Los Angeles.

Charmaz K. (2014) *Constructing Grounded Theory*, 2nd edn. SAGE Publications Ltd, Los Angeles.

Christie J., Hamill C. & Power J. (2012) How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper. *Journal of Advanced Nursing* 68(12), 2789–2801. doi:10.1111/j.1365-2648.2012.05994.x

Condie R. & Livingston K. (2007) Blending online learning with traditional approaches: changing practices. *British Journal of Educational Technology* 38, 337–348.

Dawley K., Bloch J.R., Suplee P.D., McKeever A. & Scherzer G. (2011) Using a pedagogical approach to integrate evidence-based teaching in an undergraduate women's health course. . (Report). *Worldviews on Evidence-Based Nursing* 8(2), 116.

Fineout-Overholt E., Stillwell S.B. & Kent B. (2008) Teaching EBP through problem-based learning. *Worldviews on Evidence-Based Nursing* 5(4), 205–207, 203.

Finotto S., Carpanoni M., Turroni E.C., Camellini R. & Mecugni D. (2013) Teaching evidence-based practice: developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice* 13, 459–465.

Geum Oh E, Kin S., Kim S.S., Kim S., Cho E.Y., Yoo J., Kim H.S., You M.A. & Lee H. (2010) Integrating evidence-based practice into RN-BSN clinical nursing education. *Journal of Nursing education* 49(7), 387–392.

Heye M.L. & Stevens K.R. (2009) Educational innovations. Using new resources to teach evidence-based practice. *Journal of Nursing Education* 48(6), 334–339. doi:10.3928/01484834-20090515-06

Horsfall J., Cleary M. & Hunt G.E. (2012) Developing a pedagogy for nursing teaching–learning. *Nurse Education Today* 32(8), 930–933. doi:10.1016/j.nedt.2011.10.022

Howard M.O., Allen-Meares P. & Ruffalo M.C. (2007) Teaching evidence-based practice: strategic and pedagogical recommendations for schools of social work. *Research on Social Work Practice* 17(5), 561–568.

Hung H.-Y., Huang Y.-F., Tsai J.-J. & Chang Y.-J. (2015) Current state of evidence-based practice education for undergraduate nursing students in Taiwan: a questionnaire study. *Nurse Education Today* 35(12), 1262–1267. doi:10.1016/j.nedt.2015.05.001

Hussein A.H.M. & Hussein R.G. (2014) Nursing educators' knowledge, skills in evidence-based practice and their critical thinking skills: self-reported study. *Journal of Education and Practice* 5(27), 86–94.

Johnson N., List-Ivankovic J., Eboh W.O., Ireland J., Adams D., Mowatt E. & Martindale S. (2010) Research and evidence based practice: using a blended approach to teaching and learning in undergraduate nurse education. *Nurse Education in Practice* 10 (1), 43–47. doi:10.1016/j.nepr.2009.03.012

McCulley C. & Jones M. (2014) Fostering RN-to-BSN students' confidence in searching online for scholarly information on evidence-based practice. *Journal of Continuing Education in Nursing* 45(1), 22–27.

McCurry M. & Martins D. (2010) Teaching undergraduate nursing research: a comparison of traditional and innovative approaches for success with millennial learners. *Journal of Nursing Education* 49(5), 276–279.

McInerney P. & Suleman F. (2010) Exploring knowledge, attitudes and barriers toward the use of evidence-based practice amongst academic health care practitioners in their teaching in a South African university: a pilot study. *Worldviews on Evidence-Based Nursing* 7(2), 90–97. doi:10.1111/j.1741-6787.2009.00180.x

Melnyk B., Fineout-Overholt E., Dadler L. & Green-Hernandez C. (2008) Nurse practitioner educators' perceived knowledge, beliefs and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs. *Journal of Professional Nursing* 24(1), 7–13.

Moch S.D., Cronje R.J. & Branson J. (2010) Part 1. Undergraduate nursing evidence-based practice education: envisioning the role of students. *Journal of Professional Nursing* 26(1), 5–13. doi:10.1016/j.profnurs.2009.01.015

Odell E. & Barta K. (2011) Teaching evidence-based practice: the Bachelor of Science in nursing essentials at work at the bedside. *Journal of Professional Nursing* 27(6), 370–377.

Phillips J.M. & Cullen D. (2014) Improving the adoption of evidence-based practice through RN-to-BSN education. *Journal of Continuing Education in Nursing* 45(10), 467–472. doi:10.3928/00220124-20140916-02

Schmidt N.A. (2008) Evidence- based practice in the nursing curriculum: ponderings on design and implementation. *Annual Review of Nursing Education* 6, 237–254.

Schmidt N.A. & Brown J.M. (2007) Use of the innovation–decision process teaching strategy to promote evidence-based practice. *Journal of Professional Nursing* 23(3), 150–156.

Singleton L. & Levin R. (2008) Strategies for learning evidence-based practice: critically appraising clinical practice guidelines. *Journal of Nursing Education* 47(8), 380–383.

Stichler J.F., Fields W., Son C.K. & Brown C.E. (2011) Faculty knowledge, attitudes and perceived barriers to teaching evidence-based nursing. *Journal of Professional Nursing* 27(2), 92–100. doi:10.1016/j.profnurs.2010.09.012

Strauss A. & Corbin J. (1998) *Basics of Qualitative Research: techniques and Procedures for Developing Grounded Theory*, (2nd ed.). Sage, Thousand Oaks, CA.

Winters C.A. & Echeverri R. (2012) Teaching strategies to support evidence-based practice. *Critical Care Nurse* 32(3), 49–54.

Zeleníková R., Beach M., Ren D., Wolff E. & Sherwood P.R. (2014) Faculty perception of the effectiveness of EBP courses for graduate nursing students. *Worldviews on Evidence-Based Nursing* 11(6), 401–413. doi:10.1111/wvn.12068

Category 4: Envisaging the Use of EBP

Paper 5: Envisaging the Use Of EBP: How Nurse Academics Facilitate EBP Use in Theory and Practice Across Australian Undergraduate Programs

Revisions submitted to: Journal of Clinical Nursing

Envisaging the use of EBP: How nurse academics facilitate EBP use in theory and practice across Australian undergraduate programs

Abstract

Aim: This paper is drawn from a larger grounded theory study that aimed to investigate processes undertaken by academics when integrating evidence-based practice (EBP) into undergraduate curricula. This paper focuses on how nurse academics facilitated students to apply EBP in theory and practice.

Background: Facilitating undergraduate nursing students to develop skills within an EBP framework is vital to achieving evidence-based care. Studies on EBP conducted globally suggests that there is a need to investigate approaches used by nurse academics in facilitating students' understanding and use of EBP during their nurse education.

Methods: Employing constructivist grounded theory, twenty-three nurse academics across Australian universities were interviewed and nine observed during their teaching. Some study participants shared their unit guides to enrich analysis. Data analysis was performed by following Charmaz's approach of coding procedures, as a result four categories were constructed. This paper focus on the category conceptualised as *Envisaging the Use of EBP*.

Results: Findings revealed that most academics assisted students to use evidence in academic related activities. Recognising the importance of EBP in practice, some also expected students to apply EBP during clinical experiences. However, the level of students' appreciation for EBP during clinical experiences was unknown to participants, and was influenced by practice-related barriers. Acknowledging these challenges, academics were engaged in dialogue with

students and suggested the need for academia-practice collaboration in combating the cited barriers.

Conclusion: Ensuring academics are supported to emphasise clinical application of EBP requires strategies at school and practice levels. Faculty development, engagement of clinical nurses with EBP, supportive culture for nurses and students to apply EBP principles, and collaboration between academia and practice will make facilitation by academics practical and meaningful for students.

Clinical Relevance: Findings from this study point to a number of initiatives for clinical leadership to provide infrastructure and support for academics, practising nurses and undergraduate students to adopt EBP in practice settings, thereby influencing practice outcomes.

Key words: Evidence-based practice, nurse academics, EBP use, nurse education, undergraduate students, EBP curricula, grounded theory, clinical settings, practice barriers

Introduction

Today's health care professionals are exposed to increasingly demanding and highly complex healthcare environments that require the adoption of evidence-based practice (EBP). Integrating evidence into practice involves the ability to ask a focused clinical question, find relevant evidence, critically appraise and apply evidence considering patient preferences and values (Melnyk & Fineout-Overholt 2011). However, translation of evidence to clinical practice has been reported in global studies to be impeded by many barriers including: (1) lack of EBP knowledge and skills amongst health professionals, (2) insufficient support from organisations, (3) poor time and heavy workload, (4) lack of EBP champions and mentors, (5)

inadequate resources, and (6) lack of authority to change practices (Majid *et al*. 2011, Malik *et al*. 2015a). Conversely, reported enabling factors for enhancing EBP uptake comprise: (1) adequate knowledge, skills and beliefs about EBP among health professionals, (2) organisational support and priority to implement EBP, (3) having EBP mentors and champions, (4) availability of resources, (5) staff development opportunities and (6) authority to change practice (Yoder *et al*. 2014; Malik *et al.* 2015a). Practice based on current evidence is vital for improvements in patient care and widely recognised in literature, but unfortunately is not standard practice worldwide (Brooke *et al*. 2015).

Background

Teaching research and evidence-based practice in undergraduate nurse education may have significant impact on students' knowledge, skills and use of evidence-based practice (Leach *et al.* 2016). Both educational and clinical settings are required to educate graduating nurses about EBP concepts and its implementation in the real world (Brown *et al*. 2010). Although the importance of education to achieve EBP is critical, many undergraduate nursing programs continue to focus on how to conduct research, instead of emphasising research from evidence-based perspectives (Malik *et al*. 2015b). Teaching and learning EBP in nurse education is influenced by expertise and experience of nurse academics. With their passion, knowledge, beliefs and skills in EBP, academics can ignite a spirit of inquiry in students and instil lifelong learning skills (Bloom *et al*. 2013; Malik *et al*. 2016).

Educating students in EBP is a challenge for nurse academics as EBP educational interventions may improve knowledge, but do not ensure application of EBP in clinical settings (Smith-Strøm *et al*. 2012). Studies have shown that undergraduate students often perceive EBP and research to be difficult to comprehend. They have highlighted limited significance of these

concepts to their practice in their student role and professional practice (Halcomb, & Peters 2009). This presents challenges for academics in engaging students, yet making learning more relevant to their practice. Therefore, the selection of teaching methods and development of curriculum require careful planning and integration across courses to promote student engagement and optimise learning outcomes.

Literature has highlighted that research and EBP content are not well integrated in clinical components of degree programs and has impact on novice nurses' abilities to access and apply evidence into practice (Florin *et al*. 2012). New graduate nurses are faced with complexities of their work environment, which combined with the shortcomings in undergraduate education, may affect their practice of EBP (Rudman *et al*. 2012). A sample of 174 students across four states in the USA participated in an online survey exploring graduating degree students' EBP knowledge, readiness and the extent to which they could apply EBP in practice. Results showed students scored low on EBP knowledge and engagement in implementation behaviours. The study recommended that academics needed to instigate approaches to ensure clinical application of EBP was focused along with theoretical concepts (Llasus *et al.* 2014). Nurse academics can no longer focus on imparting to students knowledge that is merely theoretical and content specific. Activities that provide students with opportunities to apply concepts in real-world scenarios will prepare them to participate in clinical decision-making using current evidence (Russell *et al*. 2013).

Nurse education has traditionally included learning within the practice setting through clinical experiences, however with the growing focus on EBP, academics have not explicitly considered opportunities to immerse students in applying EBP in real world settings. A study by Florin *et al*. (2012) investigated 1440 nursing students' experiences of educational support for research utilisation (RU) and capacity beliefs regarding EBP skills across 26 Swedish universities. Students experienced lack of support for RU during clinical education with regards

to using research findings to change practice and developing EBP skills. Students perceived campus education supported to a large extent for RU and in developing capability beliefs regarding EBP skills. However, differences were found between universities in terms of how well students perceived themselves to be prepared for EBP. These results were attributed to lack of competency in EBP among clinical facilitators and organisational barriers which hindered adoption of research and EBP in practice. Implementation of EBP is more likely to succeed if it is embedded in nurses' educational preparation and clinical settings where they gained their experiences and will practise in future (Moch *et al*. 2010). Currently, there is a gap in the literature addressing approaches used by nurse academics in facilitating EBP use among students in theory and practice.

Nurses in Australia are supportive of EBP, but studies conducted in Australia reflecting its implementation by undergraduate students and nurses in general are limited (Waters *et al*. 2009; Malik *et al*. 2015a). The results of a study examining knowledge and attitude towards EBP among clinical nurses and pre-registration final year nursing students (n=383) across one state in Australia reported that participants demonstrated positive attitudes towards EBP but poor competence and confidence in many EBP skills. Lack of preparedness to EBP was attributed to variations in age, technological abilities, barriers within clinical settings, and failure of nurse education programmes to prepare students to understand how to use evidence within the context of their practice (Waters *et al*. 2009). Facilitating students to develop skills within an EBP framework is vital to achieving evidence-based care and improving patient outcomes. To date, there is a paucity of literature examining how nurse academics envision the use of EBP by nursing students across Australia.

Purpose

The study aimed to explain processes undertaken by nurse academics when integrating EBP into undergraduate curricula across Australian universities. In particular, this paper explores processes employed by nurse academics while facilitating students to use EBP in theory and practice.

Methods

Study Design

This study employed grounded theory methodology underpinned by symbolic interactionism (Corbin & Strauss 2015). Symbolic interactionism is a branch of interpretivisim with the focus on understanding processes and the way meaning is derived for individuals in social situations and how this impacts behaviour (Charon 2007). Considering the purpose of the study, a constructivist grounded theory informed by Charmaz (2006; 2014) was utilised. The constructivist paradigm assumes many possible realities and meanings are co-constructed between research participants and researcher (Charmaz 2006). An important characteristic of grounded theory methodology is allowing data collection using a variety of sources to understand how research participants construct and define their realities through interactions (Charmaz 2006).

Data Collection

Nurse academics were recruited from educational institutions offering Bachelor of Nursing (BN) programs across Australia. Purposive sampling was initially employed to recruit participants, followed by theoretical sampling which enabled emerging concepts to be fully

developed. Study invitations were sent to all heads of schools of nursing for distribution to academic staff. Interested participants expressed their interest by directly contacting the researcher and consented to be either interviewed and/or observed. Twenty-three nurse academics were interviewed in their workplace or mutually agreed place by telephone or in person for approximately one hour. With their permission, interviews were recorded and later transcribed.

Data were also collected by observing nine participants who consented to be observed in their teaching and learning settings. Upon receiving their consent forms, participants were contacted to discuss the suitable times, settings and type of teaching sessions they were comfortable for researcher to observe. Observations took place during lectures, laboratory settings or tutorials during teaching undergraduate students for approximately two hours. Before the observation began, students were informed of the purpose of the observation and were assured that non-participant activities would not be reported. Additionally, a post-observation meeting was arranged with each participant to seek clarification as required. Field notes were taken during the observations and later coded. In addition to interviews and observations, some participants granted permission to use their unit guides to enrich analysis. Ethical approval was received from the researchers' institution. Permission was also granted by individual heads of schools who forwarded invitations to their academic staff to partake in the study. Potential participants contacted researchers and provided written consent to participate in the study. Participation was voluntary and participants were assured that if they wished to withdraw from the study completely or did not want to be involved in any of the procedures, they had a right to do so at any stage. To retain confidentiality and anonymity, pseudonyms were used during analysis and presentation of findings.

Data Analysis

Data were analysed by using open, focused and theoretical coding. Each interview transcript, field note and unit guide was read line by line to generate initial and focused codes. The generated codes allowed researchers to identify processes, actions and meanings underpinning participants' experiences. By engaging with the constant comparative method, generated codes were compared with emerging concepts and data, as a result preliminary sub-categories and categories emerged. During this iterative process, preliminary categories were constantly compared with emerging concepts, data and generated codes. Memos and reflective diaries were maintained. Finally, four categories were constructed comprising *Valuing and Engaging with EBP (*Malik *et al.* 2016a) *Enacting EBP Curriculum, Influencing EBP Integration (*Malik *et al.* 2016b*) and Envisaging the Use of EBP*. This paper focuses on the category: *Envisaging the Use of EBP*.

Results

The category, *Envisaging the Use of EBP*, describes how nurse academics expected and facilitated students to apply EBP into theory and practice. Igniting students' spirit of inquiry, encouraging database searching skills and facilitating use of evidence mainly in academic work, were evident from study findings. Implementation of EBP in the clinical context was equally expected, however whether students applied evidence to inform their practice was unknown to academics and was largely impeded by practice barriers. Acknowledging these challenges, academics were engaged in dialogue with students and recommended strategies for academia and practice settings to implement. This category is further conceptualised through sub-categories comprising: *Facilitating EBP Use, Raising theory-practice gap issues* and *Engaging in dialogue with students.*

Facilitating EBP Use

Participant interviews, observations and unit guide analysis demonstrated that most academics facilitated use of evidence in academic related work, by utilising a number of approaches in their teaching and learning practices.

> *Some of that reading should be research studies, primary research, and they [students] should then cite that in their essays. They can use articles, textbooks, online websites and those sorts of things but they need to ascertain credibility (Joanne).*

> *We spend a lot of time with students in looking at what we define as relevant evidence and convincing them to use that to support their academic work across subjects during lectures and tutorials (Lyn).*

Participants expected students to develop literature searching and critical appraisal skills to support their arguments in their academic assignments.

> *We're developing that critical mass of skills where students are comfortable doing a literature search. During their academic years, they need these skills to develop an understanding of what evidence constitutes and how they could use them to support their work (Melissa).*

Some academics preferred developing assessments that reflected students' abilities around decision-making incorporating evidence. They argued if academics continued to focus on the use of evidence confined to theoretical assignments, this would not prepare students to be evidence-based practitioners. Students should develop skills in asking clinical questions, locating evidence, appraising the evidence and applying evidence to inform their clinical decisions.

... when they're not only preparing their assignments, but when they're thinking about clinical problems, they're using skills like searching databases, locating, clinical practice guidelines, to inform their decision-making on particular topics (Theresa).

We need to build into that assessment, components that reflect the students' ability and knowledge around decision-making that incorporates evidence… That's a really important issue (Josh).

Igniting spirit of inquiry and considering the significance of questioning practices, which is the first and foremost step to engage with EBP, some academics included such discussions into their teaching and learning practices. They encouraged students to question existing practices and seek rationales behind practices during their clinical experiences.

You have to question "Why is it changing? Where's the evidence that demonstrates that this is in fact better than what we did previously? Not just accept that's what we've been told we have to do now (Stacey).

Participant observations evidenced that academics attempted to link evidence to practice either by providing their own practice examples or by relating to clinical scenarios from simulated settings. Laboratory teaching was also utilised by participants to assist students with finding and applying evidence in relation to the skills taught.

…. ultimately they're developing some of these underpinnings of practice, the same as how someone reacts in an emergency when someone comes in with a possible AMI [Acute Myocardial Infarction]? Why do they give Anginine

[glyceryl trinitrate] under the tongue – or is it better to give it dissolved in water? So it's that talking to students and gradually 'unpicking' and unravelling all the elements of practice. I try and encourage activities that will get them to look at practices, justify them and apply them (Donna).

It's something that needs to happen in the simulated environment, in the laboratory. They need to have scenarios that require them to locate the relevant evidence when they're implementing a psychomotor skill. For example if they're giving an injection to a child, what's the evidence they would need to draw on in getting that injection safely in a child? (Josh).

Students were expected to locate and apply evidence during their patient encounters. A few academics envisaged application of EBP particularly in a context of clinical decision-making into students' clinical practices.

In theory I'd like them to see the application, to see the fact that when they're in practice they should be looking at the patients and identify what are their problems and how finding and applying of the evidence is going to address their problems. I would like students to understand how that piece of evidence contributes to clinical decision-making, as a nurse or midwife (Josh).

However, many academics expected students to be using evidence in their academic work. Applying evidence to inform clinical decision-making by students during their clinical experiences was unknown to academics. Plans for clinical application of EBP were neither explicitly mentioned, nor emphasised, by academics during observed teaching or through unit guides.

...who knows, on their clinical placements if they apply the learnt EBP concepts? We hope that because it becomes a discussion of them as a graduate fitting into the culture of nursing. I'm not sure that correlates well with how they would then use it, and their level of comfort with using an evidence-based framework once they get out in the clinical environment (Barbara).

A number of academics cited challenges with regards to preparing students to apply EBP skills during their clinical placements. Practice-related challenges were highlighted by many, making facilitation difficult and cumbersome for participants.

Some of the way we wrote the subject didn't actually pan out the way we wanted it to because right at that same time the clinical facility up here had a huge restructure and we had a lot of difficulty getting our students through rotations for clinical placement. We had originally set it up for each student and it would have a clinical mentor and they would work together on a project. That's how we designed it for the curriculum but unfortunately due to practice issues, was not delivered the way it was written (Joanne).

Raising theory-practice gap issues

This sub-category highlights theory-practice issues raised by participants. Academics acknowledged students' lack of motivation and concerns around using evidence to inform their practices, when practising nurses were neither prepared to adopt EBP nor mentor students to initiate such activities.

I've heard of students concerned because they're seeing things done in clinical that are different to what they've been taught in class so that for them as students becomes a matter of, which is right, and which one is the best practice (Karen).

As far as clinical goes, nurses want to rotate a student through a rotation where their time management skills improve, their technical skills improve, their communication skills improve and they see that actually applying the evidence is – well we don't have enough time (Linda).

Workplace culture was also identified by participants as a hindering factor.

… Practice culture doesn't allow the use of evidence, we know that, by and large, EBP doesn't happen, unless that clinical environment encourages employees to use an evidence-based framework. It's simply students gravitating to the lowest common denominator, and what's easy for them, in other words, they say, I've seen it done this way before, this is the way I'm going to do it now. There's no inquiry (Elizabeth).

Another reason for disconnect between theory and practice perceived by academics was having less credibility in practice settings. They reported that nurses assumed academics had no real understanding of how clinical practice worked and related challenges.

I have to acknowledge there is still that theory-practice gap. There are still people who go "Well, this is all being done by an academic" who has no understanding of what the real world is like. It's all very well for them to say that I should be doing this but in my practice, it's not possible. That gap, in all

of the years that I've been involved in nursing, it doesn't look to me like it's

getting any narrower (Sarah).

Some academics thought that academia further widened this gap between theory and practice by filling students with research and EBP knowledge, whereby the practice world was not ready and students were not given opportunity to apply learnt knowledge.

We run the risk, with reinforcing this theory to practice gap by filling up

students with a lot of theoretical knowledge, where in the practice world, that

evidence-based practice is simply not being well utilised or integrated, and

therefore, the students gets out into the clinical environment, and the idea of

evidence-based practice doesn't even get talked about (Josh).

Academics were concerned that students were not in a position to raise their concerns, and were not provided support by their preceptors or educators for discussion around evidence-based practice. Often, students followed their preceptors' practices unquestioning.

It's very difficult for students to be assertive and to raise issues directly with

clinicians that they may be doing something for which there's no real evidence

to support that. They [students] want to do what the real 'nurses' are doing and

they certainly don't want to challenge anybody because this does have its

consequences (Melissa).

Many academics recommended creating strong partnerships between academic and practice settings. Both settings were required to provide mechanisms where students would be supported and encouraged to apply EBP, thereby could see the link between theory and practice.

... we need to look at partnership between academia and the service sectors, really strong kind of partnerships. If we want to be taken seriously as professionals then we need to ensure that evidence-based practice and research are actually enshrined throughout the whole of the profession and throughout the whole of our careers (Ann).

Engaging in dialogue with students

Many academics acknowledged students' concerns relating practice culture and associated challenges. They provided students, opportunities to discuss their concerns either during lectures, tutorials or laboratory settings.

... when they [students] start to see barriers to EBP, then probably the discussions around culture and around some of the stumbling blocks as to why evidence isn't in practice. I think maybe when they come back, it's probably about the time to be discussing culture, and other related issues. ....students are certainly provided with avenues to identify and discuss that either with their unit coordinators or lecturers and bring it to their attention during tutorials and skills sessions (Jacki).

During debriefing with students, some academics reinforced students to focus on the key principles underpinning practices. They also encouraged students to attend ongoing education sessions and keep up with literature to be aware of practice changes.

I say to them "You will go out and you will see nurses who do their aseptic technique differently from the way you were taught to do it. We want you to assess what you see based on the principles of best practices (Stacey).

When they go out on clinical, we ask them and we work with their clinical teachers to encourage them to attend ongoing education, to query changes in practice (Barbara).

Some academics discussed ways students could challenge clinicians constructively about their practices which they viewed as traditional and did not produce the best outcomes for patients.

I say to my students that you just can't follow the crowd. You need to be thinking all the time about what you're doing. Is this the right way? One of the things I would say to students is you need to challenge that. Challenge more in a Socratic questioning way, rather than saying, 'What you're doing is wrong', (Stacey).

When acknowledging the significance of EBP, academics attempted to instil hope and build confidence among students regarding practice changes based on EBP. They also wished to engage in that kind of conversation with staff, involved in direct patient care.

But it's around what kind of nurse do you want to be as a student. And I suppose it's the increasing dialogue, the confidence of students, which is another one of those attributes. Confidence in learning, confidence in speaking with people and being role model in their workplace (Henry).

> *There's a significant amount of work that needs to happen to more fully orient the clinical preceptors and clinical environment towards evidence-based practice (Josh).*

Many academics proposed suggestions including presence of EBP experts, support for nursing staff, and having a philosophy within academic and practice settings for EBP appreciation. This may assist in preparing clinical environments for students, nurses and academics in EBP adoption.

> *Having resource people who may be employed jointly by, for example, a teaching hospital and a university. A person who is an expert in evidence-based practice integration. They become a resource person within the clinical environment to assist practitioners, nurses and students to integrate fully evidence-based practice principles in the provision of care (Deon).*

> *I think we need to inculcate the philosophy within academic settings and within clinical settings to appreciate EBP (Katrina).*

Discussion

This study offers insights into the approaches employed by nurse academics in their facilitation of EBP use. To date, limited information is available regarding how nurse academics encourage undergraduate students to apply EBP during their nurse education, and what challenges they encountered during this process. It appears that the current study participants envisaged the use of evidence mainly in students' academic activities, however how students applied EBP to inform their practice at present and in future was unknown. Literature suggests that a small

number of nurse academics have begun to envision the role of students in promoting EBP in practice settings. Moch and Cronje (2010) proposed an integrated model title "the student-enabled practice change curricular model" at the University of Wisconsin-Eau Claire (USA) for undergraduate nursing students. The model empowered nursing students to partner with practising nurses to obtain evidence to inform practice, therefore facilitating their learning about EBP in both academic and practice settings.

Additionally, Kruszewski *et al.* (2009) reported findings from a project using collaborative strategies in teaching EBP to accelerated second-degree baccalaureate students over a 12 month time period. A shared clinical project between the college and clinical agency was developed for two subjects 'Evidence-based practice' and 'Acute care of patients and families across the lifespan'. Students utilised EBP knowledge by identifying a clinical problem as a requisite of a clinical component of a subject. Students worked in groups, implemented all steps of EBP, as a result designed practice protocols and presented in front of staff and colleagues in the form of posters. The project demonstrated that collaborative teaching strategies may help students to achieve basic knowledge in EBP and an ability to translate into clinical practice. Present study participants mainly included discussions around practical application of EBP, however no plans were stipulated regarding students' engagement with EBP through projects or other initiatives, which differ from above reported studies. This could be attributed to insufficient knowledge of EBP, lack of confidence in teaching, heavy workloads, role expectations, limited time and lack of mentorship available for academics in designing and implementing curricula and complexity of EBP application in clinical settings (Malik *et al*. 2016a; McDermid *et al*. 2016).

Developing multiple teaching strategies, modelling and collaborating with clinical facilities to cultivate students' competence of EBP application is imperative. Academics teaching into undergraduate programs need to adopt the most practical strategies which require

students to be actively engaged with EBP through EBP projects, workshops, journal clubs, nursing rounds to name a few (Malik *et al*. 2016b). Global studies suggest EBP education has routinely included skills development in asking clinical questions, literature searching and critical appraisal skills, but implementing evidence into practice has gained limited attention. This is despite mounting evidence that theory-focused EBP is less effective than integrated teaching including knowledge, skills and implementation of EBP (Yousefi-Nooraie *et al*. 2007; Waters *et al*. 2009).

Lack of student motivation and challenges faced by students in implementing EBP during their clinical experiences was evident in participants' excerpts. This lack of motivation presents a challenge to academics as they seek to instil the value of evidence-based decision making in students. As clinicians depend on academics to prepare practitioners with skills to provide safe and quality patient care, academics rely on clinicians to facilitate students' learning through positive experiences (Chan *et al*. 2012). A study examining nursing students' experiences of EBP implementation in a clinical setting in Norway found that students were able to apply EBP in their theoretical units, but encountered challenges with clinical settings related to barriers presented both structurally and in terms of mentoring students to apply EBP. Nursing students highlighted lack of staff nurses' involvement in EBP and research which created uncertainty among students with regards to their future practice. The researchers concluded that successful EBP application required practising nurses to use EBP themselves and equally motivate students for its use. They recommended supporting nursing students across both, educational settings and clinical placements to increase knowledge, positive attitudes and successful adoption of EBP (Smith-Strøm *et al*. 2012). Similarly, current study participants cited organisational barriers impeding EBP use by students and created obstacles for academics in their facilitation of EBP. The study results clearly explain the theory-practice gap which coincides with many studies addressing barriers to EBP implementation in clinical

settings (Llasus *et al*. 2014). In light of previous and current study findings, the questions arise: Is there any solution to this global issue? How do we narrow the theory-practice gap which has existed for many years now?

Studies have suggested that creating strong partnerships between academic and clinical institutions may assist (Aitken *et al*. 2011; Chan *et al*. 2012). Academic institutions must develop creative ways to make EBP education more practically focused, whereas practice settings must provide avenues for students to transfer classroom learning into clinical situations. Hence, both settings should be open to such partnerships through a multidimensional EBP program incorporating EBP champions and mentors, provision of resources, creation of cultures to foster EBP and use of practical strategies for its use by clinicians, students and educators (Aitken *et al*. 2011). An example of a successful partnership was cited in the literature between a university nursing instructor from Regis University, USA and a clinical nurse specialist at Eastern Colorado healthcare system, applying EBP principles in the workplace. Within a nursing honours program, a clinical component was developed for the junior year EBP course. Nursing students were teamed with staff nurses working on EBP projects and students were able to learn how to utilise evidence in the practice settings, while staff were able to get assistance from students in gathering evidence. These projects provided students and staff with opportunities to experience the decision-making process using an evidence-based framework while acknowledging barriers and facilitators for its implementation (Pennington *et al*. 2010).

Since use of evidence in healthcare is not universal, clinicians need support and resources to improve EBP within organisations and nursing students require nurses and academics to be role models for their future practice. For successful academic-practice partnerships, academics can serve as mentors for clinical staff and nursing students by inculcating spirit of inquiry, motivating them to locate, appraising literature and facilitating

application of evidence (Llasus *et al*. 2014). Accessibility to mentors will ultimately strengthen student and staff learning opportunities and will provide possibilities for academics to adopt EBP in practice. This way, academics can gain practice credibility, an issue raised by present study participants (Aquadro & Bailey 2014). In addition, academic-clinical partnerships can be strengthened through initiatives such as jointly run clinical and academic projects, joint appointments between academia and practice, dissemination of work through conferences, health fairs, journal clubs and published papers (Aitken *et al*. 2011). However, future research needs to explore practical and innovative ways through which these partnerships can be nurtured and have long-term positive outcomes.

Becoming skilled in EBP is a continuous learning process that requires interaction and collaboration between academics, students and nurses in clinical settings. Nurses who are perceived as nurturing, supportive and helpful in this process will enable students to develop a sense of confidence and autonomy, which can influence students' learning experiences (Smith-Strøm *et al*. 2012). To create environments that facilitate EBP adoption both in theory and practice, students must be provided with opportunities to reflect and debrief their stories of success and failure of EBP adoption. Reflection is an effective teaching approach for nurse education and has been used extensively to evaluate clinical situations and address issues (Ireland 2008). Through reflection and discussions with students, current study participants played important roles in empowering students in raising concerns with relevant practice nurses, encouraging positive attitudes within students and dispelling misconceptions about EBP.

Present study participants reported challenges with EBP education due to barriers existing within clinical settings. If such obstacles continue to exist, academics could create activities in simulation settings where students could implement EBP frameworks and create links between theory and practice through patient scenarios (Chan *et al*. 2012). EBP

assignments could be integrated into clinical courses to promote EBP application within patient care contexts. Re-designing assessments which reflect students' abilities in making practice decisions within EBP frameworks was highly recommended by study participants and supported in the literature (Moch & Cronje 2010). It is essential that EBP is embedded in clinical contexts, and students deserve commitment from both educational and practice settings to embrace it.

This study presents a few limitations. Firstly, being a qualitative study means that findings are applicable to the participants and context in which the study took place. Furthermore, findings drawn from using grounded theory methods are contextualised and therefore cannot be generalised. However, they may resonate in other settings. Secondly, experiences shared by participants may not reflect all perspectives as those who were either passionate about EBP or those with negative experiences expressed their interest to partake in the study. Finally, although students' perceptions of the use of EBP in theory and practice, and clinical nurses' views on how students were mentored to adopt EBP would have provided valuable insights on the processes and barriers encountered by them, the scope of the current study did not allow these to be explored. Further research into these aspects should be considered.

Conclusion

This study contributes to the existing body of knowledge by indicating the activities nurse academics employed when assisting students to use EBP in theory and practice. Undergraduate education plays an important role in students' uptake of EBP when integrated across theoretical and clinical units. EBP education becomes relevant and meaningful for students when situated in clinical contexts. Ensuring support for academics to emphasise clinical application of EBP,

creating partnerships between academia and practice settings, and providing avenues for academics, students and clinical nurses to implement EBP will ensure effective patient care outcomes. Further research is required to explore the most effective ways students could be provided opportunities to apply EBP in clinical situations.

Clinical Relevance

Study findings present clear implications for practice, education, and research. Current instruction in EBP and practice engagement with EBP demands infrastructure to support graduating nurses for EBP adoption. Implementation strategies targeted to identifying and overcoming obstacles to EBP implementation, increasing competence of nurses and academics by allocating resources and offering continue education opportunities in EBP, are highly recommended. Opportunities for EBP mentorship and faculty clinical practice could be initiated for academics to enhance their practice credibility. Academia and practice partnerships must be established and strengthened to offer nursing students and practising nurses with prospects to undertake collaborative EBP projects. The notion of joint appointments between academics and practitioners is a way to achieve desirable outcomes in EBP implementation. Future research could explore the outcomes of such initiatives.

What does this paper contribute to the wider global clinical community?'

- This paper offers insights into nurse academics' activities and strategies adopted to facilitate the use of EBP in undergraduate nurse education.

- During the process of facilitation, academics experienced practice-related challenges that warrant strategies at academic and practice levels.

- Instruction in EBP, and practice engagement with it, requires infrastructure to support practising nurses, undergraduate students and academics to be able to fully appreciate EBP.

References

Aitken L M, Hackwood B, Crouch S, Clayton S, West N, Carney D, & Jack L (2011) Creating an environment to implement and sustain evidence based practice: A developmental process. *Australian Critical Care, 24,* 244-254.

Aquadro L C & Bailey B I (2014) Removal of Nursing Faculty Practice Barriers in Academia: An Evidence-Based Model. *Journal of Nursing Education,* **53**, 654-658. doi:10.3928/01484834-20141027-04.

Bloom K C, Olinzock B J, Radjenovic D, & Trice L B (2013) Levelling EBP Content for Undergraduate Nursing Students. *Journal of Professional Nursing, 29*, 217-224. doi:10.1016/j.profnurs.2012.05.015.

Brooke J, Hvalič-Touzery S, & Skela-Savič B (2015) Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today, 35*, e6-e11. doi:10.1016/j.nedt.2015.02.026.

Brown CE, Kim SC, Stichler JF, & Fields W (2010) Predictors of knowledge, attitudes, use and future use of evidence-based practice among baccalaureate nursing students at two universities. *Nurse Education Today, 30,* 521-527.

Chan E A, Chan K & Liu Y W J (2012) A triadic interplay between academics, practitioners and students in the nursing theory and practice dialectic. *Journal of Advanced Nursing, 68*, 1038-1049. doi:10.1111/j.1365-2648.2011.05808.x.

Charmaz K (2006) *Constructing grounded theory: A practical guide through qualitative analysis,* SAGE Publications LTD, Los Angeles.

Charmaz K (2014) *Constructing grounded theory,* 2nd edn. SAGE Publications LTD, Los Angeles.

Charon J (2007) *Symbolic interactionism; an introduction, an interpretation, an integration,* 9th edn. Pearson Prentice Hall, New Jersey.

Corbin J & Strauss A L (2015) *Basics of qualitative research: Techniques and procedures for developing grounded theory,* 4th edn. SAGE Publications, Los Angeles.

Florin J, Ehrenberg A, Wallin L & Gustavsson P (2012) Educational support for research utilization and capacity beliefs regarding evidence-based practice skills: a national survey of nursing students, *Journal of Advanced Nursing*, **68**, 888-897.

Halcomb E J & Peters K (2009) Nursing student feedback on undergraduate research education: implications for teaching and learning. *Contemporary Nurse: A Journal for the Australian Nursing Profession, 33,* 59-68 10p. doi:10.5172/conu.33.1.59.

Ireland M (2008) Assisting students to use evidence as a part of reflection on practice. *Nursing Education Perspectives, 29*, 90-93 94p.

Kruszewski A, Brough E, & Killeen M B (2009) Educational innovations. Collaborative strategies for teaching evidence-based practice in accelerated second-degree programs. *Journal of Nursing Education, 48,* 340-342. doi:10.3928/01484834-20090515-07.

Leach M J, Hofmeyer A & Bobridge A (2016) The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: a descriptive longitudinal survey. *Journal of Clinical Nursing*, **25,** 194–203. doi: 10.1111/jocn.13103

Llasus L, Angosta A D & Clark M (2014) Graduating Baccalaureate Students' Evidence-Based Practice Knowledge, Readiness, and Implementation. *Journal of Nursing Education, 53*, S82-89. doi:10.3928/01484834-20140806-05.

Majid S, Foo S, Luyt B, Zhang X, Theng Y L, Chang Y K & Mokhtar I A (2011) Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers. *Journal of the Medical Library Association : JMLA*, **99,** 229–236. http://doi.org/10.3163/1536-5050.99.3.010.

Malik G, McKenna L & Plummer V (2015a) Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. *International Journal of Nursing Practice, 21*, 46-57. doi:10.1111/ijn.12366.

Malik G, McKenna L & Griffiths D (2015b) An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. *GSTF Journal of Nursing and Health Care*, **3,** 58-164. doi:10.5176/2315-4330_WNC15.66

Malik G, McKenna L & Griffiths D (2016a) How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. *Nurse Education Today, 41*, 54-59. doi:http://dx.doi.org/10.1016/j.nedt.2016.03.015

Malik G, McKenna L & Griffiths D (2016b) Using pedagogical approaches to influence evidence-based practice integration- Processes and Recommendations: Findings from a grounded theory study. *Journal of Advanced Nursing,* doi:10.1111/jan.13175

McDermid F, Peters K, Daly J & Jackson D (2016) Developing resilience: Stories from novice nurse academics. *Nurse Education Today, 38*, 29-35. doi:http://dx.doi.org/10.1016/j.nedt.2016.01.002

Melnyk BM & Fineout-Overholt E (2011*) Evidence-Based Practice in Nursing & Health care: A guide to best practice,* 2nd edn. Lippincott Williams & Wilkins, Philadelphia.

Moch S D, Cronje R J & Branson J (2010) Part 1. Undergraduate Nursing Evidence-Based Practice Education: Envisioning the Role of Students. *Journal of Professional Nursing, 26,* 5-13. doi:http://dx.doi.org/10.1016/j.profnurs.2009.01.015.

Moch S D & Cronje R J (2010) Part II. Empowering grassroots evidence-based practice: a curricular model to foster undergraduate student-enabled practice change... second of

a three-part series. *Journal of Professional Nursing,* **26**, 14-22. doi:10.1016/j.profnurs.2009.03.003.

Pennington K, Moscatel S, Dacar S Johnson C (2010) EBP partnerships: building bridges between education and practice. *Nursing Management,* **41**, 19-23. doi:10.1097/01.NUMA.0000370873.25348.ec.

Phillips J M & Cullen D (2014) Improving the Adoption of Evidence-Based Practice through RN-to-BSN Education. *Journal of Continuing Education in Nursing,* **45**, 467-472. doi:10.3928/00220124-20140916-02.

Rudman A, Gustavsson P, Ehrenberg A, Boström A M & Wallin L (2012) Registered nurses' evidence-based practice: A longitudinal study of the first five years after graduation. *International Journal of Nursing Studies,* **49**, 1494-1504 1411p. doi:10.1016/j.ijnurstu.2012.07.007.

Russell B H, Geist M J & Maffett J H (2013) SAFETY: An Integrated Clinical Reasoning and Reflection Framework for Undergraduate Nursing Students. *Journal of Nursing Education,* **52**, 59-62 54p. doi:10.3928/01484834-20121217-01.

Smith-Strøm H, Oterhals K, Rustad E C & Larsen T (2012) Culture crash regarding nursing students' experience of implementation of EBP in clinical practice. *Nordic Journal of Nursing Research & Clinical Studies / Vård i Norden,* **32**, 55-59. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=jlh&AN=2012213616&site=ehost-live.

Waters D, Crisp J, Rychetnik L & Barratt A (2009) The Australian experience of nurses' preparedness for evidence-based practice. *Journal of Nursing Management,* **17**, 510-518. doi:10.1111/j.1365-2834.2009.00997.x.

Yoder L H, Kirkley D, McFall D C, Kirksey K M, StalBaum A L Sellers D (2014) Staff nurses' use of research to facilitate evidence-based practice. *American Journal of Nursing*. doi:10.1097/01.NAJ.0000453753.00894.29.

Yousefi-Nooraie R, Rashidian A, Keating J L & Schonstein E (2007) Teaching evidence-based practice: the teachers consider the content. *Journal of Evaluation in Clinical Practice, 13*(4), 569-575.

5.4   Conclusion

 An overview of study results along with participants' demographic information were provided in this chapter. This chapter contained four manuscripts which offered detailed accounts of each of the constructed categories encompassing: *Valuing and Engaging with EBP, Enacting EBP Curriculum, Influencing EBP Integration, and Envisaging the Use of EBP*, generated from the study data. Although categories have been presented in four separate papers, each is interconnected and embedded within the core process. Chapter six presents the overarching theory, which offers an abstract rendering of participants' actions and meanings when engaged with the core process.

Chapter Six: The Theory

6.1 Introduction

This chapter presents the theory constructed from the study data. The theory was developed with a rigorous process of concurrent data collection and analysis, which centred on the core process. This basic social process is evident in the three transitional stages and four main categories embodied in the theory. Contextual determinants that mediate the core process are discussed in chapter seven.

The findings from this chapter are presented in the form of a manuscript submitted to *'Nursing Research'* for publication, and is currently under review.

Paper 6: The Theory (Under Review)

Malik, G., McKenna, L. & Griffiths, D. (Under Review). On a path to success: Endeavouring to contextualise curricula within an EBP framework-a grounded theory study. *Nursing Research.* (Submitted July 2016)

On a path to success: Endeavouring to contextualise curricula within an EBP framework-a grounded theory study

Abstract

Background: Preparing undergraduate nursing students within an evidence-based practice (EBP) framework is vital to influencing patient care outcomes. Little has been published about EBP incorporation into nursing curricula and how academics embed its principles into their teaching practices.

Methods: A constructivist grounded theory methodology was employed to explore the study aim. Twenty-three academics across Australian universities were interviewed and nine were observed during teaching undergraduate students. Additionally, 20 unit guides were analysed using grounded theory approach of data analysis.

Results: The core process, *On a path to success: Endeavouring to contextualise curricula within an EBP framework,* presents a theoretical construct, offering an understanding of processes and actions of academics considering to integrate EBP in teaching practices. A central aspect of our theory reflects meanings academics constructed around their endeavours in contextualising curricula, linking EBP theory to practice. Along with, they aspired to achieve fully integrated curricula across both theoretical and clinical courses. However, academics' journeys were influenced by several contextual factors which required positive strategies to accomplish their endeavours.

Conclusion: Faculty development, provision of resources and initiatives to minimise barriers across educational institutions and clinical facilities are fundamental to achieving undergraduate curricula underpinned by EBP concepts and principles.

Keywords: evidence-based practice, nurse academics, grounded theory, curricula, undergraduate education

Introduction

The notion of evidence-based practice (EBP) is growing in response to increasing complexities in healthcare, escalating costs, increasing burden of disease and the need to offer interventions with best possible outcomes (Waters, Crisp, Rychetnik, & Barratt, 2009). EBP is a problem-solving approach for clinical practice that integrates best available evidence with the clinician's expertise in considering patients' preferences to make sound healthcare decisions (Melnyk & Fineout-Overholt, 2015). This shift towards EBP has prompted health professionals to move from a culture of delivering care based on tradition and intuition, to one where decisions are based on scientific evidence to improve patient outcomes (Waters et al., 2009). Considering the growing need to adopt an EBP approach, nurses must be adequately prepared in their undergraduate degrees with underpinning EBP concepts. However, there is a plethora of studies reporting that nurses face difficulty with EBP implementation and their educational preparation for embracing EBP is consistently inadequate (Eizenberg, 2010; Malik, McKenna & Plummer, 2015).

Educating undergraduate students with EBP is paramount in today's complex healthcare settings. EBP adoption by graduating nurses depends on the degree to which it is emphasised by academics and the extent to which it is integrated into both theoretical and

clinical courses (Brown, Kim, Stichler & Fields, 2010). Literature makes it evident that academics can no longer emphasise EBP concepts merely in academic practices, but must also focus on the clinical relevance of EBP and prepare students within this paradigm (Finotto, Carpanoni, Turroni, Camellini & Mecugni, 2013). Despite the existence of many studies on EBP, its inclusion in nurse education is limited and represents an area of crucial investigation (Heye & Stevens, 2009). Such evidence is necessary to identify appropriate approaches to improve EBP education and overcome barriers to its uptake (Al Hadid & Al Barmawi, 2012).

Although the significance of applying evidence to practice is unquestionable, many Australian and international undergraduate programs continue to emphasise research process and underpinning methodology, rather than teaching research from evidence-based perspectives (Llasus, Angosta & Clark, 2014; Malik, McKenna & Griffiths, 2015). To date, there is a paucity of studies examining how nurse academics integrate EBP knowledge and skills into undergraduate education globally. Our study addressed this gap by investigating processes and actions of nurse academics when integrating EBP into teaching practices across Australian universities.

Purpose

This paper reports the resulting substantive theory, conceptualised as "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*", which offers an abstract understanding of the activities academics were engaged with when considering to integrate EBP in undergraduate education.

Research Methods

A constructivist grounded theory methodology (GTM) was employed to meet the research aim. This design was considered suitable from its ontological, epistemological and methodological underpinnings, offering an interpretation of meanings participants constructed relating to the study phenomenon. According to Charmaz (2006), the constructivist theorist views data as created between participants and researcher rather than discovered; and analysis is interpretive rather than predictive. The study drew upon the theoretical framework of symbolic interactionism which aims to understand how and why participants construct meanings and actions in specific situations (Charmaz, 2006). The resultant theory offers the greatest range of interpretation and understanding of concepts; further providing linkages between the concepts (Charmaz, 2014).

Data Collection

Using purposive sampling, nurse academics across 32 Australian universities and three colleges offering undergraduate nursing programs were sent invitations to participate through their heads of schools. Potential participants consented to be interviewed and/or observed by directly contacting the researcher. In total, 23 academics were interviewed for approximately 60 minutes at mutually agreed places. Interstate participants were interviewed via telephone for geographical reasons. Additionally, nine participants agreed to be observed in teaching during lectures, tutorials or laboratories. Field notes were taken during observations and clarification sought from participants following when required. In addition to the interviews and observations, some subject outlines shared by participants were analysed.

The relevant university ethics committee approved the study. Written consent was obtained from participants and permissions were also attained from individual heads of schools to contact potential participants. Participants' anonymity and confidentiality were maintained at every stage of the research process including data collection, analysis and dissemination of findings. Pseudonyms are used to present findings in this paper.

Data Analysis

Data were analysed using open, focused and theoretical coding as proposed by Charmaz (2006; 2014). Additionally, NVivo 10 was used to organise data. Interview transcripts, field notes and unit guides were read multiple times to generate open and focused codes. Codes were raised to sub-categories which were compared with data to seek relevance and fit. By using the constant comparative method, sub-categories were further developed to a level where emerging categories could be examined and compared with codes and emerging concepts. Theoretical memos were created and a reflective diary was maintained throughout as a means of conceptualising the data. As a result of this iterative and interactive process, four categories emerged. These were further raised to an abstract level where the linkages between the categories resulted in a theory.

Methodological rigour was enhanced by reading and analysing transcripts repeatedly, using multiple data collection methods, writing field notes, maintaining a reflective diary, engaging in extensive memo writing, constantly comparing data and acknowledging own assumptions which ensured that pre-conceived ideas are not imposed on findings (Charmaz, 2006). Additionally, participants were contacted again to confirm findings, and to verify the theory reflected true interpretation of participants' meanings. Study findings were also supported by the team of researchers.
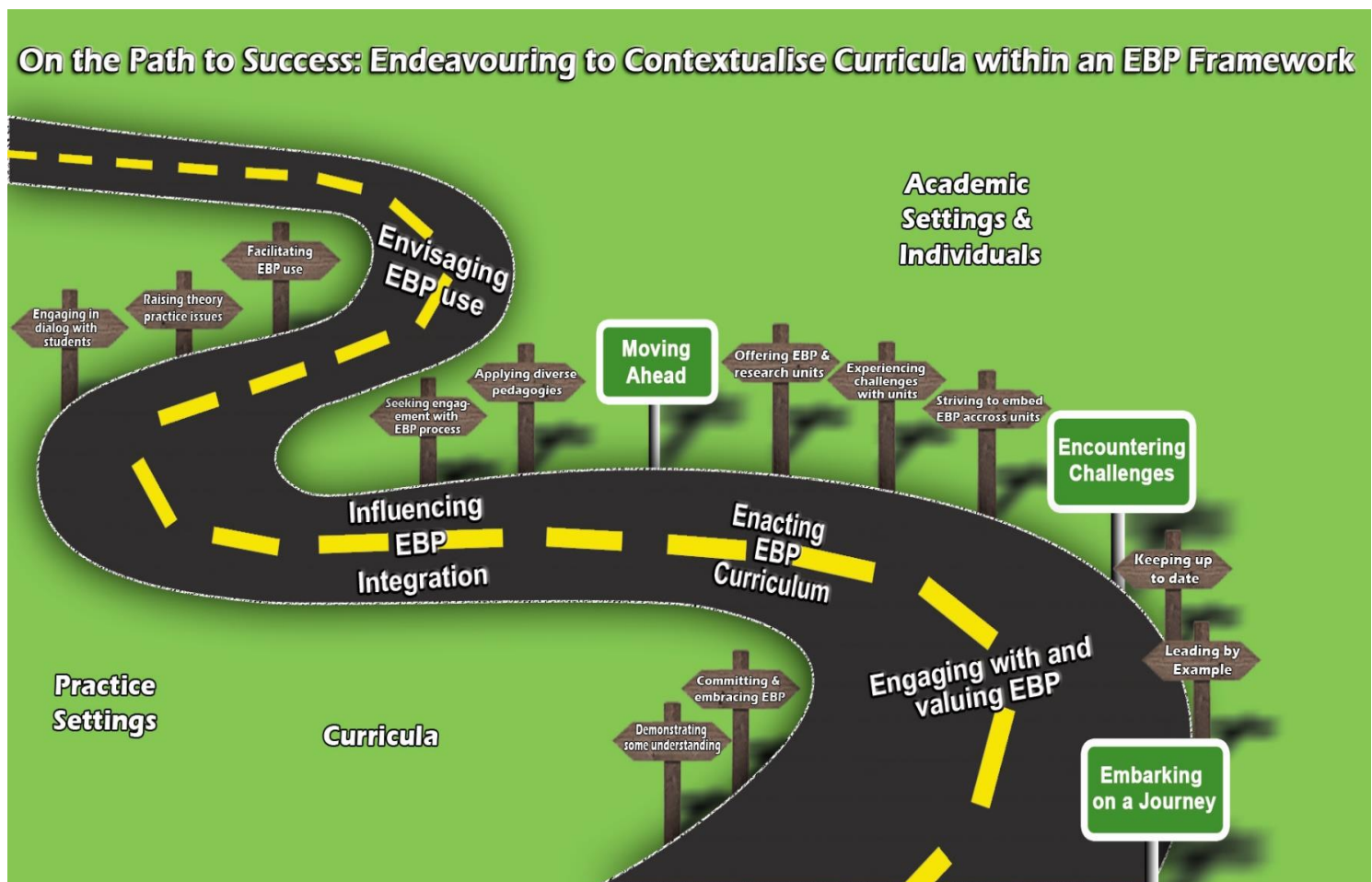
Results

Overview of the theory

In line with constructivist GTM, the theoretical construct *"On a path to success: Endeavouring to contextualise curricula within an EBP framework"* explicates a core process utilised by all participants and offers understanding of participants' actions and processes, as a response to the central problem. Nurses are inadequately prepared to embrace EBP in their practice, thus academic institutions need to educate nurses with EBP knowledge and skills in their degree programs. Academics influence curricula design and its implementation, therefore how they incorporated EBP into their teaching practices presents a central problem which participants encountered in their roles as academics.

The constructed theory is identified in the three transitional stages: *Embarking on a journey-Being prepared*, *Encountering challenges,* and *Moving ahead-Linking EBP theory to practice.* This theoretical construct reflects the actions, perspectives and interplay between academics, curricula and practice settings. Four interrelated categories present the activities academics undertook during the process, comprising: *Valuing and Engaging with EBP, Enacting EBP Curriculum, Influencing EBP Integration and Envisaging the Use of EBP.* However, these processes are moderated by a number of contextual determinants found to be influential, including academic settings and individuals, curricula design and implementation and practice settings. The theoretical model (figure 1) provides a visual representation of the relationship between them.

This theoretical construct presents a two-part process. The first represents academics' journeys to achieving the desired outcome, which is shown in the form of path or road in the model and described as '*On a path to success.* Some authors have collectively described this as 'a journey incorporating actions to achieve something desired, planned and attempted'

(Azemi, 2014; Chaddock, 2008). This part cannot be interpreted in isolation as this is closely linked to the second part of the theoretical construct: *Endeavouring to contextualise curricula within an EBP framework* which is an interpretation of transitional stages presented as billboards alongside the path, categories as road markers, and sub-categories by small sign posts beside the path in the model. Additionally, contextual determinants consisted of academic settings and individuals, curricula design and delivery, and practice settings are presented in the landscape.

Figure 1: The Theoretical Model

The two parts of the core process interact with each other in a way that one supports the other and together they illustrate the core process constructed. It is necessary to illustrate them separately to demonstrate this process. 'Endeavouring' is defined as to 'try earnestly', or to 'do one's utmost' (Oxford Dictionary, 2010), while contextualising can be expressed as 'to consider something in its context' (Leite, Fernandes & Mouraz, 2014). Furthermore, literature has explained the EBP framework as a process or set of steps which guide clinical decision-making that incorporates asking a clinical question, finding evidence, appraising evidence and applying it in practice while considering patients' preferences and clinical expertise (Melnyk & Fineout-Overholt, 2015). Therefore, the overarching process can be interpreted as academics' endeavours towards designing curricula underpinned by EBP frameworks. Learning takes place in context in such a way that every aspect of the curriculum engages students with an EBP framework, linking EBP theory to practice. It was evident from the transitional stages that participants engaged in a process of striving to contextualise curricula, rather than merely accepting an isolated curriculum offering research and EBP units. The theoretical construct is illustrated in the following transitional stages.

First transitional stage of the core process: Embarking on a journey-Being prepared

The initial approach for all participants was to embark on a journey to offer EBP education. By having understanding of EBP, getting involved with research activities, keeping abreast with literature and considering to use evidence in their teaching, academics had demonstrated their preparation towards designing and implementing EBP underpinned curricula. This is represented in the theory as the first transitional stage: *Embarking on a journey-Being prepared*. However, this journey was not same for all participants. Some had varied opinions about EBP, as Karen explained: *"….for me research utilisation and EBP are intertwined, EBP is the latest terminology used of research."* Some considered it was very challenging to

embrace EBP and research activities, as demonstrated by Theresa: *"I think EBP is a challenge; and difficult to embrace"* and others found it difficult to keep current with literature and databases, as Henry stated: *"….limited time and plethora of information are issues."* Despite, varying experiences, most participants had positive attitudes towards EBP and recognised the significance of incorporating this into undergraduate education. Donna indicated: *"...it's extremely important to impart to students that passion for EBP and a passion for incorporating it into their professional practice."*

During the first transitional stage, a number of academics were engaged in designing and enacting EBP and research units, and others worked towards embedding EBP across units. Academics' understanding, their engagement and passion for EBP determined how they moved forward in their journeys, and influenced the designing and implementation of curricula fully underpinned by EBP principles.

> *We are academic role models. So how we think about EBP and how we embrace very much influence our curricula and students. If we instil an attitude that is open and positive towards EBP then that's carried through (Lyn).*

Second transitional stage: Encountering Challenges

The second stage of academics' journeys was closely linked with the first when they endeavoured to instil EBP knowledge and skills in students. However, this phase did not appear effortless and posed many challenges with regard to research and EBP unit content and delivery. In the theory, it is represented by the second transitional stage: *Encountering challenges*. Academics highlighted that research units focused heavily on research methods and when these units were combined with EBP, the EBP concepts were explored very briefly,

as Jacki explained: *"We talk about the traditions of qualitative and quantitative research. We talk about mixed methods as well and we start to introduce them to the language of EBP."*

Students' disengagement with research and EBP units, lack of passionate academics to coordinate and teach into, and negative evaluations associated with these units were reported by all academics, explained by Sarah: *"Students find these units boring and irrelevant to their practice. They come with prejudice about these units which presents challenges for academics."* Elizabeth commented: *"Academics are not interested to teach into these [research and EBP] units."* Therefore, many academics recommended re-designing research units within the EBP frameworks and desired to embed EBP concepts across all units of study: *"I think the undergrad [undergraduate] level should be teaching evidence-based practice, and the focus should be on students being able to use or consumers of research within an EBP framework"(Theo).*

Embedding EBP across units by unpacking the curriculum to see how EBP was integrated in existing theory and clinical units, and how this could be fully embedded were considered as demanding and time consuming processes. All participants expressed concerns including limited time to align and update units, crowded curricula, heavy workloads, inexperienced academics in designing curriculum, and lack of support from schools as key obstacles, as claimed by Deon: *"I like to improve the communication between the subjects, and align evidence-based practice theory and practice across. However, we are bound with limited time, heavy workloads and individual priorities."*

In line with the challenges, many academics preferred to be aware of the effective approaches to infuse EBP concepts across curricula and suggested schools to provide resources for this to happen. For example: *"At the beginning of the semester pre-planning between all*

unit coordinators will assist to integrate EBP into each of the unit" (Joanne). "We want to embed it more thoroughly in our curriculum, that's the big project for us" (Josh).

Despite the hardships faced by participants in this transitional stage of the core process, they moved ahead in their journeys which is outlined in the third stage.

Third transitional stage: Moving ahead-Linking EBP theory to practice

The third transitional stage reflects strategies used by academics in minimising their struggles faced in the second stage. During this phase, academics intended to embed EBP concepts and principles into units of teaching and were influenced by the first two transitional stages. In the theory, it is represented as the third transitional stage: *Moving ahead-Linking EBP theory to practice*. Employing diverse pedagogical approaches, some academics attempted to engage students with the EBP process and made the theory-practice link visible using patient scenarios, as explained by Ann: *"Integrating evidence-based practice principles into patient scenarios and trying to make it relevant for practice."* Others emphasised incorporating EBP concepts when teaching psychomotor skills: *"Scenarios that require them to locate the relevant evidence in the lab and prompt them to make decision using EBP framework should be an aim"(Josh).* EBP related activities in tutorials and flipped classroom approach were evident during participant observations: "*We incorporate EBP process in tutorials, labs [laboratories] or during lectures, not just focusing on literature searching or appraising the literature. By the time they graduate, they should be prepared to use evidence to inform their practice" (Kate).*

A number of academics planned to design activities using their online learning management systems, embedding teaching approaches that prepared students to use evidence in practice context. For example, Alana justified: *"I use online platform to embed videos and scenarios that unfolds every week. I seek to develop students' understanding around critical*

257

thinking and decision making." Where some participants merely included discussions on the significance of evidence during lectures, and engaged students with information literacy skills in the classroom activities to familiarise them with EBP concepts, Theo outlined: *"We spend a lot of time with students in teaching database searching skills during tutorials."*

During this stage, all participants assisted students to use evidence to inform their academic work, evident in Simone's comments: *"I think we're actually getting better at ensuring the students are evidence users by asking them to use evidence to support their arguments in their written assignments."* Recognising the significance of EBP application, some also expected students to use EBP during clinical experiences: *"I'd like them to link the evidence they gathered to address their patient's problem and apply it carefully that's what I strongly emphasise in my teaching"(Melissa).* However, no plans were highlighted by academics as to how students would adopt EBP in clinical practice, and some were not even aware of whether students used EBP in clinical practice, as Barbara mentioned: *"Who knows if students apply the learnt EBP concepts?"*

Many academics expressed practice-related barriers and limited opportunities available for students to use EBP in their practice as concerning: *"….there is still a culture and practice in many places that overt and valued use of evidence isn't really encouraged" (Ann).* Additionally, academics acknowledged students' concerns around practices being different to what they were taught in schools and practised in clinical settings as Donna raised: *"I've heard of students concerned because they're seeing things done in clinical that are different to what they've been taught in class, there is still that theory practice gap exists."* When acknowledging these issues, academics provided opportunities for students to debrief their concerns and recommended creating strong partnerships between academia and practice for EBP adoption, as suggested by Josh: *"Academics need to instil confidence in students and discuss ways to bridge that gap between academia and practice."* Alongside embedding theoretical and

clinical units with underpinning EBP concepts and creating explicit links between both, stipulating plans for clinical application of EBP within curricula, re-orienting clinical educators to EBP and assessing students' abilities to work within an EBP framework were put forward as their future undertakings:

> *There's a significant amount of work that needs to happen to more fully orient the undergraduate curricula towards evidence-based practice (Katrina).*

> *We need to build into assessment components that reflect the students' abilities and knowledge around decision-making that incorporates evidence. That reflects upon their clinical educators, having also the knowledge and skills and the culture of the workplace also needs to be re-oriented (Linda).*

This stage highlighted academics' efforts in situating EBP within the practice context by inclusion of EBP concepts into their teaching and learning practices.

Interrelated Categories

Four interrelated categories represent processes participants engaged with in response to the central problem. The various activities in each category were embedded within the three transitional stages of the theory. Although they are presented separately, each category is closely inter-related and participants may have engaged in some, or all at different times.

Valuing and Engaging with EBP

Academics' beliefs and engagement with EBP were closely associated with meanings they constructed around understanding EBP and its adoption whilst teaching and practising clinically. This category is conceptualised through four sub-categories consisting of: *Demonstrating some understanding of EBP, Committing to and embracing EBP, Keeping up to date,* and *Leading by example* (Malik, McKenna & Griffiths, 2016a). Difference in opinions

existed among academics with regards to what EBP meant to them. However, they strived to engage with EBP by conducting and being involved in research, keeping current with literature, incorporating evidence in teaching and therefore, leading by example. During this process, academics voiced facing obstacles encompassing heavy workloads, limited time, limited understanding of EBP, minimal confidence with EBP teaching, and lack of commitment within schools. Faculty development in EBP, inclusion of faculty clinical practice in current workloads, and commitment by colleagues and schools were outlined as enablers for maximum engagement with EBP.

> *It has to be a personal commitment to incorporating that [EBP] and to recognising its importance. It's not good enough to teach the same lecture you taught four years ago and have not updated since. It's like … well, that's negligent (Joanne).*

Enacting EBP Curriculum

Enacting EBP Curriculum entails three sub-categories: *Offering research and EBP units*, *Experiencing challenges with units*, and *Striving to embed EBP across units*. The second category indicates that undergraduate degree programs have included EBP education in two ways. Firstly, through offering research and EBP units, curricula aimed to equip students with essential EBP knowledge and skills. Data from interviews, observations and unit guides revealed that some academics were directly involved in designing and teaching research and EBP units. Teaching into those units created some issues for academics as methods of conducting research were emphasised heavily and limited focus was given to make these units engaging and relevant to practice. As a result, students rated those units negatively, leading to decreased motivation among teaching staff, as Deon explained: *"I think you will find that our research unit probably falls into that category that evidence-based is recognised as a big part*

of it but that a lot of learning objectives are research theory and methods that has to change. No wonder students show negative attitudes to research."

Secondly, those academics who were not involved teaching into research units were busy attempting to integrate EBP concepts across theoretical and clinical courses. Nevertheless, embedding EBP concepts into all units of study was considered challenging, requiring intensive work to achieve fully embedded curricula, enabling students' abilities to pursue clinical decisions underpinned by EBP concepts. Lack of awareness among academics existed in relation to whether EBP was integrated across theory and practical courses. In this process, participants expressed concerns such as limited time, poor between semester planning, lack of passionate academics in EBP, limited resources, saturated curricula and lack of experience with curricula design. The identified issues prevented EBP being fully embedded in curricula at individual or school levels.

> *Academics need to respond and integrate this [EBP] across their curricula. Start from raising students' awareness about the principles of evidence-based practice and move to, decision-making process that incorporates the best available evidence. But, limited time, individual priorities and lack of resources within school are inhibiting factors (Simone).*

Influencing EBP Integration

This category is conceptualised through two sub-categories: *Practising diverse teaching and learning strategies, and Seeking engagement with the EBP process* (Malik, McKenna & Griffiths, 2016b). Overall, this category reflects pedagogical approaches employed by nurse academics whilst integrating EBP concepts into their allocated teaching units within undergraduate curricula. Academics attempted to influence EBP integration by igniting a spirit

of inquiry, encouraging students to locate and critically appraise literature, and facilitating students' application of evidence, in academic work and to some extent into clinical experiences. Through lectures, laboratory work, and small classroom activities, academics attempted to contextualise EBP by engaging students with activities aiming to link evidence to practice, seeking rationale behind practices and providing experiences with the EBP process, were evident in findings. Although, where EBP process was incorporated, literature searching and critical appraisal skills were largely emphasised in students' academic work.

> *It's all about teaching and learning processes, academics taking that [EBP] on board in their subjects, integrating it wherever possible into assessment pieces, and linking that [EBP] to both theoretical and practical learning, which extends across into their clinical placements (Karen).*

However, this process was not experienced without any challenges. Academics reported limited awareness of EBP teaching strategies, scarcity of resources, online teaching methods, limited time, heavy workloads, students' disengagement and lack of knowledge and experience with innovative teaching methods as key obstacles.

Envisaging the Use of EBP

'Envisaging the use of EBP' is the last category which includes three sub-categories*: Facilitating EBP use in theory and practice, Raising theory-practice gap issues, and Engaging in dialogue.* This category reflects process academics utilised, while facilitating EBP use in theory and practice. Igniting students' spirit of inquiry, expecting students to use database searching skills to locate evidence and supporting their academic work with current evidence, were evident in interviews, observations and document analysis, as Joanne supported: *"Some*

of that reading should be research studies, primary research, and they [students] should then cite that in their essays".

Implementation of EBP in clinical contexts was equally expected, yet was influenced by a multiplicity of existing barriers within clinical settings, which made facilitation by academics cumbersome and difficult. Recognising the complexity and perplexity of the issues, academics were engaged in dialogue with students supporting them and instilling hope for future use of EBP. They recommended strong partnerships between academia and practice for its full implementation.

I think there's a significant lag between the preparation of graduates around evidence-based practice, and the clinical environments they practise……to bridge this gap we need to look at strong partnerships between academia and the service sectors (Stacey)

Additionally, continuing education for academics and clinical staff in EBP, faculty clinical practice, and supportive culture to initiate collaborative EBP projects between clinical staff, academics and students were highly recommended by study participants.

Contextual Determinants

Contextual conditions represent the environment in which study participants interact, which is highly significant to be taken into account while interpreting participants' experiences (Corbin & Strauss, 2008). Data from interviews and observations revealed a number of contextual conditions influencing academics' teaching practices around EBP. Factors which were found to be influential are categorised into three broad areas: (1) academic settings and individuals, (2) designing and implementing curricula and (3) practice settings. In the theory, these are embedded within the transitional stages. Although above discussions highlight some of the

facilitators and barriers relevant to individual category, more broadly there was a strong interplay between these factors affecting all categories. This also explains the discrepancy between participants' positive attitudes towards EBP and their implementation of it in their teaching endeavours.

Putting it all together

On a path to success: Endeavouring to contextualise curricula within an EBP framework, offers a possible explanation of processes academics were engaged with EBP integration, and is evident in three transitional stages and categories. Academics began their journeys by being prepared to incorporate EBP knowledge and skills into curricula. They introduced EBP and research units to students and anticipated integrating EBP across units. However, moving forward, they encountered challenges with EBP and research units. Embedding EBP across units by unpacking these units to evaluate the need for its integration in both theory and practice was considered demanding and intensive. Despite these challenges, academics moved ahead and endeavoured to include EBP concepts into individual teaching units. By using a variety of teaching and learning strategies, participants attempted to make EBP theory and practice links visible, and they strived to engage students within an EBP framework as an outcome. A central aspect of our theory reflects meanings academics constructed around their efforts in contextualising curricula, linking EBP theory to practice. This also indicates their desire to achieving fully integrated curricula across both theoretical and clinical courses. Overall, this path appeared to be winding and was influenced by contextual determinants. The presented journey is not linear, rather it meanders back and forth, connected in each phase very closely. Josh's and Kate's explanations illustrate how the core process is iterative and relates to its transitional stages:

Academics need to go on a journey to unpack the curriculum and look at where evidence-based practice can be integrated into every subject may be through laboratory or simulation learning scenarios, and assessments around that (Josh).

....that [EBP integration] does require them to embrace more..... so how they teach and what they say and their attitude can very much influence students' future practice of EBP. It's an ongoing process which means academics have to re-orient their thinking over and over towards EBP (Kate).

The theoretical construct is grounded in data as the core process meets the criteria proposed by Charmaz (2014), and integrates relationships between the concepts. It is a process, which is comprehensive, occurs over time, and helps to understand variation in the data (Charmaz, 2014).

Discussion

In light of limited evidence of research supported models for designing curricula and teaching EBP in academic programs, this study provides insights into processes undertaken by academics when integrating EBP into undergraduate curricula. The core process sits at the heart of the developed theory explaining activities academics engaged with. Although a number of activities were reported, the process was common to all participants.

The widespread approach adopted by participants in the beginning stage of the journey was to demonstrate some understanding of, and engagement with, EBP. However, EBP concepts and its interpretation were not the same for all participants and were attributed to many different meanings. There is a reported link between understanding EBP and confidence in its teaching (Melnyk, Fineout-Overholt, Feinstein, Sadler & Green-Hernandez, 2008).

Academics play a vital role in preparing undergraduates to be EBP practitioners. Their knowledge, understanding and engagement of EBP could influence the way curricula are designed and pedagogies implemented, making research and EBP concepts practical and meaningful for students (Malik et al., 2016a). Eventually, this will have impact on students' understanding and practice of these concepts clinically as evident in the findings from an integrative review. In an integrative review, Saunders and Vehviläinen-Julkunen (2016) included 37 primary studies on nurses' readiness for EBP, reporting widespread confusion among nurses in terms of meanings and understandings of EBP, which was attributed to the education they received in their degree programs. Students in one Australian study identified the teaching staff who were active clinical researchers as the most positive aspect of the research course, because their expertise in making research relevant for students was evident in teaching (Halcomb & Peters, 2009). Therefore, faculty development in re-orienting their thinking around EBP, maximum clinical engagement, support and commitment within the school (Malik et al., 2016a) may assist in preparing faculty for teaching EBP concepts.

Literature acknowledges the positive contribution of research and EBP education to improve patient outcomes. In another Australian study, Leach, Hofmeyer and Bobridge (2016) found positive impact on students' knowledge, attitudes and use of research, post education. However, challenges with teaching research and EBP concepts for teaching staff and for students are well documented in global studies (Halcomb & Peters, 2009; Halabi, Hamdan-Mansour, 2010; Brooke et al., 2015). Similar to the findings of other studies (Brooke et al., 2015; Halcomb & Peters, 2009), current participants faced negative attitudes from students and related challenges when these units focused largely on research methodologies and aimed to prepare students to be evidence generators, rather than evidence users. This finding clearly implies a need for curricula revision in undergraduate programs. Meeker, Jones and Flanagan (2008) reported positive results by restructuring research units using an EBP framework. With

this exercise, students' motivation and engagement were significantly enhanced and students could see relevance of research to their future practice. Hence, academics are challenged to incorporate EBP education into their teaching and learning practices in such a way that promotes students' abilities and confidence to question existing clinical practices and seek evidence to facilitate decision-making.

Often undergraduate programs evaluate EBP skills acquisition by assessing literature reviews and critical appraisal of studies, a need to review course outcomes demonstrating students' abilities in decision-making skills, using current evidence is highly recommended in a systematic review by Shaneyfelt et al. (2006). By designing teaching methods prompting students to ask focused clinical questions, finding relevant evidence, critically appraising the evidence, and applying evidence in clinical context will ensure student preparation within an EBP paradigm (Thomas, Saroyan & Dauphinee, 2011). However, this can only be achieved with fully integrated EBP curricula across both theoretical and clinical courses (Christie, Hamill & Power, 2012).

Embedding EBP across the entire curriculum was highly recommended by participants in the current study. When attempting to integrate EBP across units and emphasising its practical application, many participants highlighted multiple factors relating to academic settings, curricula and practice settings that impeded its full integration. These barriers concur with those from previously published studies raising teaching-related issues, and academic setting barriers (Zelenikova et al., 2014) such as lack of integrated teaching materials, shortage of EBP trained faculty, and limited avenues for students to practise EBP (Hung, Huang, Jane-Tsai & Chang, 2015) reportedly prevented EBP integration. Inclusion of EBP as an integral part of a school's philosophy, provision of resources, mentoring in designing and implementing EBP embedded curricula, infusing EBP principles and concepts into academics' ongoing developmental opportunities, and strong partnerships between academic and clinical

267

settings serve as effective means for successful EBP integration (Hung et al., 2015; Zelenikova et al., 2015). These suggestions support participants' recommendations for a paradigm shift from isolated research courses to curricula fully encompassing EBP pedagogies. Largely, very limited examples of how EBP has been threaded through the curriculum are cited in the global literature. Most of the published studies report on incorporation of EBP concepts in clinical practicum (Brancato, 2006; Geum Oh et al., 2010) of the programs, yet its integration across the entire curriculum has not been published.

Considerable efforts were made by participants in embedding EBP concepts and process into the allocated teaching units which demonstrated this initiative. Through lectures, laboratory work, blended approaches, and small classroom activities, academics attempted to engage students with EBP process and facilitated the use of EBP largely in academic work and to some extent into clinical experiences. These strategies coincide with examples published in the literature such as blended approaches including self-directed learning and workshop (Zhang, Zeng, Chen & Li, 2012), web-based learning modules (Kruszewski, Brough, & Killeen, 2009) and library-led classes on information literacy skills (Lalor, Clarke & Sheaf, 2012). However, current study finding differ from a couple that envisioned the role of students in facilitating EBP by student-staff nurse led EBP projects (Moch, Cronje & Branson, 2010), and designing and presenting evidence-based practice protocols as requisite of their clinical course (Kruszewski et al., 2009).

Participants in our study highlighted barriers with regards to limited awareness of teaching strategies, lack of resources and technology fear, which are consistent with other published studies by Stichler et al. (2011) and Upton et al. (2015). Interactive teaching approaches using blended approaches are now commonly used in undergraduate degree programs due to learning flexibility afforded and abilities to mimic clinical realties. Yet, this requires investment of resources, training and cultural change among those academics who are

not familiar with hybrid learning environments that allow diversity in how content is presented and assessed (Malik et al., 2016b).

Although undergraduate EBP education has largely emphasised inquiry developing skills, literature review, and critical appraisal skills, application of evidence has received little attention (Finotto et al., 2013). Participant observations and interviews evidenced that academics strived to provide linkages between theoretical concepts of EBP to practice, and encouraged students to apply them during their clinical experiences. However, whether this translated into students' practice was unknown to them. Practice setting barriers and lack of cohesion between academic and clinical contexts were raised by study participants. These issues were common to many other studies (Smith-Strøm, Oterhals, Rustad & Larsen, 2012, Liasus et al., 2014; Florin, Ehrenberg, Wallin & Gustavsson, 2012), raising lack of support and mentoring by clinical staff for students to apply EBP in practice. Students were supported to use EBP in their academic degrees to a larger extent than in clinical experiences (Florin et al., 2012). These issues clearly indicate the need for strong partnerships between academia and practice, where learning of EBP becomes contextualised and meaningful for students. EBP courses were perceived effective when students were provided with avenues to apply skills during clinical experiences and elsewhere in the curriculum (Zelenikova et al., 2014). In a practice-oriented profession such as nursing, it becomes paramount that art and science is intertwined, however there remains a persistent challenge and requires further investigation as to how academia and clinical partnerships can be established and nurtured. Collaborative EBP projects between students and clinical staff (Kruszewski et al., 2009) and involvement of academics in clinical practice (Grady, 2010) are imperative to offer such opportunities for students to connect the dots between EBP theory and practice.

Hence, the constructed theory offers an understanding into academics' journeys of striving to embed EBP within curricula. Each process within the journey is closely linked and

influences each other to achieve a desired outcome, which is illustrated through a unique theoretical model. To date, no such study has been undertaken in Australia and therefore, generates new knowledge within the present literature. The study results have potential to inform academic institutions wanting to integrate EBP across curricula. Further, it offers clear relevance for education, practice and research.

Study Recommendations

EBP instruction plays a vital role in acquisition of EBP knowledge and skills when integrated into practice contexts. Our theory strongly recommends curricula revision, instead of having standalone units/subjects on research and EBP, an integrated approach across undergraduate programs is recommended. Results create call for academic institutions and healthcare settings to employ robust initiatives to address barriers. Both settings need to have strategies in place to support academics and graduating nurses for EBP adoption. Further research could examine the effectiveness of implemented strategies on academics' engagement with EBP and its inclusion into their teaching and professional practices. Exploring effective ways, EBP can be embedded in clinical contexts is worth investigating.

Limitations

There are limitations to be acknowledged with the current study. Firstly, it is a qualitative study, in which the findings are applicable to the participants and context in which the study was conducted. Hence, the findings are not generalisable, however may be familiar across other contexts. In addition, there is a possibility that participants who were either interested or had negative experiences with EBP, expressed their interest to participate. Therefore, findings may

not reflect all viewpoints. The results, nevertheless, do provide a valuable point of reference for academics working across educational settings.

Conclusion

This study has taken a unique approach in presenting a theoretical construct, "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*", that provides insights into social processes of academics' teaching practices when considering to include EBP in undergraduate education. Our theory raises awareness of activities undertaken by academics and highlights obstacles, which require attention at school, clinical site and accreditation body levels to ensure academics are prepared, engaged and committed to incorporate EBP concepts in their teaching practices.

References

Al Hadid, L. A., & Al Barmawi, M. (2012). Factors influencing the adoption of principles of evidence-based principles in nursing education: A Jordanian perspective. *Journal of Nursing Education and Practice,* 2(2), 71-79.

Azemi, F. (2014). *Unknown Mysteries of Life and the Path to Success*: Tate Publishing.

Brancato, V.C. (2006). An innovative clinical practicum to teach evidence-based practice. *Nurse Educator*, 31(5), 195-199.

Brooke, J., Hvalič-Touzery, S., & Skela-Savič, B. (2015). Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today,* 35(7), e6-e11.

Brown, C.E., Kim,S.C., Stichler,J.F. & Fields,W. (2010). Predictors of knowledge, attitudes, use and future use of EBP practice among baccalaureate nursing students at two universities. *Nurse Education Today*, 30, 521-527.

Corbin, J., & Strauss, A. (2008). *Basic of Qualitative Research*. SAGE, Thousand Oaks, California.

Chaddock, R. (2008). *How to find your personal path to success*. Eugene, Oregon: Harvest House Publishers.

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis.* Los Angeles: SAGE Publications LTD.

Charmaz, K. (2014). *Constructing grounded theory*. (2nd ed.) Los Angeles: SAGE Publications.

Christie, J., Hamill, C., & Power, J. (2012) How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper. *Journal of Advanced Nursing* 68(12), 2789-2801. doi: 10.1111/j.1365-2648.2012.05994.x.

Eizenberg, M.M. (2010). Implementation of evidence-based nursing practice: personal and professional factors? *Journal of Advanced Nursing*, 67(1), 33-42.

Finotto, S., Carpanoni, M., Turroni, E.C., Camellini, R., & Mecugni, D. (2013). Teaching evidence-based practice; developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice*, 13, 459-465.

Florin, J., Ehrenberg,A., Wallin, L. & Gustavsson, P. (2012). Educational support for research utilization and capacity beliefs regarding evidence-based practice skills: a national survey of nursing students, *Journal of Advanced Nursing*, 68(4), 888-897.

Geum Oh, E., Kin, S., Kim, S. S., Kim, S., Cho, E. Y.,Yoo, J., Kim, H.S., L.J.H., You ,M.A., & Lee, H.(2010). Integrating Evidence-Based Practice into RN-BSN Clinical Nursing education. *Journal of Nursing Education*, 49(7), 387-392.

Grady, M.D. (2010). The missing link: The role of social work schools and evidence-based practice. *Journal of Evidence-based Social Work*, 7, 400-411.

Halabi, J., & Hamdan-Mansour, A. (2010). Attitudes of Jordanian nursing students towards nursing research. *Journal of Research in Nursing,* 17(4), 363-373.

Halcomb, E. J., & Peters, K. (2009). Nursing student feedback on undergraduate research education: implications for teaching and learning. *Contemporary Nurse,* 33(1), 59-68 10p.

Heye, M., & Stevens, K. (2009). Educational Innovations. Using new resources to teach evidence-based practice. *Journal of Nursing Education*, 48(6), 334-339.

Hung, H.-Y., Huang, Y.-F., Tsai, J.-J., & Chang, Y.-J. (2015). Current state of evidence-based practice education for undergraduate nursing students in Taiwan: A questionnaire study. *Nurse Education Today,* 35(12), 1262-1267.

Johnson, N., List-Ivankovic, J., Eboh, W. O., Ireland, J., Adams, D., Mowatt, E., & Martindale, S. (2010). Research and evidence based practice: Using a blended approach to teaching and learning in undergraduate nurse education. *Nurse Education in Practice,* 10(1), 43-47. doi:http://dx.doi.org/10.1016/j.nepr.2009.03.012

Kruszewski, A., Brough, E., & Killeen, M. B. (2009). Educational innovations. Collaborative strategies for teaching evidence-based practice in accelerated second-degree programs. *Journal of Nursing Education,* 48(6), 340-342. doi:10.3928/01484834-20090515-07.

Lalor, J.G., Clarke, M., & Sheaf, G. (2012). An evaluation of the effectiveness of information literacy training for undergraduate midwives to improve their ability to access evidence for practice. *Nurse Education in Practice*, 12 (5), 269-272.

Leach, M. J., Hofmeyer, A., & Bobridge, A. (2016). The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: a descriptive longitudinal survey. *Journal of Clinical Nursing,* 25(1-2), 194-203. doi:10.1111/jocn.13103

Leite, C., Fernandes, P., & Mouraz, A. (2014). Curriculum contextualization: A comparative analysis of meanings expressed in Portuguese and English school evaluation. *Studies in Educational Evaluation,* 43, 133-138.

Llasus, L., Angosta, A. D., & Clark, M. (2014). Graduating Baccalaureate Students' Evidence-Based Practice Knowledge, Readiness, and Implementation. *Journal of Nursing Education,* 53, S82-89.

Malik G, McKenna L & Griffiths D (2016a) How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. *Nurse Education Today,* **41,** 54-59. doi:http://dx.doi.org/10.1016/j.nedt.2016.03.015

Malik G., McKenna L. & Griffiths D. (2016b) Using pedagogical approaches to influence evidence-based practice integration – processes and recommendations: findings from a grounded theory study. *Journal of Advanced Nursing*. doi: 10.1111/jan.13175

Malik, G., McKenna, L., & Plummer, V. (2015). Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. *International Journal of Nursing Practice,* 21, 46-57.

Malik, G., McKenna, L., & Griffiths, D. (2015). An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. *GSTF Journal of Nursing and Health Care*, 3(1), 158-164.

Meeker, M., Jones, J. & Flanagan, N. (2008). Teaching undergraduate nursing research from an evidence-based practice perspective. *Journal of Nursing Education,* 47(8), 376-9.

Melnyk, B. M., Fineout-Overholt, E., Feinstein, N. F., Sadler, L. S., & Green-Hernandez, C. (2008). Nurse practitioner educators' perceived knowledge, beliefs, and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs. *Journal of Professional Nursing,* 24(1), 7-13.

Melnyk, B., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice* (3rd ed.). Philadelphia: Wolters Kluwer.

Moch, S. D., Cronje, R. J., & Branson, J. (2010). Part 1. Undergraduate Nursing Evidence-Based Practice Education: Envisioning the Role of Students. *Journal of Professional Nursing,* 26(1), 5-13. doi:http://dx.doi.org/10.1016/j.profnurs.2009.01.015

Oxford University Press. (2010). *Oxford English dictionary*. Oxford, New York: Oxford University Press.

Saunders, H., & Vehviläinen-Julkunen, K. (2016). The state of readiness for evidence-based practice among nurses: An integrative review. *International Journal of Nursing Studies, 56*, 128-140. doi:http://dx.doi.org/10.1016/j.ijnurstu.2015.10.018

Shaneyfelt, T., Baum, K. D., Bell, D., Feldstein, D., Houston, T. K., Kaatz, S. & Green, M. (2006). Instruments for evaluating education in evidence-based practice: a systematic review. *JAMA: Journal of the American Medical Association* 296 (9), 1116-1192 1113p.

Smith-Strøm, H., Oterhals, K., Rustad, E. C., & Larsen, T. (2012). Culture crash regarding nursing students' experience of implementation of EBP in clinical practice. *Nordic Journal of Nursing Research & Clinical Studies / Vård i Norden,* 32(4), 55-59.

Stichler, J. F., Fields, W., Son Chae, K., & Brown, C. E. (2011). Faculty knowledge, attitudes and perceived barriers to teaching evidence-based nursing. *Journal of Professional Nursing,* 27(2), 92-100. doi: 10.1016/j.profnurs.2010.09.012.

Thomas, A., Saroyan, A., & Dauphinee, W. D. (2011). Evidence-based practice: a review of theoretical assumptions and effectiveness of teaching and assessment interventions in

health professions. *Advances in Health Sciences Education,* 16(2), 253-276. doi:10.1007/s10459-010-9251-6

Upton, P., Scurlock-Evans, L., Williamson, K., Rouse, J., & Upton, D. (2015). The evidence-based practice profiles of academic and clinical staff involved in pre-registration nursing students' education: A cross sectional survey of US and UK staff. *Nurse Education Today,* 35(1), 80-85. doi: 10.1016/j.nedt.2014.06.006.

Waters, D., Crisp, J., Rychetnik, L., & Barratt, A. (2009). The Australian experience of nurses' preparedness for evidence-based practice. *Journal of Nursing Management,* 17(4), 510-518.

Zelenikova, R., Beach, M., Ren, D., Wolff, E., & Sherwood, P. (2014). Faculty Perception of the Effectiveness of EBP Courses for Graduate Nursing Students. *Worldviews on Evidence-Based Nursing,* 11(6), 401-413.

Zhang,Q., Zeng,T., Chen,Y., & Li.X. (2012). Assisting undergraduate nursing students to learn EBP through self-directed learning and workshop strategies during clinical practicum. *Nurse Education Today*, 32, 570-575.

6.2   Conclusion

In the preceding chapter, the four major categories which are embedded in the core category were presented. In chapter six, the grounded theory and the related theoretical model which were developed as a result of constant engagement with an iterative process of data analysis were discussed.   The theory centres on the core social process, *On a path to success, Endeavouring to contextualise curricula within an EBP framework*, that explicates academics' efforts around embedding EBP concepts in practice context. Although, it cannot be generalised, this theory offers an abstract understanding of academics' perspectives and interpretations of the meanings associated with the processes they were engaged with during EBP integration in undergraduate curricula. The theory also highlights variations in data which reflects the contextual conditions accountable to varying teaching practices, analysed through interview transcripts, observation field notes and subject outlines. Chapter seven explores the contextual determinants impacting on academics' integration of EBP.

Chapter Seven: Contextual Determinants

7.1 Introduction

In the proceeding chapter, the theory "*On a path to success: Endeavouring to contextualise curricula within an EBP framework"* was presented. This chapter offers insights into the contextual factors influencing the processes undertaken by participants when striving to embed EBP into teaching practices. These contextual conditions mediated participants' actions and behaviours towards the key research problem and were categorised into three broad groups:

1. Academic Settings and Individuals

2. Curricula design and delivery

3. Practice settings

Although, some grounded theorists question about analysing data to determine contextual conditions influencing the theory (Birks & Mills, 2011), Charmaz (2014) emphasises the significance of relating process into its context by arguing "situating grounded theories in their social, historical, local and interactional contexts strengthens them" (p. 322). This chapter comprises one manuscript, which is currently under review for publication in *Nurse Education in Practice.*

Paper 7: Contextual Determinants

Malik, G., McKenna, L. & Griffiths, D. (Under Review). The interplay between academia, curricula and practice settings: Contextual factors influencing the integration of evidence-based practice in undergraduate nurse education. *Nurse Education in Practice* (Submitted May, 2016)

The interplay between academia, curricula and practice settings: Contextual factors influencing the integration of evidence-based practice in undergraduate nurse education

Abstract

Adopting evidence-based practice (EBP) principles in undergraduate education can facilitate nursing students' appreciation of EBP. Nurse academics aiming to integrate EBP into undergraduate education undertake complex processes, thus understanding the contextual determinants that influence their teaching practices is important, but little is currently known about this. Grounded theory methodology was employed to explain processes undertaken by nurse academics endeavouring to include EBP in undergraduate education. This paper focuses on personal, social and structural factors that influence teaching practices of academics considering integration of EBP into curricula. Twenty-three nurse academics were interviewed across Australian educational institutions offering undergraduate nursing degree programs. Nine participants were observed during teaching sessions and 20 unit guides were analysed using a constructivist data analysis approach. Despite widespread support to integrate concepts and process of EBP into undergraduate curricula, academics' actions towards EBP incorporation were mediated by many factors. The most significant factors included the influence of academic settings along with individuals, curricula design and delivery, and practice settings. While academics demonstrated positive attitudes towards EBP, they identified factors hindering their activities of achieving curricula underpinned by EBP concepts. Overcoming barriers by employing strategies at university and practice settings will ensure academics are well supported in their endeavours.

Highlights

- Interplay between academia, curricula and practice was evident in influencing EBP integration.
- Academics considered organisational support, mentoring, and adequate resources as key facilitators.
- Heavy workloads, limited knowledge and practice barriers were highlighted as challenges.
- Strategies minimising barriers by university and practice setting are warranted.

Introduction

Acquisition of evidence-based practice (EBP) competence is vital to ensuring healthcare practitioners' decisions are based on the best available evidence. Provision of safe, effective and high quality patient care requires nurses to be educated and supported to adopt EBP during their professional careers (DeBruyn et al., 2014). However, implementing evidence into practice has been recognised a complex process involving an array of individual, professional and organisational factors (Brown et al., 2008). Contextual factors including facilitators and barriers to EBP implementation in nursing have been studied extensively. It is commonly reported that nurses perceive EBP as a complicated task and demonstrate inadequate knowledge and skills to pursue into practice decisions (Majid et al., 2011). It is argued that

EBP is more likely to be incorporated into nursing practice when nurses demonstrate positive attitudes and are adequately prepared to embrace it (Eizenberg, 2011).

Background

A longitudinal study investigating the extent of Swedish nurses' EBP use during the first five years of professional life found that nurses based their decisions on sources other than research reports on most occasions, but when used, were not confident in translating research findings to practice. They identified undergraduate education and contextual conditions within the workplace as key contributors (Rudman et al., 2012). Nurses' limited abilities to engage in EBP is concerning since they are expected to apply research findings and influence patient outcomes. Therefore, EBP concepts and skills should be mandatory components of degree programs to ensure the future workforce is well prepared to handle current healthcare challenges.

In view of challenges addressed, the crucial role of undergraduate nurse education in promoting EBP cannot be underestimated. Nursing schools having a clear vision and philosophy to incorporate EBP across every aspect of the curriculum is imperative (Malik et al., 2015a). For successful EBP integration, nurse academics play a major role by infusing EBP concepts into curriculum design, evaluation methods and clinical experiences, and develop collaborative initiatives with clinical settings (Moch et al., 2010). Fostering positive attitudes to EBP and ingraining EBP knowledge and skills in nursing students enhances critical thinking and decision making skills, fundamental to EBP application. Additionally, sound pedagogical approaches, effective and engaging teaching materials and abundant resources are recognised as requisite strategies for successful EBP education (Thomas et al., 2011).

Baccalaureate nursing students are expected to ask clinical questions, locate, appraise and apply evidence. However, students' attitudes towards research and EBP have largely been negative (Brown et al., 2010). A study evaluating a research course in an undergraduate program across one Australian university reported a key challenge faced by academics was to make research education relevant to clinical practice, which contributed to students' lack of interest and negative impressions (Halcomb & Peters, 2009). Teaching EBP is demanding and cannot occur without available resources and support within schools (Melnyk & Fineout-Overholt, 2015).

The combination of individual characteristics, nature of evidence, and organisational context to EBP have been reported in many studies examining enablers and inhibitors for EBP. To date, most studies exploring contextual factors have focused on practising clinicians. Perspectives of nursing faculty who engage in multiple roles of educating, facilitating the use of EBP and being involved in research offer understanding of issues they face. A study exploring perceptions of nurse educators, researchers and graduating students regarding facilitators and barriers to evidence-based nursing in Medellin, Colombia reported that limited incentives for nurses to pursue higher education and undertake research, lack of recognition of nurses as professionals, inadequate access to evidence and poor communication between academic and clinical settings were perceived barriers (Debruyn et al., 2014). Similar to other global research, Debruyn et al.'s study emphasised facilitators and barriers to EBP implementation in clinical contexts, hence further research is required to understand these issues more fully from academics' perspectives. Existing literature is not exhaustive and requires comprehensive understanding of academics' preparation and perceptions of contextual factors influencing EBP integration in undergraduate nursing programs. In this regard, Australian programs are no exception. Findings reported in this paper focus on factors contributing to individual characteristics, and organisational interplay.

Purpose

The study aimed to investigate processes nurse academics engaged with when considering to embed EBP in their teaching and learning practices. Findings presented in this paper focus on contextual factors academics reported that influenced processes and activities aiming to incorporate EBP in undergraduate education.

Research Design

Methodology

Considering the study aim, a constructivist grounded theory methodology (GTM) was chosen to examine nurse academics' responses towards EBP integration in undergraduate education. GTM is underpinned by theoretical assumptions of symbolic interactionism, which asserts people give meaning to events and play an active role in their own lives (Corbin & Strauss, 2008). This methodology places emphasis on processes and actions relating to particular situations, constructed between participants and researcher (Charmaz, 2006). Through interaction with participants in a sensitive and reflexive way, findings become a co-construction of participants' experiences and the researcher's interpretation of data (Charmaz, 2006).

Data Collection

Ethical approval was granted from the relevant university. After ethics approval was secured, participants were recruited using purposive sampling. Nurse academics across Australian educational institutions offering undergraduate nursing programs were invited to participate.

Invitations were sent to respective heads of schools for distribution to potential participants. Interested participants contacted the researcher and consented to be interviewed and/or observed. Twenty-three academics were interviewed until emerging categories were saturated. Participants were interviewed one-on-one at their work premises, or a mutually agreed location for approximately one hour, using a semi-structured format with some guiding questions. Some interstate participants were interviewed by telephone and others in person by preference. With participants' permission, interviews were audio-recorded and subsequently transcribed.

Nine participants consented to be observed during teaching sessions with undergraduate students during lectures, tutorials or laboratory teaching. Field notes were written during and after observations. Additionally, twenty unit guides, shared by some participants, were analysed to add richness to data. Throughout the research process, participants were assigned pseudonyms by which their anonymity and confidentiality were protected.

Data Analysis

Data generated as a result of interviews, observations and unit guides were analysed using coding methods, proposed by Charmaz (2006; 2014). Simultaneous data collection and analysis assisted the researcher to engage with initial, focused and theoretical coding of generated data. As a result, preliminary subcategories and categories were constructed, which were constantly compared with codes, and emerging concepts to reveal actions, processes and events. Theoretical sampling and memoing supported concept development to establish properties of categories and relationships between each. By engaging with an iterative and interactive method, the advanced stage of coding resulted in four categories and a core category. Contextual factors identified within categories included: *Valuing and Engaging with EBP*

(Malik, McKenna & Griffiths, 2016a), Enacting EBP curriculum, Influencing EBP integration (Malik, McKenna & Griffiths 2016b) and Envisaging the use of EBP, which are the focus of this paper.

Findings

Despite widespread support to integrate EBP concepts, academics' processes towards incorporation of EBP into curricula were mediated by many contextual factors. These are categorised into three broad areas: (i) Academic settings and individuals, (ii) Curricula design and delivery, and (iii) Practice settings. Each factor is discussed in the following sections.

(i)   Academic Settings and individuals

Data generated from interviews, observations and unit guides revealed that academics' attitudes, beliefs and their knowledge on EBP played an important part in students' understanding of EBP concepts and its uptake. Many participants identified that having positive attitudes and engagement with EBP, either at academic or practice level, influenced their teaching practices and helped motivating students in EBP use.

> *If you instill an attitude that is open and positive towards EBP then that's carried through… it comes down to individual responsibility as an academic, to make sure that you have that passion for it. Academics' engagement and their competence in EBP play key roles in instilling attitudes in students (Simone).*

> *We all understand the value of it [EBP], but whether or not that translates, depends on how we model this through our teaching (Sarah).*

Academic settings were perceived as facilitators when support was offered to individuals for continuing education and time was allocated to engage with research-related activities. Besides this, academics recommended workload management and inclusion of faculty practice would likely increase academics' engagement with EBP.

> *Our university is so strong on research. There's lots of research workshops academics can go to. Every staff member has an academic peer that they can ask for help (Linda).*

> *Schools should incorporate faculty practice into academics' workloads (Joanne)*

Commitment within school and between individuals, expectations within the school for EBP engagement and having a philosophy that supported EBP right across curricula were appreciated by some:

> *……within a school of nursing, there has to be a commitment by the staff to evidence-based practice. Nowadays, university has high expectations of staff to be using research and evidence to inform their teaching and including these concepts in curricula (Linda).*

> *When we write up or design up curriculums certainly we have a philosophy in our beginning elements that go into that and one of those is about evidence-based practice (Lyn).*

Most participants perceived EBP as valuable and important to be engaged with, however there were many barriers identified within academic settings that hindered their engagement with EBP. Participants voiced limited time to search for evidence, heavy workloads, and financial constraints as obstacles to incorporating evidence into teaching, for instance:

…it's hard to stay on top of the reading and the research and I know that there are gaps in my knowledge that I haven't yet had time to fill (Theresa).

…time, efforts, constantly updating knowledge, and skills can be challenging at times due to current workload and resource constraints (Deon).

Some academics perceived lack of knowledge, limited support from colleagues, lack of confidence with teaching EBP concepts and employing staff members who demonstrated interest and passion for EBP as continuing barriers:

Lack of knowledge, and support from colleagues about incorporating EBP into courses is always a challenge (Joanne).

The barrier is the confidence in teaching and this is my fourth year as an academic, but I must say I have limited knowledge of how to integrate EBP concepts into the units I teach (Elizabeth).

Additionally, participants did not only raise issues with staff members unwilling to teach into research and EBP units, but students' attitudes towards research and EBP were also found to be negative, which eventually created challenges for academics to engage students and motivate them to see the relevance of EBP to practice:

A lot of the ones [students] come with prejudice. They talk to other students and get the mindset that it's [research and EBP] boring and not fun. With this attitude, educating them is challenging because these units demand lots of efforts on academic's part, resources from school and curricula which could demonstrate the relevance of these concepts to professional practice (Karen).

(ii) Curricula design and delivery

Interviews and observations highlighted that alignment between theoretical and clinical units with underpinning EBP concepts was perceived as an enabler. Each unit outlining EBP concepts and preparing students with EBP competence was identified as an endeavour, academics wanted to work towards:

> *It's not just the clinical-based units in a Bachelor of Nursing, all of the units have to be committed. The research unit has to have that commitment to inculcating the students an appreciation of research. The sociology unit has to talk about how things have changed based on research. Every single unit has to be aligned and emphasise the use of research in evidence-based practice and how important it is to the nursing profession. We should aim to achieve this [integrate EBP concepts across] (Stacey).*

When they introduced research and EBP units within undergraduate curricula, academics encountered challenges with unit content and outcomes they anticipated to achieve. Additionally, students faced issues with difficulty understanding the content and engaging with these units. Besides this, some universities delivered these units online, which created further challenges for academics:

> *We've struggled to get the students to really enjoy the research unit. I taught a research subject last semester, and students hated it, they didn't do well…what I find most challenging with the unit is trying to make an interesting vibe varying the assessment items, there's no other lot you can do differently to assess this particular unit or its application in practice (Melissa).*

> *We have a huge cohort of students and a large number of them are online. That's a challenge with respect to teaching a large number of students, to*

conveying the importance and the passion for evidence-based nursing, it takes a lot of time and resources (Henry).

Participants emphasised that academics should be vigilant in their approach of choosing and implementing methodologies for teaching EBP concepts. With their teaching approaches, academics either create passion for EBP in students by linking concepts to practice or instil negative attitudes:

...it depends on the teacher, really. You can sell it [research] if you're good at it. It can be dull and boring, but to me, that's up to the academic to harness that interest and awaken it. How we deliver these units [research and EBP] and teaching methodologies we choose, influence students' attitudes and learning (Kate).

Despite being aware of the significance of effective and engaging teaching methods, academics struggled to implement proven teaching strategies due to barriers they encountered. Insufficient resources within academic settings, practice setting barriers, poor time, heavy workloads, and large number of students within programs were highlighted as impeding factors:

… didactic teaching in a lecture theatre is limited, full stop. Particularly very difficult with the complex concepts around evidence-based practice. There aren't sufficient resources available to implement innovative teaching strategies with large cohort of students. On top of this, there is always pressures of the time in curriculum (Linda).

Time to research new teaching strategies is always a challenge. We go easy ways and incorporate content into lectures and tutorials which aren't compulsory and students often don't attend (Donna).

In line with the literature supporting EBP integration across courses and not taught merely through research and EBP units, participants preferred to embed EBP concepts across both theoretical and clinical units. They highly recommended other academics show their commitment towards this. On the other hand, a number of participants expressed concerns and reported challenges with EBP inclusion across curricula comprising limited time for aligning and updating units, crowded curricula, high expectations on academics, workloads, insufficient EBP knowledge and skills, inexperienced academics in designing curriculum, and lack of consensus between academics prevented EBP from being fully embedded.

> *I would like to improve the alignment between the subjects and ultimately improve communications between individuals teaching into these subjects. I strongly feel we academics need to learn the ways how we could integrate EBP across theoretical and clinical units in better ways. However, I also understand limited time between semesters to update content, expectations to publish and resistance from other colleagues make things worse (Deon).*
>
> *Many of us are relatively new to curricula design and surely require support and mentoring (Simone).*

(iii)   Practice Settings

Students learning EBP concepts should be provided with opportunities to apply these concepts in practice settings. Most participants verbalised that factors including involvement of clinical educators and nursing staff in applying evidence to practice could influence students' appreciation of EBP in practice:

Staff using research to make practice decisions and clinical educators'
orientation towards evidence-based practice assist students to link theory and
practice of EBP. Students view clinicians to be role model and follow their
practices (Josh).

Preparing students to embrace EBP during their clinical experiences was perceived as an effective method for linking EBP theory and practice. Participants included practice examples in their teaching, however when they designed units that required involvement of clinical preceptors and clinical staff to work with students to achieve EBP implementation, they encountered hindrances as Joanne explained:

EBP was always an online subject which still happened but we had originally
set it up for each student and it would have a clinical mentor and they would
work together on a project. That's how we designed it for the curriculum but
unfortunately due to practice issues, was not delivered the way it was written
(Joanne).

Workplace culture, reduced funding, lack of EBP competence among nurses, heavy patient loads, limited resources and poor time were categorised as practice-related barriers by study participants that eventually affected students' exposure to EBP during their clinical placements.

... you have contextual factors that are things like time and resources. Its
access to the information, it's personalities in the workplace, it's the support of
the organisation. Many barriers to overcome before you could even think about
evidence-based practice (Kate).

Apart from practice barriers to EBP, academics raised concerns around limited support and mentoring available for students to use evidence in practice. Furthermore, this evidenced the

theory-practice gap issues for students seeing different practices to what they were taught in university to those practised in clinical settings:

> *…Students are not confident in raising issues and concerns directly with clinicians that they may be doing something that you know there's no real evidence to support that. So that becomes problematic and difficult. (Theo).*

Another reason for disconnect between theory and practice perceived by academics was having less credibility in practice settings. Most academics were not clinically active and even those who wanted to be involved in faculty practice were heavily loaded with teaching and other related responsibilities:

> *…..there is still that divide between academia and practice exist. One way I could think of bridging this gap is by having credibility in practice settings (Sarah).*

> *Academic workload is too high and clinical practice is not factored into the workload (Stacey).*

Creating strong partnerships between academic and practice settings, faculty practice and supporting students to implement EBP concepts were emphasised by many participants as vital strategies to be instigated at academic and practice levels. Both settings were seen to need to provide mechanisms where students would be supported and encouraged to apply EBP, thereby seeing the link between theory and practice:

> *…. there needs to be a support by the academic staff and it also needs to be an environment where there is an appropriate culture within the organisation that supports that kind of dialogue and that kind of change…we need to look*

> *at more partnership between academia and the service sectors, if we want to*
>
> *be taken seriously as professionals (Ann).*

Building confidence in students to maximise students' engagement by having discussions regarding practice issues and strategies was recommended and adopted by some participants:

> *... it's about creating a sort of hope and confidence in students that they can actually influence practices, may be begin with their individual patients. Evidence in practice is making a difference and has always made a difference. Sometimes it's not so easy to see, and...those are the conversations you have with students. Discussing strategies with them to overcome barriers will be useful for their future practice (Lyn).*

Overall, the interplay between academic settings, curricula and practice settings was evident. These factors played important roles in academics' appreciation of EBP and its inclusion into their teaching practices when perceived as enablers. Workload management, faculty practice, continuing educational opportunity, resource availability and partnership between academia and practice were emphasised. However, at certain times, these factors also acted as inhibitors for academics in achieving EBP integration, particularly lack of commitment between individual academics, heavy workloads, limited time, financial restraints within institutions and practice-settings barriers were concerning for participants.

Discussion

The study findings offers insights into contextual determinants affecting EBP integration into undergraduate nurse education in Australia, from academics' perspectives. The interplay

between academic settings, curricula and practice settings was evident in influencing academics' teaching practices, and endeavouring to facilitate EBP teaching.

Improvements in patient care can be facilitated by graduate nurses who are prepared within an EBP paradigm during their degree programs. This is possible when academics design curricula and implement teaching approaches that stimulate students' critical thinking and decision-making skills, across both theory and practical courses (Melnyk & Fineout-Overholt, 2015). Literature has identified individual characteristics that can influence EBP teaching and its inclusion in degree programs, comprising academics' knowledge, skills and attitudes around EBP, educational strategies, and faculty practices (Stichler et al., 2011; Al Hadid & Al Barmawi, 2012). Consistent with these, current study participants highlighted individuals as colleagues assist in facilitating EBP teaching when they are adequately trained and demonstrate commitment. Academics' knowledge and engagement around EBP are key in ensuring EBP is incorporated into students' educational experiences (Malik et al., 2016a).

From organisational perspectives, participants reported commitment from school, collegial support, workload management and faculty practice were significant in effective EBP education. Academic settings typically expect academics to be actively involved in teaching, research and publication (Murray et al., 2014). Although, there are reported benefits of faculty clinical practice (Aquadro & Bailey, 2014), it is often not included in routine academic workload and generally not encouraged by academic leadership (Aquadro & Bailey, 2014). A global shortage in faculty, financial constraints within institutions, increasing numbers of inexperienced academics and high numbers of student enrolments have resulted in increased workload for academics and less opportunities to engage clinically (Brady, 2010).

Heavy workload is not unique to nursing, being experienced in allied health and other disciplines. While investigating transitioning of occupational therapists into academia, Murray et al. (2014) found significant workload, minimum structure, and use of own time to complete

tasks as confounding barriers across Australian occupational therapy academics. Similarly, McDermid et al. (2016) reported Australian nurse academics faced difficulty understanding role expectations, lack of confidence in teaching, displayed anxiety and frustration when they were required to teach unfamiliar subjects and significant workload. Consistent with reported studies, key barriers emerging from the current study were limited time, heavy workloads, inadequate resources within educational institutions, lack of support from colleagues, limited EBP knowledge, and lack of confidence in teaching EBP concepts to undergraduate students. These barriers also coincide with previously reported studies in EBP (Mclnerney & Suleman, 2010; Stichler et al., 2011). In light of current and emerging faculty shortage globally, academic settings need to adopt strategic management by providing resources for faculty development in EBP and opportunities provided for their engagement with it (Malik et al., 2016a). Academic workload and heavy expectations can cause stress, therefore mentorship, support and adequate resources are considered to be influential means for employing effective and efficient teaching practices (Malik et al., 2016a).

Another prominent theme identified in this study related to curricula design and its implementation across units of study. Lack of alignment between theoretical and clinical subjects, fully crowded curricula, negative evaluations associated with research and EBP subjects by students, limited awareness of effective teaching approaches, inadequate resources and challenges with integrating EBP concepts across the curriculum were concerning for most participants. Complexities in healthcare environment have prompted the need to continually add content to undergraduate nursing curricula resulting in over-crowded curricula (Giddens & Brady, 2007). The challenge deciding which content should be included or discarded has become unclear and heavily relies on factors comprising teacher-centred pedagogy, academic-practice gap, changes in healthcare priorities and academics' decisions on what to include. There is a need for academics to re-think their approaches to developing curricula and shift

from traditional content-based approach to concept-based curriculum with active learning activities (Malik et al., 2016b; Giddens & Brady, 2007). This may address the issue of saturated curricula raised by current participants.

Considering evolving technology, dynamics of undergraduate students, diversity in learning styles, and work-life commitments in students, infusing evidence-based pedagogies to engage students in active learning, thereby making learning relevant for their practice is essential (McCurry & Martins, 2009; Stanley & Dougherty, 2010). Through use of multiple teaching strategies, such as media, role-playing, group projects, web-based classrooms, inquiry-based learning approaches to name a few, academics can create active learning environments (Johnson-Farmer & Frenn, 2009), which current participants preferred to adopt to make research and EBP education enjoyable and relevant for students. A study by Zelenikova et al. (2014) evaluated perceptions of effectiveness of EBP courses for graduate nursing students, finding that EBP courses were perceived as effective by faculty members when the school supported its teaching, sufficient resources were available to implement engaging teaching approaches, when students were provided opportunities to strengthen and apply skills after completing their course, and EBP concepts were integrated across courses (Zelenikova et al., 2014). Thus, commitment from the university to offer adequate resources, and allowing sufficient time for academics to align curricula and design integrated courses are vital strategies suggested by the current study participants.

Current trends in nurse education will have a significant influence on nursing students' capabilities of transferring classroom learning into professional practice. A focus on EBP education needs to be contextualised across both theoretical and clinical courses (Thomas et al. 2011). However, present study participants reported the practice sector undervalued EBP skills and existing barriers within clinical settings created difficulties for academics to facilitate EBP use in practice. According to participants, students raised theory-practice gap issues and were

not mentored by clinical nurses in embracing EBP. Difficulty teaching EBP to undergraduate students across educational settings and clinical placements is addressed in global studies (Hung et al., 2015). Transferring EBP knowledge from classroom to clinical setting and facilitating students' abilities to integrate EBP into their clinical practice requires active involvement of clinical staff within practice settings. Smith-Strøm et al. (2012) examined second year Norwegian nursing students' experiences of implementing EBP into clinical practice at a university college suggesting that students were able to implement EBP according to the goals of their program, however were not provided with opportunities to practice due to time constraints of clinical placements and lack of sufficiently trained clinical nurse mentors. Results demonstrate the need to support nursing students across both, educational settings and clinical placements to enhance knowledge, positive attitudes and successful EBP adoption.

If evidence-based practice is to be implemented, clinical staff along with academics have crucial responsibilities towards creating possibilities for students. A previous study reported that students were often stressed by clinical nurses to focus on practical skills, rather than spending time on research and reading (Smith-Strøm et al., 2012), consistent with results of the current study. It is natural for students to hold negative attitudes to EBP when clinical staff fail to model this approach to students and when practice-education gap is evident (Smith-Strøm et al., 2012). Becoming skilled in EBP is an ongoing process that requires collaboration between academia and practice settings. Examples are presented in the literature of undergraduate students being partnered with nursing staff to find, appraise and integrate new research evidence into practice (Moch & Cronje, 2010). Similarly Pennington et al. (2010) teamed nursing students with staff nurses working on EBP projects. If EBP is only taught in nursing research courses, it may remain an academic exercise with no clinical application. This further explains low confidence levels for EBP competencies in students in a study by Leach

et al. (2016) who reported positive attitudes of students prior to and post research education, but confidence and attitude to clinical practice of EBP remained lower.

Offering opportunities for students to debriefing practice-related concerns were practised by the current study participants which differed from a study where students were only supported by their fellow students (Smith-Strøm et al., 2012). Given reported challenges by academics in the present study, encouraging students to base their practice on current evidence, supporting them to embrace EBP, role modelling, overcoming reported barriers, adopting strategies to promote cited facilitators, welcoming culture for EBP and leaders' vision for EBP adoption are all essential requirements for successful EBP education in degree programs.

Recommendations and Future Research

Findings point to a number of strategies for overcoming barriers addressed by participants relating to academic settings, curricula and practice settings. The following recommendations are proposed:

1. Opportunities for professional development in EBP need to be regularly offered to nurse academics. If funding is an issue, inviting speakers to present rather than sending individual academic to programs may prove cost-effective.

2. Formal mentoring strategies are essential for academics to ensure they are supported in the workplace, particularly those who are new to curricula design and delivery.

3. Successful EBP integration is not possible without establishing strong collegial relationships between academics. Individuals committed to the notion of EBP and

supporting each other to achieve desired goals requires mutual understanding and collegiality.

4. Inclusion of faculty practice into academics' workload, provision of resources, and organisational support are essential to maximise academics' engagement with EBP.

5. Clinical environment and staff should be educated and re-oriented to concepts of EBP application. Clinical settings need to provide a conducive culture for EBP adoption for staff, students and academics.

6. Partnerships between academia and practice settings should be established and strengthened over time to ensure undergraduate nurses are provided with avenues to transfer classroom learning to practice. Academics can be provided with opportunities to run collaborative research projects and undertake faculty practice which may enhance credibility.

7. Future research could explore effectiveness of recommended strategies on academics' actions and processes of designing and embedding EBP within curricula.

Conclusion

Nurse academics are pivotal in preparing future generations of nurses. Facilitators and barriers were identified by academics in the current study influencing their actions and processes involved in embedding EBP principles into undergraduate curricula. The findings invite academic institutions and clinical settings to establish mechanisms by which curricula fully embedded with EBP concepts could be operationalised.

References

Al Hadid, L. A., Al Barmawi, M., 2012. Factors Influencing the Adoption of Principles of Evidence-Based Principles in nursing education: A Jordanian Perspective. Journal of Nursing Education and Practice 2(2), 71-79.

Aquadro, L. C., Bailey, B. I., 2014. Removal of Nursing Faculty Practice Barriers in Academia: An Evidence-Based Model. Journal of Nursing Education 53(11), 654-658. doi:10.3928/01484834-20141027-04.

Brady, M. S. P. R. N., 2010. Healthy Nursing Academic Work Environments. Online Journal of Issues in Nursing 15(1), 10-A.

Brown, C.E., Wickline, M.A., Ecoff, L., Glaser, D., 2008. Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical centre. Journal of Advanced Nursing 65(2), 371-381.

Brown, C.E., Kim, S. C., Stichler, J.F., Fields, W., 2010. Predictors of knowledge, attitudes, use and future use of evidence-based practice among baccalaureate nursing students at two universities. Nurse Education Today 30(6), 521-527.

Charmaz, K., 2006. Constructing grounded theory: A practical guide through qualitative analysis. SAGE Publications LTD, Los Angeles.

Charmaz, K., 2014. Constructing grounded theory, second ed. SAGE Publications, Los Angeles.

Corbin, J. Strauss, A. 2008. Basics of qualitative Research: Techniques and procedures for developing grounded theory, third ed. SAGE, Thousand Oaks, CA.

DeBruyn, R. R., Ochoa-Marín, S. C., Semenic, S., 2014. Barriers and facilitators to Evidence-Based Nursing in Colombia: Perspectives of nurse educators, nurse researchers and graduate students/Barreras y facilitadores en la práctica de la Enfermería Basada en la Evidencia en Medellín, Colombia. Investigación y Educación en Enfermería 32(1), 9-21.

Eizenberg, M.M., 2010. Implementation of evidence-based nursing practice: personal and professional factors? Journal of Advanced Nursing 67(1), 33-42.

Giddens, J., Brady, D., 2007. Rescuing nursing education from content saturation: The case for a concept-based curriculum. Journal of Nursing Education 46(2), 65-69.

Halcomb, E. J., Peters, K., 2009. Nursing student feedback on undergraduate research education: implications for teaching and learning. Contemporary Nurse: A Journal for the Australian Nursing Profession 33(1), 59-68 10p.

Hung, H.-Y., Huang, Y.-F., Tsai, J.-J., Chang, Y.-J., 2015. Current state of evidence-based practice education for undergraduate nursing students in Taiwan: A questionnaire study. Nurse Education Today 35(12), 1262-1267. doi:http://dx.doi.org/10.1016/j.nedt.2015.05.001

Jackson, D., Peters, K., Andrew, S., Daly, J., Gray, J., Halcomb, E., 2015. Walking alongside: a qualitative study of the experiences and perceptions of academic nurse mentors supporting early career nurse academics. Contemporary Nurse 51(1), 69-82. doi:10.1080/10376178.2015.1081256

Johnson-Farmer, B. & Frenn, M., 2009. Teaching excellence: what great teachers teach us. Journal of Professional Nursing 25(5), 267-272. doi: 10.1016/j.profnurs.2009.01.020

Leach, M. J., Hofmeyer, A., Bobridge, A., 2016. The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: a descriptive longitudinal survey. Journal of Clinical Nursing 25(1-2), 194-203. doi:10.1111/jocn.13103

Majid, S., Foo, S., Luyt, B., Zhang, X., Theng, Y.-L., Chang, Y.-K., Mokhtar, I. A., 2011. Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers. Journal of the Medical Library Association : JMLA 99(3), 229–236. http://doi.org/10.3163/1536-5050.99.3.010.

Malik, G., McKenna, L., & Griffiths, D., 2015. An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. GSTF Journal of Nursing and Health Care 3 (1), 158-164.

Malik, G., McKenna, L., Griffiths, D., 2016a. How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. Nurse Education Today 41, 54-59. doi:http://dx.doi.org/10.1016/j.nedt.2016.03.015

Malik, G., McKenna, L., Griffiths, D., 2016b.Using pedagogical approaches to influence evidence-based practice integration- Processes and Recommendations: Findings from a grounded theory study. Journal of Advanced Nursing doi:10.1111/jan.13175

McCurry, M., & Martins, D., 2010. Teaching Undergraduate Nursing Research: A Comparison of Traditional and Innovative Approaches for Success with Millennial Learners. Journal of Nursing Education 49(5), 276-279. doi:http://dx.doi.org/10.3928/01484834-20091217-02

McDermid, F., Peters, K., Daly, J., Jackson, D., 2016. Developing resilience: Stories from novice nurse academics. Nurse Education Today 38, 29-35. doi:http://dx.doi.org/10.1016/j.nedt.2016.01.002

McInerney, P., & Suleman, F., 2010. Exploring knowledge, attitudes, and barriers toward the use of evidence-based practice amongst academic health care practitioners in their teaching in a South African university: a pilot study. Worldviews on Evidence-Based Nursing 7(2), 90-97. doi:10.1111/j.1741-6787.2009.00180.x.

Melnyk, B., Fineout-Overholt, E., 2015. Evidence-based practice in nursing and healthcare: A guide to best practice, third ed. Wolters Kluwer, Philadelphia.

Moch, S. D., Cronje, R. J., Branson, J., 2010. Part 1. Undergraduate Nursing Evidence-Based Practice Education: Envisioning the Role of Students. Journal of Professional Nursing 26(1), 5-13. doi:http://dx.doi.org/10.1016/j.profnurs.2009.01.015.

Moch, S. D., & Cronje, R. J., 2010. Part II. Empowering grassroots evidence-based practice: a curricular model to foster undergraduate student-enabled practice change... second of a three-part series. Journal of Professional Nursing 26(1), 14-22. doi:10.1016/j.profnurs.2009.03.003.

Murray, C., Stanley, M. and Wright, S., 2014. Weighing up the commitment: A grounded theory of the transition from occupational therapy clinician to academic. Australian Occupational Therapy Journal 61, 437–445. doi: 10.1111/1440-1630.12146

Pennington, K., Moscatel, S., Dacar, S., Johnson, C., 2010. EBP partnerships: building bridges between education and practice. Nursing Management 41(4), 19-23. doi:10.1097/01.NUMA.0000370873.25348.ec.

Rudman, A., Gustavsson, P., Ehrenberg, A., Boström, A.-M., Wallin, L., 2012. Registered nurses' evidence-based practice: A longitudinal study of the first five years after graduation. International Journal of Nursing Studies 49(12), 1494-1504 1411p. doi:10.1016/j.ijnurstu.2012.07.007.

Smith-Strøm, H., Oterhals, K., Rustad, E. C., & Larsen, T., 2012. Culture crash regarding nursing students' experience of implementation of EBP in clinical practice. *Nordic* Journal of Nursing Research & Clinical Studies / Vård i Norden 32(4), 55-59.

Stanley, M. C., & Dougherty, J. P., 2010. A paradigm shift in nursing education: A new model. Nursing Education Perspectives 31(6), 378-380. doi:10.1043/1536-5026-31.6.378

Stichler, J. F., Fields, W., Son Chae, K., & Brown, C. E., 2011. Faculty knowledge, attitudes, and perceived barriers to teaching evidence-based nursing. Journal of Professional Nursing 27(2), 92-100. doi:10.1016/j.profnurs.2010.09.012

Thomas, A., Saroyan, A., & Dauphinee, W. D., 2010. Evidence-based practice: a review of theoretical assumptions and effectiveness of teaching and assessment interventions in health professions. Advances in Health Sciences Education 16(2), 253-276. doi:10.1007/s10459-010-9251-6

Zelenikova, R., Beach, M., Ren, D., Wolff, E., & Sherwood, P., 2014. Faculty Perception of the Effectiveness of EBP Courses for Graduate Nursing Students. Worldviews on Evidence-Based Nursing 11(6), 401-413.

7.2   Conclusion

Contextual factors that were found to be influential on the processes academics utilised in response to EBP integration in undergraduate education were explored in chapter seven. The chapter comprised one manuscript submitted for publication, exploring these factors in three broad areas: (1) Academic settings and individuals, (2) Curricula design and delivery, and (3) Practice settings. Explication of these factors facilitates an understanding of participants' actions and behaviours in various contexts, which requires measures to enhance facilitators and surmount barriers. In the next chapter, analysis of the findings in light of global literature, along with educational and practice recommendations are discussed in greater length.

Chapter Eight: Discussion and Recommendations

8.1 Introduction

This study sought to explain processes nurse academics undertook to incorporate EBP in their teaching and learning practices. In line with the study aim, the previous chapters have discussed study findings, along with the constructed theory and contextual factors. This chapter offers an overall discussion of the findings and situates the results within the existing literature. It also highlights the new knowledge developed in the absence of available research in the context of EBP integration in undergraduate education. Study findings raise a number of issues for nursing education in Australia, therefore implications and recommendations for education, practice and research are presented in detail. This chapter begins with an overview of the theory and discusses the key findings in light of global literature.

8.2 The Theory

The theoretical construct, *On a path to success: Endeavouring to contextualise curricula within an EBP framework,* forms the central element of the research. It offers an explanation of the specific processes adopted by academics when integrating EBP into teaching and learning practices. Additionally, this theory provides a comprehensive understanding of conceptual links and interplay between the defined categories, *Valuing and Engaging with EBP*, *Enacting EBP Curriculum, Influencing EBP Integration and Envisaging the Use of EBP.* Within the categories, all salient properties and dimensions have been identified, ensuring explanatory power of the theory. For instance, in the category, *Valuing and Engaging with EBP*, participants demonstrated passion towards EBP by being engaged with research activities, keeping abreast

of literature and practice changes, and including evidence when preparing lectures and course materials. The properties and dimensions of this category relate to the first transitional stage of the theory that is, *Embarking on a journey-Being prepared.*

The theory also explains variation within data which is apparent in the three transitional themes of the theory including: *Embarking on a journey-Being prepared*, *Experiencing challenges,* and *Moving ahead-Linking EBP theory to practice*. For example, there was considerable variation, as some participants were more passionate and prepared to integrate EBP into their teaching than others. Conversely, some experienced challenges and started to move away from teaching into research units and continued with existing units with limited EBP integration. However, despite these challenges, many attempted to include EBP by linking theory to practice into individual units. The varying responses of participants, identified and discussed in the categories, are incorporated into the second and third transitional phases of the theory.

The various properties of the theory explain processes which could be applied to academics in similar contexts, as it highlights the specific activities participants were engaged with, the challenges they encountered and strategies they adopted to overcome those. The theory extends beyond individuals to demonstrate the interplay between academic settings, curricula and practice settings. It contributes development of knowledge of processes embraced by academics in the current working environment, particularly outlining a core process, which sheds light on participants' endeavours towards achieving a fully integrated curriculum, so offers opportunities for strategies to be employed by educational and practice settings to consider.

8.2.1 The Journey Begins-Academics' Preparation

Findings from the first category, *Valuing and Engaging with EBP*, draw attention to differences in participants' opinions with regards to what EBP meant to them. Despite this, they demonstrated their engagement with EBP by getting involved in research activities, keeping-up-to-date with literature, attending continuing education sessions, and incorporating evidence into their teaching and learning practices, and therefore, leading by example. These activities showed the preparation of academics towards instilling knowledge and skills in students' learning experiences. To facilitate learners' understandings of decision-making based on EBP, academics are required to be equipped with a comprehensive understanding of EBP, its principles and processes that assist them to design sound pedagogical approaches for its possible integration across courses (Thomas, Saroyan & Dauphinee, 2011). However, differences in opinions demonstrated in participants' understandings of EBP could have consequences, as this may translate through their teaching and instructional pedagogies, as reported in one Australian study (Waters et al., 2009a) and other global studies (Rolfe, Segrott & Jordan, 2008; Stichler et al., 2011).

It is of concern that teaching content and incorporation of EBP concepts into nursing curricula can be largely based on academics' understandings, beliefs and attitudes about EBP, which eventually impact on nursing students' learning, as evident in the findings from an integrative review. Saunders and Vehviläinen-Julkunen (2016) included 37 primary studies on nurses' readiness for EBP reporting that though nurses in some studies were aware of EBP, only 50% demonstrated its understanding to their colleagues. Teaching staff being active clinical researchers was identified as a positive aspect of one research course in an Australian study by Halcomb and Peters (2009), as their expertise allowed them to draw upon their own clinical experiences of research and bring its relevance and related challenges to the classroom.

A study exploring knowledge, beliefs and teaching strategies of EBP among educators in nursing institutions in Nigeria found that many rated their knowledge around EBP highly, however they demonstrated limited knowledge on the EBP process and ways to integrate concepts into their teaching practices. The authors suggested the need for academics to undertake professional development in EBP, and learn ways these concepts can be instilled in students (Enuku & Adeyemo, 2014). Contrary to the results of the Nigerian study, another study exploring differences and similarities in EBP profiles between USA and UK clinical and academic faculty found significant differences in EBP knowledge and skills between both groups. Academic faculty scored higher in EBP knowledge and skills than clinical faculty, however no significant differences were reported in relation to their attitudes and use of EBP. Both groups identified evidence-related issues, organisational issues and teaching related issues in the use of EBP (Upton, Scurlock-Evans, Williamson, Rouse & Upton, 2015).

Concurring with the above studies, barriers identified by current study participants comprised limited time to search for evidence and update teaching content, complexity with EBP application in clinical areas, insufficient resources, heavy workloads, limited confidence in teaching EBP, lack of knowledge in EBP, plethora of information, and traditional mindsets or attitudes of staff towards research that hindered their overall engagement with EBP. These barriers coincide with Upton et al.'s study results and other national and international studies (Stichler et al., 2011; Kalb et al., 2015), that reported similar barriers when exploring educators' knowledge and perceptions of EBP. Findings of the present study go beyond identification of facilitators and barriers to EBP to discuss the engagement of academics with EBP, which generates new knowledge, complementing existing literature. Nurse academics play an important role by driving organisational and educational strategies, and model specific behaviours to influence EBP use, therefore strategies to increase their engagement and

resources to enhance their commitment in both academic and clinical grounds, are strongly recommended.

Despite differences in opinions, most participants of the present study demonstrated positive attitudes and aspired to incorporate these concepts into undergraduate curricula which is reflected in the second category. *Enacting EBP Curriculum,* highlights academics' undertakings in relation to designing and teaching EBP and research concepts to undergraduate students. Academics' preparation was further demonstrated by designing content, coordinating, and teaching into EBP and research subjects. Some schools offered separate units/subjects on research and EBP across the degree programs, however most providers had combined the units exploring research methodologies and evidence-based practice through a single unit (Malik, McKenna & Griffiths, 2015b). Degree programs within Australia are required to prepare graduating nurses according to Nursing and Midwifery Board of Australia (NMBA) practice standards that predominately expect nurses to provide patient-centred care, work within evidence-based frameworks, initiate collaborative care within multi-professional teams, and use informatics to inform patient care outcomes (NMBA, 2016a). Therefore, nurse academics play an integral role in designing curricula that prepare graduates to practise in line with NMBA standards during their professional careers.

Some participants of the present study were involved with designing and delivery of research units in undergraduate programs, and others who were involved in teaching other courses considered the integration of concepts across theoretical and clinical subjects. Processes discussed in the initial two categories outlined academics' journeys which were incorporated into first transitional stage of the theory, *Embarking on a journey-Being prepared.* The contribution of research and EBP education in undergraduate programs to improving patient outcomes is well documented in the literature. Findings from a study by Leach et al. (2016) measured the impact of a research education on undergraduate students' knowledge,

skills, attitude and use of EBP in a large Australian university, highlighted that this may have potential to increase knowledge, skills, uptake of EBP and minimise barriers post-education. Despite benefits of introducing research education to undergraduate students, the challenges for students and academic staff are well acknowledged in global literature (Halcomb & Peters, 2009; Halabi & Hamdan-Mansour, 2010; Brooke et al., 2015). Therefore, selection of teaching methodologies, collaboration between academics and curriculum developers where research is not confined to a standalone course, but rather taught as an integrated approach across the curriculum, will optimise students' learning in applying these concepts into practice contexts (Christie et al., 2012). Additionally, academics' mastery of EBP competency, attitudes to its practice, and willingness to include it in students' learning experiences will determine how their individual journeys unfold.

Multidisciplinary literature, including from social work, athletic training, physiotherapy, and occupational therapy, shares such consensus of the degree to which students implement what they learn in the EBP classroom will depend on appropriate preparation of academics and clinical educators in clinical settings (Howard, Allen-Meares & Ruffolo, 2007; Manspeaker & Van Lunen, 2010; Hankemeier & Van Lunen, 2011; Berger, 2013). Hankemeier and Van-Lunen (2011) employed EBP implementation strategies of self-discovery, promoting critical thinking, sharing information and role-modelling with entry-level physiotherapy students to increase their uptake of EBP. They found these strategies to be effective in encouraging EBP use among both teaching staff and students. Additionally, Howard et al. (2007) suggested academic leadership across schools of social work to ensure that faculty were trained to teach EBP courses. Mechanisms should be established to support them to implement instructional innovations in teaching EBP, and links created with practice settings for its full implementation. Existing literature in nursing and allied health, along with current study findings, shared similar synergies around academics' preparation in EBP and overcoming

barriers for its maximum attainment are proposed (Hankemeier & Van Lunen, 2011; Levin & Feldman, 2013).

8.2.2 During the Journey-Challenges Experienced

Academics' preparation in the earlier phase of the journey was demonstrated by offering EBP education and considering integration of concepts in the curriculum. Moving forward in their journeys, most academics in this study experienced challenges with research and EBP units. They expressed concerns around students' disengagement with unit content and delivery, negative evaluations associated with these units, disadvantages of teaching these units solely online, limited resources to design engaging teaching approaches, difficulty in getting sessional teachers to teach these units, and lack of interest and passion among academics to teach and make these units interesting and relevant for students. Global studies exploring the impact of research education have reported that students' attitudes to research and beliefs about its relevancy to practice have been largely negative (Halcomb & Peters, 2009; Halabi & Hamdam-Mansour, 2010; Brooke et al., 2015).

An Australian study by Halcomb and Peters (2009) revealed feedback from 442 second year students enrolled in a nursing research course across three campuses of an Australian university. In the course evaluations, students appreciated the teaching staff by expressing enjoyment with group work and satisfaction with online assessment items associated with the course. However, suggesting the course needs to create relevance with clinical practice, and introduce blended approaches in teaching the research concepts. Hence, the researchers recommended activities linking to practice scenarios with research designs embedded, including threads of research into other courses, and introducing blended teaching methods may provide solutions to those challenges. Another study by Zelenikova et al. (2014) exploring

faculty perceptions of the effectiveness of EBP courses across 50 top graduate nursing schools in the USA, identified less experienced faculty in the area of EBP, large class sizes, and lack of opportunities for students to apply skills elsewhere in the courses as hindrances. Additionally, Hung et al. (2015) while investigating the current state of EBP education for undergraduate nursing students in Taiwan, found lack of integrated teaching materials, shortage of EBP trained faculty and limited avenues for students to practise EBP, as major obstacles to teaching EBP. In line with the above studies exploring students' and faculty members' perspectives regarding EBP and research courses, the present study findings contribute to the existing body of literature. In particular, there were some identified barriers unique to the present study in relation to dissatisfaction with solely online teaching approaches, challenges in engaging sessional teachers to teach into research units, and lack of passionate academics in making research and EBP courses engaging for students. These identified barriers should not be ignored, further studies are required to understand these issues more fully, so appropriate strategies can be introduced to overcome them.

Research courses emphasising research methodologies create natural resistance for students around research concepts and the way they perceive research to influence practice (Heye & Stevens, 2009). Although with current impetus around EBP undergraduate programs are required to move from research critique and development of proposals to the use of evidence in various contexts, there is still heavy focus on research methods underpinning many courses (Malik et al., 2015b). Providing examples of how research can support and develop clinical practice can assist in reinforcing the value of it. Hence, in light of challenges faced by present study participants, there is a need to restructure research courses where academics can use an EBP framework to discuss appropriate research designs and their relevance to clinical practice. A success story of this approach has been cited in the literature by Meeker et al. (2008), who reported enhanced student engagement as a result of research course modification

using EBP process and principles. This introductory research course was re-structured for students enrolled in first year, second semester at the State University of New York, USA. The course began with an initial few lectures on EBP concepts, followed by a specialist session on database searching skills. Research methodology in the course was covered by using evidence of hierarchy, particularly taught by research active faculty. By the end of the semester, two integrative projects were designed for students to work in groups. As these students had minimum exposure with clinical experience, clinical scenarios were given to guide their projects. During the first project, students identified appropriate research studies and established their usefulness in a given case study. In the second project, students synthesised the literature, identified practice recommendations and presented in front of classmates and faculty of the school. The authors were confident that this course acted as stimulus for students to understand and use EBP in future practice.

Designing teaching activities focusing on literature searching skills and research critique activities were perceived by academics in the current study as sufficient when integrating EBP principles, and this was also evident in participant observations. A systematic review revealed that often EBP skills are evaluated in the use of literature searching and critical appraisal skills in health sciences degree programs (Shaneyfelt et al., 2006). Shaneyfelt et al. recommended a need to revise research and EBP content to be able to assess students' capabilities in making clinical decisions using EBP principles. In light of this evidence, study participants should endeavour to design teaching methods that prompt students to ask clinical questions, find relevant evidence, critically appraise the evidence, and apply evidence across both theory and practical courses, therefore demonstrating clinical decision making underpinned by EBP concepts.

Re-orienting academics' understandings and modifying their practices of teaching EBP concepts in view of the current study findings will ensure the preparation of students within an

EBP paradigm. In this regard, a framework for research skills development presented by Willison and O'Regan (2007) provides a sequential and incremental continuum of facets to design academic activities that encourage inquiry of deeper understanding and more applied approaches to research skills, particularly relevant for academics who require a framework to work within. These explicit and incremental steps include: embarking on inquiry to determine a need for knowledge/understanding, finding needed information with the use of appropriate methodology, evaluating information, organising information, collecting, synthesising and analysing new knowledge, and communicating knowledge (Willison & O'Regan, 2007). These steps are not dissimilar to the evidence-based practice process and could be successfully utilised to underpin undergraduate assignments and related research activities. As evidence-based concepts align well with research skills acquisition, curricula inclusion of this framework would assist in preparing inquirers who will be equipped with knowledge and skills necessary to conduct inquiry, a core step for EBP implementation. However, largely this framework has been implemented in coursework human biology courses (Willison & O'Regan, 2007) and its usefulness for nursing courses is yet to be established.

Traditional methods of teaching research and EBP courses including didactic lectures, critiquing exercises and online teaching were identified by current participants as common approaches. Literature suggests these methods serve no purpose in engaging students meaningfully with these units (McCurry & Martins, 2010). Some innovative teaching approaches such as presentations by clinical nurse researchers from diverse professional backgrounds, research presentations, research projects and research rounds were incorporated into undergraduate research courses by McCurry and Martins (2010). Post-implementation survey with 72 students revealed that innovative teaching strategies were highly preferred by students and appeared to be engaging students with the course content. The use of innovative and interactive teaching activities assist twenty-first century learners to articulate research

knowledge to practice, concluded by McCurry and Martins (2010). Additionally, Hadley et al. (2010) recommended online learning be introduced as a supplementary teaching mode for EBP subjects as it can provide flexible, faster information delivery and effective learning environments for contemporary students. Use of didactic and solely online teaching methods for EBP courses might contribute to the barriers identified by current study participants. Hence, mentorship in curricula design and delivery methods, provision of adequate support and resources, and further education are found to be influencing factors for academics teaching EBP courses. Therefore, leadership within nursing schools should provide such opportunities for academics to be trained and be resourceful in teaching EBP concepts.

During the journey, another challenge most academics in this study encountered was embedding EBP concepts across undergraduate curricula. Developing mutual understanding between academics around unpacking the curriculum and identifying where EBP was needed to be integrated were experienced as time consuming and intensive tasks. Many academics highlighted challenges in relation to academic settings including heavy workloads, limited time, high expectation of academics for research and publication, insufficient knowledge in EBP, lack of committed academics and limited resources within educational settings. Other obstacles were related to curricula design and delivery, comprising the structure and content within research units, aligning and updating theoretical and clinical subjects, saturated curricula, inexperienced academics in designing and embedding the concepts throughout, and continuation of traditional teaching approaches by academics. These challenges are incorporated into the second transitional stage of the theory: *Experiencing challenges*.

The cited barriers coincide with previously published studies in which academic setting barriers, teaching-related issues and clinically-related obstacles have reportedly impeded EBP teaching (Zelenikova et al., 2014; Hung et al., 2015). Difficulty in collaborating with academic staff across the curriculum and engaging teaching staff who may be reluctant to incorporate

research in their practice were challenges identified by Halcomb and Peters (2009). Although many academics in the current study strived to incorporate research and EBP concepts in teaching approaches, often they were implied and limited to supporting academic assignments. Yet, the explicit use of research in supporting inquiry across theoretical and clinical courses will be valuable in promoting its use in practice, thereby influencing patient outcomes (Vessey & Demarco, 2008). To date, most of the studies cited in the literature have attempted to incorporate EBP in clinical components of the program (Brancato, 2006; Geum Oh et al., 2010), its integration across the curriculum has not been published. Knowledge into processes of how academics strive to thread EBP across subjects and related challenges, which this study presents, clearly indicates that EBP is inadequately integrated across Australian curricula, however future studies are required to verify and further explore this phenomenon. As the study findings are presented in the Australian context, additional research studies are needed to understand these processes and test the theory in the global context.

The first step in moving toward school-wide integration of EBP is to ensure institutional support, commitment and engagement with EBP by educators, and adequate resource allocation (Melnyk & Fineout-Overholt, 2015). The organisation influences learners' use of EBP and provides opportunities, yet learners could influence organisational culture (Melnyk & Fineout-Overholt, 2011). Continuing investment is needed by educational institutions to ensure educators have opportunities to gain mastery in EBP and model this through teaching (Winters & Echeverri, 2012). There are limited systematic reviews located in the literature comparing standalone EBP education and integrated courses. Coomarasamy and Khan (2004) reviewed the effectiveness between standalone EBP and integrated courses (teaching EBP with clinical practice) on EBP knowledge, skills, attitudes and student behaviour. They found that the former improved knowledge only, but an integrated approach showed improvement in all four areas including knowledge, skills, attitudes and use of EBP. EBP instruction if integrated

into real-life contexts using clinical scenarios, may have positive impact on students' EBP competency and future use in their practice. Activities linking clinical problems with underpinning research designs could engage students in meaningful discussions (Thomas et al., 2011). Additionally, in consideration of limited clinical exposure for undergraduate students in contemporary education, using their own life examples of what drives their problem-solving and decision- making skills, may provide relevant context for teaching EBP.

Similarly, participants of the current study recommended a number of strategies for their schools to implement to support academics in achieving fully integrated curricula. Academics who believed in EBP and preferred an integrated approach wanted the cited barriers to overcome by collaboration between academics across the curriculum, demonstration of strong commitment by teaching staff, availability of support mechanisms and academia-clinical partnerships. During the entire process, in response to difficulties current study participants encountered, a few moved away from teaching research and EBP units, and continued with the way curricula were initially designed. Yet, many moved ahead and employed strategies to integrate EBP concepts, which was demonstrated in the following categories and the third transitional stage.

8.2.3 Moving Ahead in the Journey

The third and fourth categories reflected strategies academics' embraced in response to the problems they faced in the previous stage. The third category, *Influencing EBP Integration,* indicates how academics included EBP into their units of teaching and influenced students' learning of EBP concepts. Considerable efforts were made by individual participants in embedding EBP concepts and process in lectures, laboratory work, tutorials, flipped classroom approaches and small classroom activities, to name a few. By using a number of teaching and

learning approaches, academics engaged students with the EBP process and facilitated the application of evidence largely in academic work and to some extent into clinical experiences. These strategies coincide with examples stated in the literature, for example, a systematic review including 10 studies analysed educational interventions for teaching EBP particularly in nursing, outlining that classroom teaching/learning was the most frequently cited method. Other strategies comprised EBP-DVD computer laboratory teaching method, E-FIT (evidence-based practice focused interactive teaching) strategy, critical appraisal worksheets, web-based learning modules, blended approaches, nursing journal clubs, evidence-based practice projects and library-led classes on information literacy skills. The researchers concluded that outcomes of the interventions were modest and further research was needed to establish effectiveness of educational interventions utilised to teach EBP (Melender, Mattila, & Häggman-Laitila, 2016).

Apart from interactive teaching strategies, participant observations revealed that a number of academics merely included discussions about EBP during lectures and voiced lack of awareness of effective teaching approaches, limited resources, low confidence with portraying relevance of EBP and unfamiliarity with technology as key issues. These barriers are consistent with other global studies (Stichler et al., 2011; Upton et al., 2015). Interactive teaching approaches over didactic teaching methods are becoming increasingly popular among academics due to their flexibility and capability to expose students to the complexities of practice. At the same time, they provide students with opportunities to experience situations which they most likely will experience during their practice years (Bradshaw & Lowenstein, 2014). However, this requires training and cultural change among those academics who are not technology savvy and may be unaware of available resources. Therefore, experiential learning with the EBP process during academic years using interactive approaches was strongly suggested in this research due to its potential to develop practitioners who value EBP in future practice. More recently, blended teaching and learning environments have been introduced in

higher education settings that appear to be promising in engaging students and linking concepts to practice by virtual simulation (Robinson & Dearmon, 2013). However there is a paucity of literature evaluating these strategies and their impact on students, particularly in the context of variations in curricula approaches and necessity to include EBP education.

Creating learning environments based on a constructivist approach where learning takes place in context is highly recommended for EBP education (Young & Paterson, 2007; Thomas et al., 2011). Since health sciences degree students may not have sufficient exposure to clinical experiences during the early stages of programs, it becomes imperative that daily teaching activities create relevance of EBP to practice. For instance, using current practice examples, academics can provide the preferred context (Aglen, 2016), and amending some of the terminologies in the curriculum such as using 'evidence' instead of 'rationales' may reflect the move towards EBP. Additionally, modifying learning activities and course assignments by adding EBP-related criteria in a manner that students are engaged in such as appraising studies, rather than critiquing them, and creating plans to incorporate evidence in their patient case load can provide a beginning stage for EBP integration. Furthermore, it is paramount that clinical skills are taught with the purpose of achieving outcomes within an EBP framework, rather than focusing on simply mastering a skill. Lastly, EBP should be embedded in such a way that allows incremental steps of achieving the depth of essential knowledge and skills suggested by nursing and social work researchers (Howard et al., 2007; Finotto et al., 2013). In line with the above studies, the teaching approaches employed by current study participants to support EBP teaching contribute to the existing literature, however above suggestions should be considered for application after determining their effectiveness and outcomes on students' knowledge and use of EBP.

In the fourth category, *Envisaging the Use of EBP*, academics attempted to close the loop by envisaging students to use EBP in theory and practice. All participants facilitated

students to use evidence to inform their academic work. Undergraduate EBP education has mainly focused on skills development in the initial three steps of the EBP process such as asking clinical questions, finding evidence and appraising evidence. However, the last two steps involving applying evidence and evaluating the outcomes have received limited attention in global education (Finotto et al., 2013). Participant observations and interviews evidenced that some academics made the theory-practice link visible by providing practice examples where EBP could be applied, for instance, identifying and seeking solutions for patients' problems, patient education, and influencing practice change. Nevertheless, how these discussions improved students' uptake of EBP and their decision-making skills using the best available evidence were unknown to most academics. Many discussed practice setting barriers encountered by students when expected to apply EBP concepts to inform practice. They further highlighted theory-practice gap issues where students had limited opportunities and mentoring during clinical experiences to even think about EBP.

Studies have reported that students were able to apply EBP concepts in their academic work to a large extent, however were not supported by clinical facilities for its adoption due to barriers in the workplace (Florin et al., 2012; Smith-Strøm et al., 2012). Similarly, current study participants cited clinical barriers impeding EBP use by students and created obstacles for academics in their facilitation of EBP. Study results clearly explain contributing factors to the theory-practice gap which coincide with many studies addressing barriers to EBP implementation in clinical staff (Smith-Strøm et al., 2012; Llasus et al., 2014). Likewise, a study by Hung et al. (2015) found limited opportunities for students to apply evidence at the bedside, and lack of coordination between clinical and theoretical courses as key challenges faced by Taiwanese academics. The most daunting challenge to improving EBP uptake by students and nurses is the lack of support and appreciation for EBP by clinical settings (Smith-Strøm et al., 2012). This clearly impacts the degree to which students are provided with avenues

to bring learning into practice and hone their skills in application of EBP concepts. EBP courses were perceived as effective when students were provided with opportunities to embrace the learned concepts in clinical practice (Zelenikova et al., 2014). As nursing is a practice-based profession, it is essential that the art and science of nursing is intertwined, however challenges remain for nurse education globally to find ways to integrate theory and practice paradigms.

Creating strong partnerships between academic and clinical institutions may provide a solution to the long-standing issue of the theory-practice gap, indicated in nursing and allied health literature (Lin, Murphy & Robinson, 2010; Hankemeier & Van Lunen, 2011; Hung et al., 2015). Hence, academic and clinical settings should be open to such partnerships where a multidimensional EBP program incorporating EBP mentors, accessibility to resources, and development of a culture where nurses, students and academics can work collaboratively to promote EBP are established (Aitken et al., 2011). Considering the current study findings, for EBP to be fully operationalised, academic institutions must situate it in clinical contexts, and practice settings must provide opportunities for students to transfer classroom learning into clinical situations. Besides this, academic-clinical partnerships can be strengthened through initiatives such as faculty practice, jointly run clinical and academic projects, and dissemination of work through conferences, health fairs, journal clubs and published papers (Penington et al., 2010; Aitken et al., 2011).

There are examples identified in the literature which discuss collaborative EBP projects between students and clinical staff to provide students with real-life experiences to embrace the EBP process. Kruszewski et al. (2009) implemented a collaborative model for teaching EBP in a second-degree nursing program in one Michigan University, USA. Instructors from two courses namely 'Evidence-based practice' and 'Families across the lifespan' in which 24 students were enrolled, worked collaboratively to develop shared learning objectives. EBP activities were integrated across theoretical and practical elements of these courses. In

partnership with clinical nurses, students were involved in EBP projects and by incorporating the IOWA model of EBP, they identified priority clinical problems and designed practice protocols. Each student designed a poster and presented it to clinical staff. At the end of the project, instructors expressed increased satisfaction with students' knowledge and skills with EBP concepts. Students also showed great achievement in EBP competency, however low confidence in its practical implementation.

Another example in which EBP was integrated into a Bachelor of Science in Nursing program practicum in Korea was by Geum Oh et al. (2010). The goal of the practicum was to enhance students' competencies for EBP and expose them to the real world opportunities for its practice. During the project, each student was directed to conduct an individual and a group project. They were divided into groups of eight to 10, with two to four students allocated to one hospital unit. Using PICO, students employed the EBP process with individually assigned patients. Clinical facilitators and faculty members assisted students to complete their projects. Overall, the results were positive on EBP efficacy and in decreasing barriers for its utilisation. It is worth noting that the above projects were employed with small groups of students and teaching faculty were actively involved in each stage of the process. However, in the Australian context, the existing preceptorship model, large numbers of students enrolled in the BN programs, and limited involvement of university academics with clinical placements present additional challenges that warrant further investigation.

Collaboration between academic and practice settings continues to be a challenge and presents an area for further research (Chan, Chan, & Liu, 2012). Hung et al. (2015) reported that EBP education had started gaining attention in Taiwanese nursing schools, yet lack of comprehensive EBP training among teachers and difficulty teaching clinical application required further consideration. They recommended systematic curriculum design with multiple teaching strategies and linking with clinical practicum should be a way forward.

Teaching EBP by academics who are experienced practitioners and continue to be involved in practice can help students to connect the 'dots' and address practice credibility issues, raised by study participants (Grady, 2010). Social work literature has identified this as one of the key issues when academics teach EBP in the classroom without having buy-in from clinical educators. Students are likely to get confused between the practice taught by academics and practise in the clinical environments. An academic who is both researcher and practitioner can help bridge the gap from theoretical and experience perspectives (Berger, 2013). Sharing examples from their own clinical practice and becoming role models will set positive examples for students (Levin & Feldman, 2013). However, this can only be accomplished by including faculty practice as part of academics' workloads and offering incentives for participating in clinical research.

In response to the existing practice barriers, academics of the present study reported providing students with debriefing sessions and strived to instil positive hope among them regarding EBP. Literature suggests when students were engaged in reflection following clinical experiences, and were provided avenues to discuss practice-related problems reflecting patient cases, this resulted in increased confidence and competence in dealing with future clinical situations (Gaberson, Oermann & Shellenbarger, 2015). The content and context of post-clinical learning guides students with essential steps to manage similar future situations with confidence (Lea et al., 2015). Based on Kolb's experiential learning cycle, self-reflection on a particular experience attributes personal meaning to a situation and is an invaluable tool in promoting learning. Students who are encouraged to draw on their own experiences are more likely to further explore solutions and develop a deeper understanding of the phenomenon in multiple situations (Kolb, 2015).

Despite the initiatives, if such clinical barriers continue to exist, incorporating EBP into simulation where students could make practice-related decisions using EBP frameworks

will be highly effective (Chan et al., 2012). Re-designing assessments in both theoretical and clinical units reflecting students' abilities in making practice decisions within EBP frameworks was highly recommended by some study participants and is supported in the literature (Levin & Feldman, 2013; Gaberson et al., 2015). Current study findings indicate there is still much work to be done to maximise students' use of EBP across theory and practice. Although, theory and practice issues were evident in the findings and require strategies to overcome, faculty efforts in supporting students through the process and wanting to be a part of clinical practice are highly acknowledged.

The third and fourth categories discussed above, are embedded in the third transitional stage of the theory: *Moving ahead-Linking EBP theory to practice*. These categories are closely linked and are influenced by the first two categories. During the entire journey, academics moved between the three transitional stages, reflecting cyclical and recursive movements across their journeys. Therefore, the overarching process, *On a path to Success: Endeavouring to contextualise curricula within an EBP framework*, presents a conceptual framework for educators and generates new knowledge in building on and complementing existing literature by discussing activities undertaken by academics, and challenges faced during EBP integration. The visual presentation of this theory has potential to attract readers' attention and guide them through the key processes due to its comprehensive and detailed presentation. To date, no such study has been undertaken in the Australian context. Study findings and the constructed theory contribute to the existing literature, also generate new knowledge, guiding academic institutions across Australia and globally wanting to integrate EBP across their curricula. They also offer recommendations for education, practice and research discussed in the following sections.

8.3   Study Recommendations

With growing impetus for evidence-based practice across academic and clinical settings, our constructed theory is timely as it provides a framework for, and insight into, the practices of academics and challenges encountered during the process of EBP integration. This theory offers opportunities to identify ways in which these challenges could be addressed and strategies planned to overcome them. Recommendations arising from the study for education, clinical practice and research are discussed next.

8.3.1   Recommendations for Education

Academics' engagement and commitment with EBP were closely associated with meanings they created around understanding it and seeing the value of its implementation. This has clear implications for nurse education and gives rise to a number of recommendations. With limited understanding and knowledge of EBP, inclusion of these concepts into teaching practices is unlikely and may lead to poor preparation of students for EBP adoption. It is strongly recommended that academic leadership identify teaching staff educational needs in EBP knowledge and skills, and provide resources to meet these needs on continuing basis. Literature suggests that improved knowledge leads to enhanced attitudes, skills and practice of EBP (Melnyk et al., 2008). Commitment can be demonstrated by the individual school through inclusion of EBP in the school's mission and philosophy, managing faculty workload, allocation of time to include EBP into curricula, provision of resources, and identification and appointment of faculty EBP mentors, may assist in targeting challenges that hindered faculty engagement with EBP. Individual schools need to ensure that teaching staff are well prepared in EBP before imparting the essential concepts to students.

In relation to the teaching of EBP and research units, there is a need for curricula revision that involves restructuring research units within an EBP context. Undergraduate education should aim to prepare students as active evidence users, who are able to drive practice change based on research evidence. If standalone units are required, evidence-based practice units aiming to instil awareness of research methodologies as a sub-set of its process, is suggested. Literature demonstrates that teaching research from evidence-based perspectives leads to enhanced student satisfaction and assists them to articulate the concepts well to their practice (Meeker et al., 2008). Besides this, thoughtful decisions should be made before delivering these units solely online. A blended approach with interactive teaching approaches may engage students meaningfully and meet current needs of contemporary learners. Therefore, equipping teaching staff with current technology and mentoring with its optimal use is imperative.

Integrating EBP concepts across theoretical and clinical units was found to be challenging and an intensive task to achieve. Support from school, academic collegiality, workload management, accessibility to mentors in curricula design and implementation, and continuing education opportunities to combat the identified barriers are vital. Organisational culture and priorities are integral in achieving fully integrated curricula, without such a work culture, regardless of how committed academics are towards EBP integration, eventually motivation and dedication towards accomplishing their goals will be lost.

With increasing need to prepare undergraduate nurses within an EBP paradigm, it is essential that EBP is woven into the fabric of the entire degree curricula and not restricted to one or a few selected courses or units. Learners should be exposed to every single course demonstrating this commitment and not fragmented learning episodes. This will only be possible if academics, and academic settings in which they are employed, make this a priority and have infrastructure in place. Additionally, providing such opportunities for unit

coordinators to work together to examine where and how EBP needs to be integrated is essential. Furthermore, having accessibility to curriculum design mentors for novice academics, and for those struggling with EBP integration across curricula, may prove an effective strategy. One study participant reported appointment of a few senior academics to examine integration within their school, which may work for other institutions if gathering unit coordinators is problematic. Moreover, an obligation also rests with the Australian Nursing and Midwifery Accreditation Council (ANMAC) to carefully assess and evaluate the undergraduate programs, whether they comply with the accreditation standards criteria for incorporating research and EBP in program content and delivery, and how this is actually enacted.

Although academics' efforts of including EBP in their teaching units by employing a variety of pedagogical approaches reflect their endeavours, those activities vary considerably. As the activities were highly influenced by teachers' passions for EBP, engagement and understanding of its concepts, there needs to be some consistency around their approaches. EBP concepts are new to undergraduate students and in absence of consistent real-world approaches, linking between theory to practice will become cumbersome for students. Being unaware of effective teaching methods, limited resources to implement active and tested teaching strategies, heavy workloads and limited time were raised by study participants, which might have contributed to the issue of varying teaching practices.

These findings create a call for educational institutions to allow time and resources for educators to search for and implement interactive teaching approaches. Additionally, providing opportunities to collaborate with academics who have been actively involved with innovative pedagogical approaches to make EBP practically focused for students can assist. Offering incentives to teaching staff who successfully engage students in their units by using interactive teaching approaches can work as a facilitator. With contemporary learners, it is paramount that

faculty members are aware of evidence-based teaching methods that engage students, particularly around topic areas associated with negative student evaluations and are considered challenging for students to apply in practice. Designing such approaches that facilitate use of evidence, both in theory and practice, will develop life-long EBP practitioners.

Findings of this study indicate that participants expected students to use evidence in theory by designing activities that prompted students to search for evidence, critically appraise the evidence and apply it in their academic work. However, these did not provide evidence of students' decision-making skills using the EBP framework, which is the heart of EBP. Academic activities can create awareness of the EBP process but may not necessarily prepare them to make decisions until linked to clinical situations. Therefore, some academics emphasised modifying academic and clinical assignments to assess students' abilities in clinical reasoning and decision-making skills. Designing teaching methods that prompt students to ask focused clinical questions, find relevant evidence, critically appraise the evidence instead of critiquing research papers, and apply evidence using virtual simulation and real patient settings will ensure students are ready to make evidence-based decisions for their patients. However, to make this goal a reality, EBP education must be contextualised and integrated across courses.

Restructuring undergraduate curricula in a manner that numbers of hours devoted to teaching practical aspects of EBP are increased, is recommended. Although implementation of EBP takes years and is highly influenced by barriers, modification of students' assessments and incorporation of EBP projects can be successfully initiated. Some study participants were able to relate the EBP concepts with practice situations and envisaged students applying the concepts during their clinical experiences. However, whether students were able to integrate key principles of practice was unknown to the participants, in response they raised a number of issues such as practice barriers, theory-practice gap and limited credibility in practice

settings. In line with the challenges raised, minimising the theory-practice gap by creating partnerships between academic and practice settings is recommended in global literature (Chan et al., 2012). Collaborative partnerships must be established and strengthened to offer nursing students and practising nurses' prospects to undertake collaborative EBP projects. There are examples (Kruszewski et al., 2009; Geum Oh et al., 2010) discussed earlier around how this could be operationalised to provide real-life experience to students and staff who are novices to EBP. The notion of joint appointments between academics and practitioners is a way to move forward to achieving desirable outcomes in EBP integration across both theory and practice. Continuing education opportunities for students, clinical staff and academics in EBP implementation, and providing avenues for academics, students and clinical nurses to work hand in hand will ensure future nurses are ready to work within an EBP paradigm.

Opportunities for EBP mentorship and faculty clinical practice need to be initiated for academics to enhance their practice credibility. Mutual efforts between academics, clinical staff and students in adopting EBP in patient care has potential to improve patient outcomes, and will eventually assist in minimising theory-practice gap issues. These recommendations will remain on paper without having clear vision and support by leadership in both academic and practice settings. EBP instruction becomes relevant and meaningful for students when presented in clinical contexts, therefore undergraduate students deserve this commitment from academics and institutions to make this as their utmost priority.

8.3.2   Recommendations for Clinical Practice

Advancement of EBP has become a priority for many healthcare organisations in the last few years, aiming to influence patient care outcomes, therefore healthcare professionals including nurses are mandated to be skilled in EBP process and competency (Williams et al., 2015).

Consistent with previous literature exploring barriers to EBP (Majid et al., 2011, Malik et al., 2016), current study participants also raised issues within clinical settings which ultimately hindered academics' facilitation of EBP use and students' practise of it.

In order to improve EBP intake by clinicians, assessment of organisational readiness and cultural acceptance is crucial. Sufficient resources within the organisation, adequate support for staff and inclusion of EBP as the underpinning philosophy will reflect a vision and priority of the organisation. In addition, accessibility to EBP mentors is an essential strategy to sustain EBP. Providing opportunities to foster passionate clinical staff to step up and act as EBP promotors will positively support other staff members to pursue EBP. Appointing joint EBP mentors across both academic and clinical facilities has potential to facilitate successful integration of EBP across curricula and practice areas. Furthermore, identifying training needs in EBP education and organising EBP skills building workshops on a regular basis for clinical staff are paramount, which has potential to motivate staff to bring practice changes based on EBP principles. When staff are positive and willing to use EBP, most likely students will be challenged and provided with avenues to apply these concepts to improve patient outcomes. Academics strived to prepare students with EBP knowledge and skills, however without such support at practice level, this becomes purely an academic exercise and leads to further widening of the gap.

In order to narrow the theory-practice gap raised in the current study findings, collaborative research projects between clinical staff and academics, faculty clinical practice, and joint appointments are highly encouraged. Faculty clinical practice with involvement in direct patient care, clinical research with staff and supervision of students at clinical venues can be highly beneficial for both the settings. This needs to be factored into faculty workloads and professional development objectives. Additionally, joint appointments between academic and practice settings will provide avenues for academics to be engaged in practice-based

research and create awareness of practice issues. Simultaneously, this approach will be highly useful for clinicians to be able to influence curriculum design and its delivery across both the settings. Eventually, these initiatives will enable students to witness that the two arms of nursing are closely connected, and this will positively influence their future practice.

8.3.3 Recommendations for Future Research

Results from the current study raise several potential areas for additional research:

1. Academics' knowledge, skills and attitudes to EBP need to be further examined using valid research tools. There is a paucity of knowledge available regarding academics' perceptions of EBP. Determining appropriate strategies informed by the results of further studies is suggested.

2. Future research may include more detailed and specific exploration of educational barriers to implementing EBP. In particular, it would be valuable to examine the effectiveness of educational programs and other strategies offered by educational institutions in minimising identified obstacles.

3. Research and EBP education play an important role in preparing students to be EBP practitioners. Yet, how these units can engage students in better ways and impact on students' uptake of EBP presents an area for essential research.

4. With regards to school-wide integration of EBP, action research implementing the essential steps to integrate EBP across curricula would be advantageous. Examining the outcomes of this initiative will guide institutions to plan strategically.

5. Appointment of faculty EBP mentors influencing curricula design and delivery is recommended, however its practical implementation requires further investigation.

6. This study's findings recommended provision of resources and education of teaching staff in the use of innovative teaching strategies. Future research may determine success and effectiveness of instructional methods on students' engagement with EBP courses. Furthermore, comparisons between traditional versus interactive approaches will offer valuable insights into best teaching methods.

7. Educational research examining effective and engaging methods of teaching EBP is limited in health disciplines. Therefore, research investigating the influence of EBP instruction on students' use of EBP as clinicians, influencing patient outcomes will be highly valuable.

8. A recommendation to establish academia-practice partnerships arose out of this study's findings. There is a need to explore how such partnerships can be developed and strengthened, and whether this improves uptake of EBP by clinical nurses and students.

9. Many participants suggested inclusion of faculty practice in workloads, however it is worth examining how this can become a part of academics' job descriptions and formalised by clinical facilities.

10. Students' perceptions of practice readiness in the paradigm of EBP presents an important area of future exploration. Besides this, the extent to which clinical nurses are ready to mentor students in the use of EBP will provide insights into nurses' preparation in EBP and will invite organisations to take necessary actions.

11. There is a paucity of literature focusing on collaborative projects between staff and nursing students in advancing EBP concepts. Further investigation into how these projects can be initiated influencing practice outcomes is recommended.

12. Participant observations revealed valuable insights into teaching content and delivery methods, however these were time restricted and only a limited number of participants

consented to be observed. Additional observational studies can aid in understanding the processes to its full length.

13. The constructed theory and study findings present an Australian context, hence further studies are needed to test the theory in the global context.

8.4 Study Limitations

Although the current study aimed to identify and explore how nurse academics embedded EBP in teaching and learning practices, it has several limitations. Being a qualitative study gives rise to an issue that findings are applicable to the participants and the contexts in which the study took place. The constructed theory as an outcome of the study can be verified but is not necessarily replicable. However, the emergent theory offers a valuable framework for explaining similar phenomena which can be used to improve teaching practices of academics endeavouring to embed EBP principles in undergraduate curricula and may have resonance more broadly. Additionally, the self-reporting of data may also be a limitation as it is assumed that all participants were truthful in their responses.

As evidence-based practice is introduced across various disciplines, inter-professional research exploring how EBP concepts have been taught and integrated in curricula would be highly beneficial. Hence, the current study was limited as the researcher investigated this phenomenon only from nursing perspectives.

Another limitation relates to the study participants. As participation in the study was voluntary, it is possible that academics who were either passionate or possessed negative thoughts about the study topic expressed interest to participate. Hence, the work may not

necessarily reflect all perspectives. However, the strong point of this study was recruitment of participants across Australia from a range of educational settings, therefore the theory provides a valuable reference for academics working across educational settings.

Although the process of data collection including conducting interviews, observations, writing field notes, memoing, and examining unit guides provided rich sources of data, there were time constraints faced particularly when participants preferred to be interviewed before the university semester started. Interstate participants preferred telephone interviews. Though every effort was made by the researcher to have clear voice and minimum interruptions, there were moments when interruptions were observed and could not be avoided, which interfered with the flow of interview and reduced the interview length. In addition, a smaller number of participants consented to be observed during teaching of undergraduate students. This method of data collection added valuable understandings, but was restricted to a maximum of two hours at a time. More extensive observations, particularly in relation to having conversations with colleagues, and attending team meetings may have extended insights into processes.

The final limitation was in relation to gaining perceptions of students and nurses as end-users of EBP process and outcomes. The perceptions discussed in this study were shared by academics, however students' perceptions are also required to gain valuable insights into processes they undertake to adopt EBP principles in theory and clinical practice. Similarly, how clinical staff mentor nursing students in the use of EBP would have given firsthand information on the process and barriers encountered by them. Further research could investigate processes from students' and staff nurses' perspectives.

8.5 Conclusion

This chapter has presented a discussion of the constructed theory grounded in data, and its related categories and transitional stages in light of the global literature. Recommendations for education, research and practice are addressed, inviting academic and practice settings to make evidence-based practice their utmost priority by providing avenues for academics to incorporate this fully in their teaching practices. Limitations discussed in the chapter provide insights into some areas which presented challenges for researchers from a methodological perspective. In recent years, EBP has become a foundational component of health professionals' practice globally. Healthcare professions are required to embed EBP concepts within their educational standards and programs, aiming to develop evidence-based practitioners. Undergraduate education is an ideal venue for inclusion of EBP concepts. Establishing the goals of EBP inclusion in curricula, using engaging teaching methods to foster student learning and providing practice opportunities for students will enable solidifying EBP as a necessary component of undergraduate degree programs. The next chapter concludes the thesis by summarising the study findings and discussing the evaluation criteria used to establish the trustworthiness of the constructed theory.

Chapter Nine: Conclusion

9.1 Introduction

A constructivist grounded theory approach enabled the researcher to explore the following research questions, introduced initially in chapter one:

1. What processes occur as nurse academics undertake to incorporate evidence-based practice into their teaching practices?

2. What teaching and learning strategies do academics employ to teach EBP?

3. How is evidence-based practice integrated in undergraduate nursing curricula**?**

In this closing chapter, discussion will focus on a brief summary of findings and the criteria used to evaluate the constructed theory.

9.2 The Study

Grounded theory, underpinned by symbolic interactionism, was identified as a suitable methodology to address the aims of the study. It is paramount that nurses are prepared in undergraduate programs with essential EBP competencies to inform practice decisions. Their preparation heavily relies on academics who are influential in curricula design and its implementation, therefore how they incorporate EBP into their teaching practices presents a central problem which participants encountered in their roles as academics. The core social process which nurse academics utilised to deal with this problem is conceptualised as "*On a path to success: Endeavouring to contextualise curricula within an EBP framework*" which is apparent in three sub-processes;

1. Embarking on a journey-Being prepared

2. Encountering challenges

3. Moving ahead-Linking EBP theory to practice

The constructed theory elucidates a core process utilised by all participants and offers understanding of participants' actions and processes, as a response to the central problem. The theoretical model is unique and provides a comprehensive overview of activities academics engaged with, when considering to integrate EBP in teaching and learning practices. This theory is considered substantive in nature, as it constructed from investigating a phenomenon in a particular context and also reveals the contextual conditions which were influential in the process. Study findings and the constructed theory generate new knowledge in the nursing literature, particularly in the context of EBP teaching in nurse education.

9.3 Evaluating the Grounded Theory

The constructivist approach proposed by Charmaz (2006; 2014) places emphasis on the application of evaluative criteria in accordance with the purpose and context of the study. Charmaz simplifies the process by proposing four criteria, which comprise: credibility (logical and conceptual grounding), originality (significance of the study), resonance (offers meaning and scope for all those for whom it may be relevant) and usefulness (knowledge development and practical application). Evaluating the study's quality using these criteria accounts for an empirical study which is logical in its approach.

9.3.1 Credibility

In grounded theory studies, credibility can be established through prolonged engagement with participants, gathering data from a variety of sources (triangulation), checking with each

participant for the accuracy of interview transcripts, and ensuring the emerging concepts and categories reflect participants experiences (member checking) (Morrow, 2005). Use of audit trails during analysis of data, engagement with memo writing, negative case analysis, and peer debriefing are some other strategies applicable to evaluate if study findings and developed theory are credible (Bowen, 2009).

Credibility in the current study was achieved in several ways. Firstly, by using a variety of data collection methods, the developed categories represented processes, actions and meanings constructed mutually by participants and the researcher. Corbin and Strauss (2008) suggest that during analysis researcher needs to be sure that categories are fully saturated and are compared against alternative explanations. In the present study, data collection and analysis continued until categories and their properties were fully explored and saturated to ensure the theory reflected all views. Variations within data were also explored and further explanations were sought, which pointed towards the contextual factors that accounted for these varied opinions and actions. As participants were recruited from a range of educational settings, working in varying levels from lecturer to associate professor or/professor levels, the theory has given insight into the research phenomenon from varying perspectives.

Credibility was also achieved by concurrent data collection and analysis. Moving back and forth in the analysis to make constant comparisons of data enhanced credibility of findings. Strong links were made between each category and interpretations were discussed with study supervisors. In addition, by using participants' own words to guide the reader through the themes and to show how conclusions were reached demonstrated credibility of the theory. As the researcher has been involved with teaching into a BN program, reflexivity was integral in ensuring the findings did not reflect the researcher's assumptions and biases. Immersion in data by reading and analysing interview transcripts repeatedly, writing field notes, maintaining a reflective diary and engaging in extensive memo writing allowed the researcher to

acknowledge her own assumptions and ensured that preconceived ideas were not imposed on the findings. Furthermore, participants were asked to check their interview transcripts to ensure the accuracy of ideas, and regular debriefing with study supervisors ensured the findings were credible.

Finally, credibility was also enhanced by using theoretical sampling and constant comparative analysis technique. Categories were constantly compared with codes and data, ensuring they were correctly interpreted participants' experiences and meanings they assigned to them. In addition, an audit trail was maintained by keeping accurate records on theoretical and methodological decisions regarding developed categories and the constructed theory. This will allow future researchers to follow or replicate the process.

9.3.2 Originality

With regard to applying 'originality' as a criteria to evaluate a grounded theory research, Charmaz (2006) asks these questions: Are your categories fresh? Do they offer new insights? How does your grounded theory challenge, extend, or refine current ideas, concepts and practices? (Charmaz, 2006, p. 182). The notion of evidence-based practice in nursing has gained attention over the last few decades. There is a plethora of literature available exploring this area from clinicians' perspectives and recommending healthcare settings provide infrastructure to initiate EBP in clinical settings. Although, the available literature clearly identifies the significant role nurse education can play in preparing clinicians to adopt EBP to inform practice, how nursing schools have integrated the framework of EBP in their degree programs has not been fully explored. In addition, the essential role of academics in embedding EBP concepts in their teaching practices and challenges they encounter offers a unique body of knowledge, which required examination. Hence, recruiting participants from a range of

educational settings and not confining the study to one university, allowed the researcher to explore the viewpoints of many participants across Australia who were prepared and passionate about EBP, and also those individuals who were not.

The categories and the theoretical construct extend current understandings in the existing body of knowledge, and contribute to the new knowledge in the paradigm of EBP. The theory clearly demonstrates academics' understanding of and engagement with EBP, and their efforts in achieving fully contextualised curricula using an EBP framework across both theory and practice. Nevertheless, variations were noted in data, which were further explored using theoretical sampling and explained through the influence of contextual conditions. Although the theory cannot be generalised, it does provide a framework for explaining processes common for most academics who endeavour to attain fully integrated curricula. This theory highlights key issues for education and practice to consider strategies targeting towards minimising the problems and empowering academics with sufficient resources and further education. Thus, the study contributes significantly to the existing body of knowledge and meets the criteria of originality.

9.3.3 Resonance

The developed theory resonates participants' experiences, and the meanings they assigned to the processes they undertook to embed EBP into undergraduate teaching. Having knowledge of the processes will have an impact upon the way EBP is integrated into nurse education. According to Charmaz (2006), grounded theory researchers are required to evaluate whether categories portray the fullness of the phenomenon and are linked to the broader context. Charmaz also highlights the grounded theory should make sense to participants and offer insights in their worlds. Keeping in mind this essential criteria, care was taken to ensure that

the findings were close to the words of participants by continuously referring back to the transcripts, listening to audio-recordings and using in-vivo coding. Member checking is also a useful strategy in qualitative research to establish whether study findings and constructed theory resonates to what participants have shared. This strategy was used to evaluate if findings resonated participants' true accounts of experiences by initially sending them the transcripts to check the accuracy of ideas. When the categories were fully saturated and the theory was constructed, participants were approached to assess if the interpretation of theory reflected their experiences. A couple of participants commented:

> *This process is so true, reflecting our day-to-day struggles of preparing our students to be EBP clinicians. I am glad that somebody has looked into this (Theresa).*

> *Surely, every academic embarks on a journey fulfilling their teaching and research roles, but I am quite amazed how the categories are so closely linked telling a story of an academic trying to incorporate EBP. I never thought of this way! (Melissa).*

Returning back to participants with abstracted theory is useful to determine if the theory is grounded in data and is broadly applicable to a variety of discipline specific context. This further helps to identify weakness in the theory and requires further data collection or in-depth analysis. Charmaz (2014) considers that credibility and originality spawn resonance and usefulness. The above comments from participants clearly meet the criteria of credibility, originality and resonance while offering new insights to participants in their experiences. Furthermore, discussion embedded in each finding chapter and overall discussion and recommendations link to the broader context in education and practice. This also reveals that

the theory is not only relevant to nursing's body of knowledge, but equally to other allied health disciplines.

9.3.4 Usefulness

The criteria to evaluate 'usefulness' of the theory requires a careful study of literature within and beyond disciplines and how the constructed theory is positioned within (Charmaz, 2006). Hence, the constructed theory in the present study does not only contribute to the body of knowledge, but it is practical and provides insights into academics' endeavour to embed EBP into their teaching practices. This theory highlights many issues within each category for education and practice settings to consider, and also generates ideas for further research in nursing and other disciplines. Recommendations for education, practice and research are outlined in chapter eight and have been presented at national and international conferences during the candidature.

Within the existing literature, where individual studies direct how EBP is incorporated into a school's curriculum and into academics' teaching practices, this theory and the related theoretical model offer a comprehensive and broad range of processes and activities, academics embrace when considering incorporation of EBP into undergraduate nurse education. Thus, this theory demonstrates its 'usefulness' by generating new knowledge within the existing literature.

9.4 Concluding Remarks

This final chapter provided a synopsis of the study, outlined the study aim, and brings the thesis to a conclusion. The purpose of the study was to investigate processes that academics undertake when considering incorporation of EBP into undergraduate curricula. In doing so, the study has identified a core process conceptualised as, "*On a path to success: Endeavouring to contextualise curricula within an EBP framework"* a substantive theory. This core process clearly demonstrates that academics strived for achieving fully integrated curricula, linking theory to practice. This process will most likely to succeed with the improvement of contextual conditions requiring supportive strategies to be in place. As clinicians strive to provide the best healthcare outcomes for patients and families, well-educated and informed clinicians who are well-equipped with essentials tools of EBP can pursue this aspiration and enhance the effectiveness of the discipline through evidence-informed patient care.

References

Abbott, C.A., Dremsa, T., Stewart, D.W., Mark, D.D. & Caren, C. (2006). Adoption of a ventilator-associated pneumonia clinical practice guideline. *Worldviews on Evidence-Based Nursing*, 3(4), 139-152.

Adib-Hajbaghery, M. (2007). Factors facilitating and inhabiting evidence-based nursing in Iran. *Journal of Advanced Nursing,* 58(6), 566-575.

Aglen, B. (2016). Pedagogical strategies to teach bachelor students evidence-based practice: A systematic review. *Nurse Education Today,* 36, 255-263.

Aitken, L. M., Hackwood, B., Crouch, S., Clayton, S., West, N., Carney, D., & Jack, L. (2011). Creating an environment to implement and sustain evidence based practice: A developmental process. *Australian Critical Care,* 24(4), 244-254.

Al Hadid, L. A., & Al Barmawi, M. (2012). Factors Influencing the Adoption of Principles of Evidence-Based Principles in nursing education: A Jordanian Perspective. *Journal of Nursing Education and Practice,* 2(2), 71-79.

Al Hadid, L.A., Hasheesh, M.A., & Al Momani, M. (2011). Validating a tool that explores factors influencing the adoption of principles of evidence-based practice. *Journal of Nursing Education,* 50(12), 681-687.

Amato, S., Kerber, K., Yurko, L., & Mion, L. C. (2009). Evidence-based nursing. Your role in hardwiring EBP strategies. *Nursing Management,* 40(6), 13-15. doi:10.1097/01.NUMA.0000356627.80469.ef

André, B., Aune, A. G., & Brænd, J. A. (2016). Embedding evidence-based practice among nursing undergraduates: Results from a pilot study. *Nurse Education in Practice, 18*, 30-35. doi:http://dx.doi.org/10.1016/j.nepr.2016.03.004

Andre,K., & Barnes, L. (2010). Creating a 21st century nursing work force: designing a Bachelor of Nursing program in response to the health reform agenda. *Nurse Education Today*, 30, 268-263.

Annells, M. (1996). Grounded theory method: Philosophical perspectives, paradigm of inquiry and postmodernism. *Qualitative Health Research*, 6, 379-393.

Annells, M. (1997a). Grounded theory method, Part I: Within the five moments of qualitative research: *Nursing Inquiry*, 4(2), 120-129.

Annells, M. (1997b). Grounded theory method, part II: options for users of the method. *Nursing Inquiry*, 4(3), 176-180.

Australian Commission on Safety and Quality in Health Care (2010). Australian Safety and Quality Framework for Health Care. Retrieved from https://www.safetyandquality.gov.au/wp-content/uploads/2012/01/32296-Australian-SandQ-Framework1.pdf

Australian Health Practitioner Regulation Agency [AHPRA]. (2010). *Media release from AHPRA regarding 2010 graduates.* Retrieved from http://www.ahpra.gov.au/Registration/2010- Graduates.aspx

Australian Health Practitioner Regulation Agency [AHPRA]. (2016). *Who we are.* Retrieved from http://www.ahpra.gov.au/About-AHPRA/Who-We-Are.aspx

Australian National Health and Medical Research Council. (2007). *Australian Code for the Responsible Conduct of Research.* Retrieved from https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/r39_australian_code_responsible_conduct_research_150107.pdf

Australian Nursing and Midwifery Accreditation Council. (2012). *About ANMAC.* Retrieved from http://www.anmac.org.au/about-anmac/about [Accessed; Mar 2015]

Australian Nursing and Midwifery Accreditation Council. (2012). *Registered Nurse Accreditation Standards.* Available from http://www.anmac.org.au/accreditation-standards

Australian Nursing and Midwifery Accreditation Council. (2016). *About ANMAC.* [Online]. Available from http://www.anmac.org.au/about

Australian Nursing and Midwifery Council [ANMC]. (2009). *Registered nurses standards and criteria for the accreditation of nursing and midwifery courses leading to registration, enrolment, endorsement and authorisation in Australia with evidence guide*, Retrieved from http:// www. Nursingmidwiferyboard.gov.au/accreditation.aspx

Badger, F., Daly, W., & Clifford, C. (2012). Educating tomorrow's clinical researchers: A review of research preparation in undergraduate education. *Nurse Education Today, 32* (7), 737-43.

Baker, C., Wuest, J., & Stern, P.N. (1992). Method Slurring: The grounded theory/ phenomenology example. *Journal of Advanced Nursing*, 17, 1355-1360.

Banning, M. (2005). Conceptions of evidence, evidence-based medicine, evidence-based practice and their use in nursing: independent nurse prescribers' views. *Journal of Clinical Nursing*, 14, 411-417.

Barako, T.D., Chege, M., Wakasiaka, S., & Omondi, L. (2012). Factors influencing application of evidence-based practice among nurses. *African Journal of Midwifery and Women's Health, 6*(2), 71-77.

Barker, J. (2013). *Evidence-based Practice for Nurses* (2nd ed.). London: SAGE.

Beke-Harrigan,H., Hess,R. & Weinland, J.A. (2008). A survey of registered nurses' readiness for evidence-based practice: a multidisciplinary project. *Journal of Hospital Librarianship,* 8(4), 440-448.

Berger, R. (2013). Incorporating EBP in field education: where we stand and what we need. *Journal of Evidence-based Social work*, 10(2), 127-135.

Beyea, S.C., & Slattery, M.J. (2013). Historical perspectives on Evidence-based Nursing. *Nursing Science Quarterly*, 26(2), 152-155.

Billings, D.M. & Kowalski, K. (2006). Bridging the theory gap with evidence-based practice. *The Journal of Continuing Education in Nursing*, 37(6), 248-249.

Birks, M., & Mills, J. (2011). *Grounded theory: A Practical Guide*. London: SAGE Publications.

Birks, M., Chapman, Y., & Francis, K. (2006a). Moving grounded theory into the 21st century: Part 1- an Evolutionary tale. *Singapore Nursing journal*, 33(4), 4-10.

Birks, M., Chapman, Y., & Francis, K. (2006b). Moving grounded theory into the 21st century: part 2- mapping the footprints. *Singapore Nursing Journal*, 33(4), 12-17.

Bishop, K.B. (2007). Utilisation of the Stetler model: evaluating the scientific evidence on screening for postpartum depression risk factors in a primary care setting. *Kentucky Nurse*, 55 (1), 7.

Blaikie, N. (1993). *Approaches to Social Enquiry*. Cambridge, UK: Polity Press.

Bloom, K., Olinzock, B., Radjenovic, D., & Trice, L. (2013). Leveling EBP content for undergraduate nursing students. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing,* 29(4), 217-24.

Blumer, H. (1969). *Symbolic Interaction*. Prentice Hall: Englewood Cliffs.

Bonner, A. & Sando, J. (2008). Examining the knowledge, attitude and use of research by nurses. *Journal of Nursing Management*, 16, 334-343.

Bowen, G.A. (2009) Supporting a Grounded Theory with an Audit Trail: An Illustration. *International Journal of Social Research Methodology*, 12(4), 305 - 316.

Bradshaw, M., & Lowenstein, A. J. (2011). *Innovative Teaching Strategies in Nursing and Related Health Professions* (5th ed.). Sudbury, Mass: Jones and Bartlett.

Bradshaw, M., & Lowenstein, A. J. (2014). *Innovative Teaching Strategies in Nursing and Related Health Professions* (6th ed.). Burlington, MA: Jones & Bartlett Learning.

Brady, M. S. P. R. N. (2010). Healthy Nursing Academic Work Environments. *Online Journal of Issues in Nursing,* 15(1), 10-11A.

Brancato, V.C. (2006). An innovative clinical practicum to teach evidence-based practice. *Nurse Educator*, 31(5), 195-199.

Breimaier,H. E., Halfens,R.J.G., & Lohrmann,C. (2011). Nurses' wishes, knowledge, attitudes and perceived barriers on implementing research findings into practice among graduate nurses in Austria. *Journal of Clinical Nursing,* 20, 1744-1756.

Brooke, J., Hvalič-Touzery, S., & Skela-Savič, B. (2015). Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today,* 35(7), e6-e11. doi:10.1016/j.nedt.2015.02.026

Brown, C.E., Kim, S.C., Stichler, J.F., & Fields, W. (2010). Predictors of knowledge, attitudes, use and future use of EBP practice among baccalaureate nursing students at two universities. *Nurse Education Today*, 30, 521-527.

Brown, C.E., Wickline, M.A., Ecoff, L. & Glaser, D. (2008). Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical centre. *Journal of Advanced Nursing,* 65(2), 371-381.

Bryant, A. (2003). A constructive/ist response to Glaser. *FQS: Forum for Qualitative Social Research*, 4 (1). Retrieved from *www.qualitative-research.net/fqs/-texte/1-03/1-03bryant-e.htm*

Bryant, A., & Charmaz, K. (2007). Introduction to Grounded Theory research: methods and practices. In Bryant A, Charmaz K (Eds). *The Sage Handbook of Grounded Theory*. London: SAGE Publications.

Bryant, A. & Charmaz, K. (2010). Introduction to Grounded Theory Research: Methods and Practices. In A. Bryant & K. Charmaz (Eds.), *The Sage Handbook of Grounded Theory*. London: SAGE Publications.

Bryman, A. (2001). *Social Research Methods*. Oxford: Oxford University Press.

Burgess, R. (1984). In the field: An introduction to field research. *Contemporary Social Research Series*: 8. London: Boston: Allen & Unwin.

Burke, L.E., Schlenk, E.A., Sereika, S.M. Cohen, S.M., Happ, M.B., & Dorman, J.S. (2005). Developing research competence to support evidence-based practice. *Journal of Professional Nursing*, 21, 348-363.

Burns, H.K. & Foley, S.M. (2005). Building a foundation for an evidence-based approach to practice: teaching basic concepts to undergraduate freshman students. *Journal of Professional Nursing,* 351-357.

Burns, N., Grove, S. K., & Gray, J. (2011). *Understanding Nursing Research: Building an Evidence-based Practice* (5th ed.). Maryland Heights, MO: Elsevier/Saunders.

Cadmus, E., VanWynen, E.A., Chamberlain, B., Steingall, P., Kilgallen, M.E., Holly, C. & Gallagher-Ford, L. (2008). Nurses' skill level and access to evidence-based practice. *Journal of Nursing Administration*, 38(11), 494-503.

Callister, L., Matsumura,G., lookinland, S., Mangum,S. & Loucks, C. (2005). Inquiry in baccalaureate nursing education: fostering evidence-based practice. *Journal of Nursing Education,* 44(2), 59-64.

Canadian Nurses Association (2004). *Joint position statement: educational preparation for entry to practice*. Canadian Nurses Association, Ottawa. Retrieved from https://www.cna-aiic.ca/en

Carlson, C.L. & Plonczynski, D. J. (2008). Has the BARRIERS scale changes nursing practices? An integrated review. *Journal of Advanced Nursing*, 63(4), 322-333.

Carnevale, F.A., MacDonald, M.E., Bluebond-Langner & Mckeever,P. (2008). Using participant observation in pediatric health care settings: ethical challenges and solutions. *Journal of Child Health Care*, 12(1), 18-32.

Chaboyer, W., Willman, A., Johnson, P., & Stockhausen, L. (2004). Embedding evidence-based practice in a nursing curriculum: A benchmarking project. *Nurse Education in Practice,* 4, 216-223.

Chan, E. A., Chan, K., & Liu, Y. W. J. (2012). A triadic interplay between academics, practitioners and students in the nursing theory and practice dialectic. *Journal of Advanced Nursing,* 68(5), 1038-1049. doi:10.1111/j.1365-2648.2011.05808.x

Charmaz, K. (1994). Identity dilemmas of chronically ill men. *Sociological Quarterly*, 35, 269–288. doi:10.1111/j.1533-8525.1994.tb00410.x

Charmaz, K. (2000). Grounded theory: objectivist and constructivist methods. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 509-535). Thousands-Oaks, CA: SAGE.

Charmaz, K. (2005). Grounded theory in the 21st century: A qualitative method for advancing social justice research. In N. Denzin & Y. Lincoln (Eds), *Handbook of Qualitative Research* (pp. 507-535). Thousand Oaks, CA: SAGE.

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis.* Los Angeles: SAGE Publications LTD.

Charmaz,K. (2008a). A future of symbolic interactionism. In N. K. Denzin (Eds.), *Studies in Symbolic Interaction* (pp. 51-59). Bingley,W. Yorks: Emerald.

Charmaz, K. (2008b). Constructionism and grounded theory. In J.A. Holstein & J.F.Gubrium (Eds.), *Handbook of Constructionist Research* (pp. 319-412). New York: Guilford.

Charmaz, K. (2009). Shifting the grounds: Constructivist Grounded theory Methods. In J.M. Morse, P.N. Stern, J. Corbin, B. Bowers, K. Charmaz & A. Clarke (Eds.), *Developing Grounded Theory: The Second Generation*. Walnut Creek: Left Coast Press Inc.

Charmaz, K. (2011). Grounded theory methods in social justice. In N.K. Denzin & Y.E. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 359-380). Thousand Oaks, CA: SAGE.

Charmaz, K. (2014). *Constructing Grounded Theory*. (2nd ed.) Los Angeles: SAGE Publications.

Charmaz, K. & Belgrave, L. (2012). Qualitative Interviewing and grounded theory analysis. In J.F. Gubrium, J.A. Holstein, A. Marvasti & K.M. Marvasti (Eds.), *Handbook of Interview Research* (pp. 347-365). Thousand Oaks, CA: SAGE.

Chenitz, W.C. & Swanson, J.M. (1986). Qualitative Research using Grounded theory. In W.C. Chenitz & J.M. Swanson (Eds.), *From Practice to Grounded Theory*. Melno Park: Addison-Wesley.

Christie, J., Hamill, C., & Power, J. (2012). How can we maximize nursing students' learning about research evidence and utilization in undergraduate, preregistration programmes? A discussion paper. *Journal of Advanced Nursing, 68*(12), 2789-2801. doi: 10.1111/j.1365-2648.2012.05994.x

Christie, W., & Moore, C. (2005). The impact of humor on patients with cancer. *Clinical Journal of Oncology Nursing*, 9(2), 211-218.

Ciliska, D. (2006). Evidence-based nursing: how far have we come? What's next? *Evidence-Based Nursing, 9*, 38-40.

Cleary-Holdforth, J. Leufer, T. (2008). Essential elements in developing evidence-based practice. *Nursing Standard*, 23(2), 42-46.

Coomarasamy, A., & Khan, S.K. (2004). What is the evidence that postgraduate teaching in evidence-based medicine changes anything? A systematic review. *British Medical Journal*, 329, 1-5.

Cooney, A. (2010). Choosing between Glaser and Strauss; an example. *Nurse Researcher*, 17 (4), 18-28.

Corbetta, P. (2003). *Social Research: Theory, Methods and Techniques*. London: SAGE Publications.

Corbin, J. & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures.* (3rd ed.). Thousand Oaks, California: Sage publications, Inc.

Creswell, J.W. (2009). *Research Design: Qualitative, Quantitative and Mixed Method Approaches.* (3rd ed). Los Angeles: SAGE Publications Ltd.

Creswell, J.W. (2007). *Qualitative Inquiry & Research Design: Choosing among Five Approaches.* (2nd ed). Thousand Oaks: SAGE Publications.

Cullum, N., Ciliska, D., Haynes, R.B., & Marks, S. (2008). *Evidence-based Nursing: An Introduction.* Blackwell Publishing, RCN Publishing Company & BMJI Journals.

Cutcliff, J.R. (2000). Methodological Issues in Grounded theory. *Journal of Advanced Nursing,* 31(6), 1476-1484.

Cutcliff, J. R. (2005). Adapt or adopt: developing and transgressing the methodological boundaries of grounded theory. *Journal of Advanced Nursing*, 51, 421–428. doi:10.1111/j.1365-2648.2005.03514.x

Dawley, K., Bloch, J.R., Suplee, P.D., McKeever, A., & Scherzer, G. (2011). Using a pedagogical approach to integrate evidence-based teaching in an undergraduate Women's health course. *Worldviews on Evidence-Based Nursing*, 116-123.

de Cordova, P. B., Collins, S., Peppard, L., Currie, L. M., Hughes, R., Walsh, M., & Stone, P. W. (2008). Implementing evidence-based nursing with student nurses and clinicians: uniting the strengths. *Applied Nursing Research,* 21(4), 242-245.

DeBruyn, R. R., Ochoa-Marín, S. C., Semenic, S. (2014). Barriers and facilitators to evidence-based nursing in Colombia: Perspectives of nurse educators, nurse researchers and graduate students/Barreras y facilitadores en la práctica de la Enfermería Basada en la Evidencia en Medellín, Colombia. *Investigación y Educación en Enfermería,* 32(1), 9-21.

Denscombe, M. (2010). *The Good Research Guide*. (4th ed.) London: Open University Press.

Denzin, N.K., & Lincoln, Y.S. (1994). *Handbook of Qualitative Research:* Thousand Oaks, CA: SAGE publications.

Denzin, N. K., & Lincoln, Y. S. (2005). *The SAGE Handbook of Qualitative Research* (3rd ed.). Thousand Oaks, CA: SAGE Publications.

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage Handbook of Qualitative Research* (4th ed.). Thousand Oaks: SAGE Publications.

Department of Education Employment and Workplace Relations (DEEWR). (2009). *All Students Enrolled in Course for Initial Registration as Nurses By State, Higher Education Provider, Mode Of Attendance, Type Of Attendance And Gender, Full Year 2009,* http://www.deewr.gov.au/HigherEducation/Publications/HEStatistics/Publications/Pages/2009FullYear.aspx

Dicenso, A., Guyatt, G.,& Ciliska, D. (2005). *Evidence-based Nursing: A Guide to Clinical Practice.* St Louis: Elsevier Mosby.

Dotson, B. J., Lewis, L. S., Aucoin, J. W., Murray, S., Chapin, D., & Walters, P. (2015). Teaching evidence-based practice (EBP) across a four-semester nursing curriculum. *Teaching and Learning in Nursing,* 10(4), 176-180. doi:http://dx.doi.org/10.1016/j.teln.2015.05.004

Driscoll, M.P. (2005). *Psychology of Learning for Instruction* (3rd ed.). Boston: Pearson.

Eizenberg, M.M. (2010). Implementation of evidence-based nursing practice: nurses' personal and professional factors? *Journal of Advanced Nursing*, 67(1), 33-42.

Emerson, R.J. & Records, K. (2008). Today's challenge, tomorrow's excellence: the practice of evidence-based education. *Journal of Nursing Education*, 47(8), 359-370.

Emanuel, V. Day, K., Diegnan, L., & Pryce-Miller, M. (2011). Developing evidence-based practice among students. *Nursing Times,* 107(49-50), 21-23.

English, R. (2015). Evidence-based Teaching Tactics for Frontline Staff Using the Clinical Nurse Scholar Model. *The Journal for Nurse Practitioners*, 12(1), e1 - e5.

Enuku, C.A. & Adeyemo, F.O. (2014). Knowledge, Beliefs and teaching strategies of evidence-based practice among nurse educators/ lecturers in nursing institutions in Benin City, Edo State, Nigeria. *International Journal of Collaborative Research on Internal Medicine & Public Health,* 6(1), 1-10.

Fassinger (2005). Paradigms, praxis, problems and promise: Grounded theory in counselling psychology research. *Journal of Counselling Psychology*, 52(2), 156-166.

Fernandez,W.D. (2004). Using the Glaserian approach in grounded studies of emerging business practices. *Electronic Journal of Business Research Methods*, 2(2), 83-94.

Fineout-Overholt, E., & Johnston, L. (2006). Teaching EBP: implementation of evidence: moving from evidence to action. *Worldviews on Evidence-Based Nursing,* 3(4), 194-200.

Fineout-Overholt, E., Melnyk, B., & Schultz, A. (2005). Transforming health care from the inside out: Advancing evidence-based practice in the 21st century. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing,* 21(6), 335-44.

Fineout-Overholt, E., Stillwell, S. B., & Kent, B. (2008). Teaching EBP through problem-based learning. *Worldviews on Evidence-Based Nursing,* 5(4), 205-207.

Fineout-Overholt, E. & Johnston, L. (2005). Teaching EBP: A challenge for educators in the 21st century. *Worldview on Evidence Based Nursing*, 2(1), 37-39.

Fineout-Overholt,E. (2013). Outcome evaluation for programs teaching EBP. In R.F. Levin & H.R. Feldman (Eds.), *Teaching Evidence-based Practice in Nursing* (pp. 205-224). New York, NY: Springer.

Finotto, S., Carpanoni, M., Turroni, E. C., Camellini, R., & Mecugni, D. (2013). Teaching evidence-based practice: Developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice,* 13(5), 459-465. doi:http://dx.doi.org/10.1016/j.nepr.2013.03.021

Florin, J., Ehrenberg, A., Wallin, L., & Gustavsson, P. (2012). Educational support for research utilization and capability beliefs regarding evidence-based practice skills: A national survey of senior nursing students. *Journal of Advanced Nursing,* 68(4), 888-897.

Franklin, P., Rowland,E., Fox., & Nicolson, P. (2012). Research ethics in accessing hospital staff and securing informed consent. *Qualitative Health Research*, 22(12), 1727-1738.

Gaberson, K., Oermann, M. H., & Shellenbarger, T. (2015). *Clinical Teaching Strategies in Nursing* (4th ed.). New York: Springer Publishing Company, LLC.

Gerrish, K., Ashworth, P., Lacey, A., Bailey, J. (2008). Developing evidence-based practice: experiences of senior and junior clinical nurses. *Journal of Advanced Nursing*, 62(1), 62-73.

Geum Oh, E., Kin, S., Kim, S. S., Kim, S., Cho, E.Y., Yoo, J., Kim, H.S., L.J.H., You , M.A.,& Lee, H. (2010). Integrating Evidence-Based Practice into RN-BSN Clinical Nursing education. *Journal of Nursing Education*, 49(7), 387-392.

Glaser, B. G. (1978). *Theoretical sensitivity: Advances in the Methodology of Grounded Theory*. Mill Valley, CA: Sociology press.

Glaser, B. G. (1992). *Basics of Grounded Theory Analysis: Emergence vs Forcing*. Mill Valley, CA: Sociology Press.

Glaser, B. (1998). *Doing Grounded Theory: Issues and Discussions*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (2002). Constructivist grounded theory? *Forum Qualitative Social Research,* 3(3), Article retrieved from http://www.qualitative-research.net/fqs-texte/3-02/3-02glaser-e.htm

Glaser, B. (2005). *The Grounded Theory Perspective III. Theoretical Coding*. Mill Valley, CA: Sociology Press.

Glaser, B. (2008) *Doing Quantitative Grounded Theory*. Mill Valley, CA: Sociology Press.

Glaser, B.G., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research.* Chicago: Aldine.

Gold, R. (1958). Roles in Sociological Field Observation. *Social Forces,* 36(3), 217–223.

Grady, M.D. (2010). The missing link: The role of social work schools and evidence-based practice. *Journal of Evidence-based Social Work*, 7, 400-411.

Graneheim,U.H. & Lundman,B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105-12.

Graue, M., Bjarky, R., Iversen, M.M., Hausstvedt, A., & Harris J. (2010). Integrating evidence-based practice into diabetes nurse curriculum in Bergen. *European Diabetes Nursing*, 7(1), 10-15.

Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). London: SAGE.

Hagler, D., Mays, M., Stillwell, S., Kastenbaum, B., Brooks, R., Fineout-Overholt, E., . . . Jirsak, J. (2012). Preparing Clinical Preceptors to Support Nursing Students in Evidence-Based Practice. *The Journal of Continuing Education in Nursing,* 43(11), 502-8.

Hadley, J., Kulier, R., Zamora,J., Coppus,S.F., Weinbrenner,S., Meyerrose,B., & Khan,K.S. (2010). Effectiveness of an e-learning course in evidence-based medicine for foundation (internship) training. *Journal of Social Medicine*, 103(7), 288-294.

Haigh, C. (2009). Embracing the theory/practice gap. *Journal of Clinical Nursing*, 18(1), 1- 2.

Halabi, J., & Hamdan-Mansour, A. (2010). Attitudes of Jordanian nursing students towards nursing research. *Journal of Research in Nursing,* 17(4), 363-373.

Halcomb, E. J., & Peters, K. (2009). Nursing student feedback on undergraduate research education: implications for teaching and learning. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 33(1), 59-68. doi:10.5172/conu.33.1.59

Hamilton, D. (1994). Traditions, preferences, and postures in applied qualitative research. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 60-69). Thousand Oaks: SAGE Publications Ltd.

Hankemeier, D. A., & Van Lunen, B. L. (2011). Approved Clinical Instructors' Perspectives on Implementation Strategies in Evidence-Based Practice for Athletic Training Students. *Journal of Athletic Training (National Athletic Trainers' Association),* 46(6), 655-664.

Harrison, A. (2010). Using observations of care in nursing research: a discussion of methodological issues. *Journal of Nursing in Research*, 16(4), 377-387.

Health Workforce Australia (2012). *Health Workforce 2025- Doctors, Nurses and Midwives, Health Workforce Australia (HWA) Annual report 2009-2010.* Retrieved from http://www.health.gov.au/workforce.

Heath, P. (2002). *National Review of Nursing Education 2002: Our Duty of Care*. Canberra: Commonwealth of Australia. Retrieved from http://hdl.voced.edu.au/10707/121105

Heath, H., & Cowley, S. (2004). Developing a grounded theory approach: A comparison of Glaser and Strauss. *International Journal of Nursing Studies*, 41, 141-150.

Heath. P. (2001). *National Review of Nursing Education: Discussion Paper*. Commonwealth of Australia, Canberra. Retrieved from http://www.dest.gov.au/archive/highered/nursing/pubs/discussion/default.htm

Heye, M., & Stevens, K. (2009). Educational Innovations. Using new resources to teach evidence-based practice. *Journal of Nursing Education*, 48(6), 334-339.

Holland, K., & Rees, Colin. (2010). *Nursing: Evidence-based Practice Skills* (1st ed.). New York: Oxford University Press.

Holloway, I., & Biley, F. (2011). Being a qualitative researcher. *Qualitative Health Research,* 21(7), 968-75.

Holloway, I. (2005). *Qualitative Research in Health Care*. UK: Open University Press.

Holloway, I., & Wheeler, S. (2010). *Qualitative Research in Nursing and Healthcare*. (3rd ed). London: Wiley-Blackwell.

Holloway, I., & Wheeler, S. (1996). *Qualitative Research for Nurses*. London: Blackwell Science Ltd.

Holloway, I., & Wheeler, S. (2002). *Qualitative Research in Nursing*. (2nd ed). London: Blackwell Science Ltd.

Holstein, J.A.J.G. (2000). *The Self We Live By: Narrative Identity in a Postmodern World.* New York: Oxford University Press.

Honess, C., Gallant, P., & Keane, K. (2009). The Clinical Scholar Model: Evidence-Based Practice at the Bedside. *Nursing Clinics of North America,* 44(1), 117-130. doi:http://dx.doi.org/10.1016/j.cnur.2008.10.004

Hopp, L., & Rittenmeyer, L. (2012). *Introduction to Evidence-Based Practice: A Practical Guide for Nursing.* Philadelphia: F.A. Davis Company.

Howard, M. O., Allen-Meares, P., & Ruffalo, M. C. (2007) Teaching evidence-based practice: strategic and pedagogical recommendations for schools of social work. *Research on Social Work Practice* 17(5), 561-568 568p. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=jlh&AN=105908379&site=e host-live

Hung, H.-Y., Huang, Y.-F., Tsai, J.-J., & Chang, Y.-J. (2015). Current state of evidence-based practice education for undergraduate nursing students in Taiwan: A questionnaire study. *Nurse Education Today,* 35(12), 1262-1267. doi:http://dx.doi.org/10.1016/j.nedt.2015.05.001

Hussein,A.H.M., & Hussein,R.G. (2014). Nursing educators' knowledge, skills in evidence-based practice and their critical thinking skills: Self-reported study. *Journal of Education and Practice,* 5(27), 86-94.

Hutchinson, A.M. & Johnston, L. (2006). Beyond the BARRIERS Scale commonly reported barriers to research use. *Journal of Nursing Administration*, 36(4), 189-199.

Hutchinson, S.A. (1993). Grounded theory: the method. In P.L. Munhall & C. Oiler Boyd (Eds.), *Nursing Research: A Qualitative Perspective*. New York: National League for Nursing Press.

Institute of Medicine. (2003). *Health Professions Education: A Bridge to Quality*. Washington DC: National Academies Press. Retrieved from http://www.iom.edu

Institute of Medicine. (2010). *The Future of Nursing: Focus on Education-A Brief Report*. Retrieved from http:// www.iom.edu/nursing

International Council of Nurses (ICN). (2009). *Reducing the Gap and Improving the Interface Between Education and Service: A Framework for Analysis and Solution Generation*. http://www.icn.ch/images/stories/documents/publications/free_publications/reducing_ the_rap.pdf

Joanna Briggs institute. (2016). *The JBI Approach*. Accessed from http://joannabriggs.org/jbi-approach.html

Johnson, N., List-Ivankovic, J., Eboh, W. O., Ireland, J., Adams, D., Mowatt, E., & Martindale, S. (2010). Research and evidence based practice: Using a blended approach to teaching and learning in undergraduate nurse education. *Nurse Education in Practice,* 10(1), 43-47. doi:http://dx.doi.org/10.1016/j.nepr.2009.03.012

Johnston, L. & Fineout-Overholt, E. (2006). Teaching EBP: The critical step of critically appraising the literature. *Worldviews on Evidence-Based Nursing*, 3(1), 44-46.

Kaiser, K. (2009). Protecting respondent confidentiality in qualitative research. *Qualitative Health Research*, 19(11), 1632-1641.

Kalb, K. A., O'Conner-Von, S. K., Brockway, C., Rierson, C. L., & Sendelbach, S. (2015). Evidence-Based Teaching Practice in Nursing Education: Faculty Perspectives and Practices. *Nursing Education Perspectives,* 36(4), 212-219. doi:10.5480/14-1472

Kendall, J. (1999). Axial coding and the grounded theory controversy. *Western Journal of Nursing Research*, 21(6), 743-757.

Koehn, M. & Lehman, K., (2008). Nurses' perceptions of evidence-based nursing practice. *Journal of Advanced Nursing,* 62(2), 209-215.

Kolb, D. A. (2015). *Experiential Learning: Experiences as the Source of Learning and Development*. (2nd ed.). New Jersey: Pearson Education, Inc.

Kowal, C.D. (2010). Implementing the critical care pain observation tool using the Iowa model. *Journal of New York State Nurses Association*, 41(1), 4-10.

Krugman, M. (2003). Evidence-based practice: The role of staff development. *Journal for Nurses in Staff Development,* 19(6), 279-285. doi: 10.1097/00124645-200311000-00003

Kruszewski, A., Brough, E., & Killeen, M.B. (2009). Collaborative strategies for teaching evidence-based practice in Accelerated Second-Degree Programs. *Journal of Nursing Education,* 48(6), 340-342.

Kumar, S., Perraton, L. & Machotka, Z. (2010). Development and implementation of an online hybrid model for teaching evidence-based practice to health professions: processes and outcomes from an Australian experience. *Advances in Medical Education and Practice,* 1, 1-9.

Kvale, S. & Brinkmann, S. (2009). *Interviews: Learning the Craft of Qualitative Research Interviewing*. (2nd ed.) Thousand Oaks: SAGE Publications.

Larmin, B.H. & Varner, L.W. (2011). The integration of evidence-based practice and research utilization in associate degree nursing curriculum: An approach at Mississippi University for women. *Teaching and Learning in Nursing*, 6, 167-171.

Larrabee, J.H. (2009). *Nurse to Nurse Evidence-Based Practice.* New York: McGraw Hill Medical.

Lea, E., Marlow, A., Bramble, M., Andrews, S., Eccleston, C., McInerney, F., & Robinson, A. (2015). Improving student nurses' aged care understandings through a supported placement. *International Nursing Review*, 62(1), 28-35 8p. doi:10.1111/inr.12156

Leach, M. J., Hofmeyer, A., & Bobridge, A. (2016). The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: a descriptive longitudinal survey. *Journal of Clinical Nursing,* 25(1-2), 194-203. doi:10.1111/jocn.13103

Lenz, B.K. & Barnard, P. (2009). Advancing evidence-based practice in rural nursing. *Journal for Nurses in Staff Development,* 25(1), E 14- E 19.

Levin, R., & Feldman, H.R. (2013). *Teaching Evidence-Based Practice in Nursing* (2nd ed.). New York: Springer Publishers.

Levin, R.F., & Feldman, H. R. (2006a). *Teaching Evidence-Based Practice in Nursing: A Guide for Academic and Clinical Settings*. New York: Springer Publishing Company.

Levin, R.F. & Feldman, H.R. (2006b). Teaching evidence-based practice: starting with learner. *Research and Theory for Nursing Practice: An International Journal*, 20(4), 269-272.

Lin, Susan H., Murphy, Susan L., & Robinson, Jennifer C. (2010). Facilitating evidence-based practice: Process, strategies, and resources. *AJOT: American Journal of Occupational Therapy,* 64(1), 164.

Lincoln, YS. & Guba, E.G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Llasus, L., Angosta, A. D., & Clark, M. (2014). Graduating Baccalaureate Students' Evidence-Based Practice Knowledge, Readiness, and Implementation. *Journal of Nursing Education,* 53, S82-89. doi:10.3928/01484834-20140806-05

Lomborg, K., & Kirkevold, M. (2003). Truth and validity in grounded theory- a reconsidered realist interpretation of the criteria: fit, work, relevance and modifiability. *Nursing Philosophy*, 4, 189-200.

MacDonald, M., & Schreiber, R. (2001). Constructing and deconstructing: Grounded theory in a postmodern world. In R.S. Schreiber & P.N. Stern (Eds.), *Using Grounded Theory in Nursing* (pp.35-54). New York: Springer.

Majid, S., Foo, S., Luyt, B., Zhang, X., Theng, Y., Chang, Y., & Mokhtar, I.A. (2011). Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge and barriers. *Journal of Medical Library Association*, 99, 229-236.

Malik, G., McKenna, L., & Plummer, V. (2015a). Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. *International Journal of Nursing Practice,* 21, 46-57.

Malik, G., McKenna, L., & Griffiths, D. (2015b). An analysis of evidence-based practice curriculum integration in Australian undergraduate nursing programs. *GSTF Journal of Nursing and Health Care*, 3(1), 158-164.

Malik, G., McKenna, L., & Plummer, V. (2016). Facilitators and barriers to evidence-based practice: perceptions of nurse educators, clinical coaches and nurse specialists from a descriptive study. *Contemporary Nurse*, doi: 10.1080/10376178.2016.1188017

Manspeaker, S.A. & Van Lunen, B. (2010). Implementation of evidence-based practice concepts in undergraduate Athletic Training Education: Experiences of select educators. *Athletic Training Education Journal*, 5(2), 51-60.

McCann, T., & Clark, E. (2003a). Grounded theory in nursing research; part 2- Critique. *Nurse Researcher*, 11(2), 19-28.

McCann, T., & Clark, E. (2003b). Grounded theory in nursing research: Part 1- methodology. *Nurse Researcher,* 11(2), 7-18.

McCurry, M.K. & Martins, D.C. (2010). Teaching undergraduate Nursing Research: A comparison of traditional and innovative approaches for success with Millennial Learners. *Journal of Nursing Education*, 49(5), 276-279.

Mclnerney, P., & Suleman, F. (2010). Exploring Knowledge, Attitudes and Barriers toward the use of evidence-based practice amongst academic Health care Practitioners in their teaching in a South African university: A Pilot Study. *Worldviews on Evidence-Based Nursing,* 7(2), 90-97.

Mead, G.H. (1934). *Mind, Self, and Society*. Chicago, IL: The University of Chicago Press.

Meeker, M.A., Jones, J.M., & Flanagan, N.A. (2008). Teaching undergraduate nursing research from an evidence-based practice perspective. *Journal of Nursing Education*, 47, 376-379.

Melender, H.-L., Mattila, H.-L., & Häggman-Laitila, A. (2016). A systematic review on educational interventions for learning and implementing evidence-based practice in nursing education: The state of evidence. *Nordic Journal of Nursing Research,* 36(1), 3-12 10p. doi:10.1177/0107408315595161

Melia, K.M. (1996). Rediscovering Glaser. *Qualitative Health Research,* 6(3), 368-378.

Melnyk, B.M., & Fineout-Overholt, E. (2011*). Evidence-Based Practice in Nursing & Health Care: A Guide to Best Practice*. (2nd ed.). Philadelphia: Lippincott Williams & Wilkins.

Melnyk, B., & Fineout-Overholt, E. (2015). *Evidence-based Practice in Nursing and Healthcare: A Guide to Best Practice* (3rd ed.). Philadelphia: Wolters Kluwer.

Melnyk, B. M., Fineout-Overholt, E., Feinstein, N. F., Sadler, L. S., & Green-Hernandez, C. (2008). Nurse practitioner educators' perceived knowledge, beliefs, and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs. *Journal of Professional Nursing,* 24(1), 7-13.

Melnyk, B., Fineout-Overholt, E., Giggleman, M., & Cruz, R. (2010). Correlates among cognitive beliefs, EBP implementation, organizational culture, and cohesion and job satisfaction in evidence-based practice mentors from a community hospital system. *Nursing Outlook*, 58(6), 301.

Melnyk, B.M. & Morrison-Beedy, D. (2012*). Setting the Stage for Intervention Research: The 'So What' What Exists and What's Next Factors. A Practical Guide for Success*. New York: Springer Publishing.

Melnyk,B., Gallagher-Ford,L., & Fineout-Overholt,E. (2016). *Implementing the Evidence-Based Practice Competencies in Healthcare: A Practical Guide for Improving Quality, Safety and Outcomes*. Indianapolis: Sigma Theta Tau International.

Merriam, S.B. (2009). *Qualitative Research: A Guide to Design and Implementation*. San Francisco, CA: Jossey-Bass.

Miller, F.A. & Alvarado, K. (2005). Incorporating documents into qualitative nursing research. *Journal of Nursing Scholarship,* 37(4), 348-353.

Milliken,P.j. & Schreiber,S.R. (2001). Can you do grounded theory without symbolic interactionism? In R.S. Schreiber & P.N. Stern. (Eds). *Using Grounded Theory in Nursing*. (pp. 1-15). New York: Springer Publishing Company.

Mills, J., Bonner,A., & Francis,K. (2006). The development of constructivist grounded theory. *International Journal of Qualitative Methods*, 5(1), 1-10.

Mills, J., Bonner, A., & Francis, K. (2007). Grounded theory: A methodological spiral from positivism to postmodernism. *Journal of Advanced Nursing*, 58(1), 72-79.

Milton-Wildey, K., Kenny, P., Parmenter, G. & Hall, J. (2014). Educational preparation for clinical nursing: the satisfaction of students and new graduates from two Australian universities. *Nurse Education Today*, 34, 648-654.

Missal,B., Schafer,B.K., Halm,M.A., & Schaffer,M.A. (2010). A university and health care organization partnership to prepare nurses for evidence-based practice. *Journal of Nursing Education,* 49(8), 456-461.

Mitchell, S.A., Fisher, C.A., Hastings, C.E., Silverman, L.B. & Wallen, D. R. (2010). A thematic analysis of theoretical models for translational science in nursing: mapping the field. *Nursing Outlook*, 58(6), 287-300.

Moch, S., Cronje, R.J., & Branson, J. (2010). Part I. Undergraduate nursing evidence-based practice education: envisioning the role of students. *Journal of Professional Nursing,* 26(1), 5-13.

Moch, S.D., Cronje, R.J., Branson, J. Crowley, K., Brandt, C., & Bonnel, W. (2008). Evidence-based practice teaching/ learning: Toward an integrated model. *Midwest Nursing Research Society Conference, Indianapoli*s.

Moch, S.D. & Cronje, R.J. (2010). Part II. Empowering grassroots evidence-based practice: A curricular model to foster undergraduate student- enabled practice change. *Journal of Professional Nursing,* 26(1), 14-22.

Mohide, E., & King. (2003). Building a foundation for evidence-based practice: experiences in a tertiary hospital. *Evidence Based Nursing,* 6, 100-103.

Moore, J. (2010). Classic grounded theory; a framework for contemporary application. *Nurse Researcher,* 17(4), 41- 48.

Morrow, S.L. (2005). Quality and trustworthiness in qualitative research in counseling psychology. *Journal of Counselling Psychology*, 25(2), 250-260.

Morse, J. (2001). Situating grounded theory within qualitative inquiry. In R.S. Schreiber & P. N. Stern (eds.), *Using Grounded Theory in Nursing*. New York: Springer.

Morse, J. (2000). Determining sample size. *Qualitative Health Research*, 10(1), 3-5.

Morse, J. M., & Richards, L. (2002). *Read Me First for a User's Guide to Qualitative Methods*. Thousand Oaks, CA: SAGE Publications.

Morse, J.M., Stern, P.N., Corbin, J., Bowers, B., Charmaz, K., & Clarke, A.E. (2009). *Developing Grounded Theory: The Second Generation.* Walnut Creek, CA: Left Coast
` Press.

Moxham, L. (2010). Nurse education, research and evidence-based practice. In B. Audrey & B. Kozier & G.L. Erb (Eds.), *Kozier and Erb's Fundamentals of Nursing*. French Forest NSW: Pearson.

Munhall, A. (2003). In the field: notes on observation in qualitative research. *Journal of Advanced Nursing*, 41(3), 306-313.

Munhall, P. (2007). *Nursing Research: A Qualitative Perspective*. (4th ed). Boston: Jones and Bartlett Publishers.

Nadelson, S., & Nadelson, L. S. (2014). Evidence-Based Practice Article Reviews Using CASP Tools: A Method for Teaching EBP. *Worldviews on Evidence-Based Nursing,* 11(5), 344-346 343p. doi:10.1111/wvn.12059

Newhouse, R., Dearholt, S., Poe, S., Pugh, L. & White, K. (2005). Evidence- based practice. *Journal of Nursing Administration,* 35(1), 35-40.

Newhouse, R.P., Dearholt, S.L. Poe, S.S., Pugh, L.C. & White, K.M. (2007). *Johns Hopkins Nursing Evidence-Based Practice: Model and Guidelines*. Indianapolis: Sigma Theta Tau International.

NHS Public Health Resource Unit. (2002). *What is Evidence-Based Healthcare: Critical Appraisal Skills Programme (CASP).* London: IBT Global UK.

Nursing and Midwifery Board of Australia. (2006). *National Competency Standards for the Registered Nurse.* Retrieved from http:// www. Nursingmidwiferyboard.gov.au

Nursing and Midwifery Board of Australia. (2007). *A National Framework for the Development of Decision-Making Tools for Nursing and Midwifery Practice*. Retrieved from http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines- Statements/Professional-standards.aspx

Nursing and Midwifery Board of Australia. (2008). *Code of Ethics for Nurses in Australia.* Retrieved from http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines- Statements/Professional-standards.aspx

Nursing and Midwifery Board of Australia. (2008). *Codes of Professional Conduct.* Retrieved from http:// www.nursingmidwiferyboard.gov.au/Codes-Guidelines- Statements/Professional-standards.aspxNursingmidwiferyboard.gov.au

Nursing and Midwifery Board of Australia (2016a). *Registered Nurse Standards for Practice*. http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines- Statements/Professional-standards.aspx

Nursing and Midwifery Board of Australia. (2016b). *Functions of the Board*. Retrieved from http://www.nursingmidwiferyboard.gov.au/About.aspx

Oxford University Press. (2010). *Oxford English Dictionary*. Oxford, New York: Oxford University Press.

Ozdemir, L., & Akdemir, N. (2009). Turkish nurses' utilization of research evidence in clinical practice and influencing factors. *International Nursing Review*, 56(3), 319-325.

Patter Gale, B.V& Schaffer, M.A. (2009). Organizational readiness for evidence-based practice. *The Journal of Nursing Administration*, 39(2), 91-97.

Pearson, A., Wiechula, R., Court, A., & Lockwood, C. (2005). The JBI model of evidence-based healthcare. *International Journal of Evidence Based Healthcare*, 3(8), 207-215.

Pennington, K., Moscatel, S., Dacar, S., Johnson, C. (2010). EBP partnerships: building bridges between education and practice. *Nursing Management* 41(4), 19-23. doi:10.1097/01.NUMA.0000370873.25348.ec.

Pepler, C., Frisch, S., Rennick, J., Swidzinski, M., White, C., Brown, T. & Gross, J. (2006). Strategies to increase Research- based Practice Interplay with unit culture *Clinical Nurse Specialist,* 20(1), 23-31.

Phillips, J. M., & Cullen, D. (2014). Improving the Adoption of Evidence-Based Practice through RN-to-BSN Education. *Journal of Continuing Education in Nursing,* 45(10), 467-472. doi:10.3928/00220124-20140916-02

Polit, D., & Beck, C. T. (2010). *Essentials of Nursing Research: Appraising Evidence for Nursing Practice* (7th ed.). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Polit, D.E., Beck, C, T. (2006). *Essentials of Nursing Research*. (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

Pravikoff, D.S., Pierce,S.T. & Tanner, A. (2005). Evidence-based practice readiness study supported by academy nursing informatics expert panel. *Nursing Outlook*, 53(1), 49-50.

Prior, L. (2008). Repositioning documents in social research. *Sociology*, 42(5), 821-836.

Ralph, N., Birks, M. & Chapman, Y. (2014). Contextual positioning: using documents as extant data in grounded theory research. *SAGE Open*, 1-7.

Rennie, D. L. (2000). Grounded theory methodology as methodical hermeneutics: Reconciling realism and relativism. *Theory & Psychology,* 10, 481–502. doi:10.1177/0959354300104003

Rickbeil, P., & Simones, J. (2012). Overcoming barriers to implementing evidence-based practice: a collaboration between academics and practice. *Journal for Nurses in Staff Development,* 28(2), 53-56. doi: 10.1097/nnd.0b013e31824b4141

Roberts, D., & Ousey, K. (2011). Finding and using evidence in academic assignments: the bane of student life. *Nurse Education in Practice*, 11, 333-340.

Robinson, B., & Dearmon, V. (2013). Evidence-based nursing education: Effective use of instructional design and simulated learning environments to enhance knowledge transfer in undergraduate nursing students. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing,* 29(4), 203-9.

Rolfe, G., Segrott, J., & Jordan, S. (2008). Tensions and contradictions in nurses' perspectives of evidence-based practice. *Journal of Nursing Management,* 16(4), 440-451.

Rosswurm, M.A & Larrabee, J. (1999). A model for change to evidence-based practice. *Image: The Journal of Nursing Scholarship,* 31(4), 317-322.

Rudman, A., Gustavsson, P., Ehrenberg, A., Boström, A.-M., & Wallin, L. (2012). Registered nurses' evidence-based practice: A longitudinal study of the first five years after graduation. *International Journal of Nursing Studies,* 49(12), 1494-1504 1411. doi:10.1016/j.ijnurstu.2012.07.007

Ruskjer, B. (2010). A real-world experience to engage students in evidence-based practice. *Journal of Nursing Education*, 49(11), 660.

Ryan, E. J. (2016). Undergraduate nursing students' attitudes and use of research and evidence-based practice - an integrative literature review. *Journal of Clinical Nursing,* 25(11/12), 1548-1556. doi:10.1111/jocn.13229

Rycroft-Malone, J. (2008). Leadership and the Use of Evidence in Practice. *Worldviews on Evidence-Based Nursing*, 5, 1–2. doi:10.1111/j.1741-6787.2008.00111.x

Rycroft-Malone, J., Seers, K., Titchen, A., Harvey, G., Kitson, A. & McCormack, B. (2004). What counts as evidence in evidence-based practice? *Journal of Advanced Nursing*, 47 (1), 81-90.

Sackett, D.L., Rosenberg, W., Gray, J.A.M., Haynes, R.B. & Richardson, W.S. (1996). Evidence-based medicine: What is it and what it isn't? *British Medical Journal*, 312, 71-72.

Sackett, D.L., Rosenberg, W., Gray, J.A.M. & Haynes, R.B. (1997). *Evidence-Based Medicine: How to Practice and Teach EBM*. Edinburgh: Churchill Livingstone.

Sackett, D. (2000). *Evidence-Based Medicine: How to Practice and Teach EBM.* (2nd ed.). Edinburgh: Churchill Livingstone.

Saunders, H., & Vehviläinen-Julkunen, K. (2016). The state of readiness for evidence-based practice among nurses: An integrative review. *International Journal of Nursing Studies, 56*, 128-140. doi:http://dx.doi.org/10.1016/j.ijnurstu.2015.10.018

Schaffer, M.A., Sandau, K.E. & Diedrick, L. (2012). Evidence-based practice models for organisational change: overview and practical applications. *Journal of Advanced Nursing*, 69(5), 1197-1209.

Schmidt, N. A., & Brown, J. M. (2007). Use of the innovation-decision process teaching strategy to promote evidence-based practice. *Journal of Professional Nursing, 23(3)*, 150-156.

Schmidt, N.A. (2008). Evidence-based practice in the nursing curriculum: Ponderings on design and implementation. *Annual Review of Nursing Education*, 6, 237-254.

Schmidt, N.A., & Brown, J.M. (2009). *Evidence-Based Practice for Nurses: Appraisal and Application of Research.* Philadelphia: Jones & Barlette.

Schneider, Z., Whitehead, D., LoBiondo-Wood, G. & Haber, J. (2013). *Nursing and Midwifery Research: Methods and Appraisal for Evidence-Based Practice*. (4th ed.). Sydney: Mosby Elsevier.

Schreiber, R. (2001). New directions in grounded formal theory. In R.S. Schreiber & P. N. Stern (Eds.), *Using Grounded Theory in Nursing* (pp. 227-246). New York, NY: Springer.

Schreiber, R.S. & Stern,P.N. (2001). *Using Grounded Theory in Nursing*. New York: Springer Publishing Company.

Scott, P. J., Altenburger, P. A., & Kean, J. (2011). A Collaborative Teaching Strategy for Enhancing Learning of Evidence-based Clinical Decision-making. *Journal of Allied Health, 40(3)*, 120-127.

Scott, K. & McSherry, R. (2008). Evidence-based nursing: clarifying the concepts for nurses in practice. *Journal of Clinical Nursing*, 18, 1085-1095.

Scott, K., & McSherry, R. (2009). Evidence-based nursing: Clarifying the concepts for nurses in practice. *Journal of Clinical Nursing, 18(8)*, 1085-1095.

Searle, J. (1995). *The Construction of Social Reality*. New York: The free Press.

Sellers, T. & Deans, C. (1999). Nurse education in Australian universities in a period of change: expectation of nurse academics for the year 2005. *Nurse Education Today, 19(1)*, 53-61.

Shaneyfelt, T., Baum, K. D., Bell, D., Feldstein, D., Houston, T. K., Kaatz, S. Green, M. (2006). Instruments for evaluating education in evidence-based practice: a systematic review. *JAMA: Journal of the American Medical Association, 296(9)*, 1116-1192.

Shaw, I. (2008). Ethics and the practice of qualitative research. *Qualitative Social Work*, 7(4), 400-414.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information,* 22(2), 63-75.

Shivnan, J. C. (2011). How do you support your staff? Promote EBP. *Nursing Management (Springhouse),* 42(2), 12-14.

Singleton, J. & Levin, R. (2008). Strategies for learning evidence-based practice: critically appraising clinical practice guidelines. *Journal of Nursing Education*, 47(8), 380-383.

Skela-Savič, B., Pesjak, K., & Lobe, B. (2016). Evidence-based practice among nurses in Slovenian Hospitals: a national survey. *International Nursing Review,* 63(1), 122-131. doi:10.1111/inr.12233

Smith-Strøm, H., Oterhals, K., Rustad, E. C., & Larsen, T. (2012). Culture crash regarding nursing students' experience of implementation of EBP in clinical practice. *Nordic Journal of Nursing Research & Clinical Studies / Vård i Norden,* 32(4), 55-59.

Snyder,C.H., Facchiano,L., & Brewer,M. (2011). Using evidence-based practice to improve the recognision of anxiety in parkinson's disease. *The Journal of Nurse Practitioners*, 7(2), 136-141.

Speziale-Streubert, H.J., & Carpenter, D.R. (2011). *Qualitative Research in Nursing: Advancing the Humanistic Imperative.* (5th ed.). Philadelphia: Wolters Kluwer and Lipincott Williams & Wilkins.

Stern, P. N. (1994). Eroding grounded theory. In J. Morse (Eds.), *Critical Issues in Qualitative Research Methods.* Thousand Oaks, CA: SAGE.

Stetler, C.B. (2001). Updating the Stetler Model of Research Utilization to facilitate evidence-based practice. *Nursing Outlook*, 49(6), 272-279.

Stetler, C.B. (2010). Stetler model. In J. Rycroft-Malone & T. Bucknall (Eds.), *Evidence-Based Practice Series. Models and Frameworks to Implementing Evidence-Based Practice: Linking Evidence to Action.* Oxford: Blackwell Publishing Limited.

Stevens, K.R. (2004). *ACE Star Model of Knowledge Transformation. Academic Center for Evidence-Based Practice*. University of Texas Health Science Center San Antonio. Retrieved from www.acestar.uthscsa.edu

Stevens, K.R., Puga, F., & Low, V. (2012). *The ACE-ERI: An Instrument to Measure EBP Readiness in Student and Clinical Populations.* Retrieved from:www.acestar.uthscsa.edu/institute/su12/documents/ace/8%20The_%20ACE-ERI%20%20Instrument%20to%20Benchmark.pdf

Stichler, J. F., Fields, W., Son Chae, K., & Brown, C. E. (2011). Faculty knowledge, attitudes and perceived barriers to teaching evidence-based nursing. *Journal of Professional Nursing,* 27(2), 92-100. doi: 10.1016/j.profnurs.2010.09.012

Stiffler, D., & Cullen, D. (2010). Evidence-based practice for nurse practitioner students: a competency-based teaching framework. *Journal of Professional Nursing,* 26(5), 272-277. doi:10.1016/j.profnurs.2010.02.004

Stones, C., & Rowles, C.J. (2007). Nursing students can help support evidence-based practice on clinical nursing units. *Journal of Nursing Management*, 15, 367-370.

Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.

Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: SAGE.

Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousands-Oaks: SAGE Publication Ltd.

Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd ed.). Thousand Oaks, CA: SAGE.

Stube, J. E., & Jedlicka, J. S. (2007). The acquisition and integration of evidence-based practice concepts by occupational therapy students. *American Journal of Occupational Therapy,* 61(1), 53-61.

The Cochrane Collaboration. (2012). *History.* Retrieved from http://www.cochrane.org/about-us/history

Thomas, A., Saroyan, A., & Dauphinee, W. D. (2011). Evidence-based practice: a review of theoretical assumptions and effectiveness of teaching and assessment interventions in health professions. *Advances in Health Sciences Education,* 16(2), 253-276. doi:10.1007/s10459-010-9251-6

Thornberg, R. & Charmaz, K. (2012). Grounded theory. In S.L. Quartaroli & F. Riemer (Eds.), *Qualitative Research: An Introduction to Methods and Designs*. (p.41-67). San Francisco: Jossey-Bass.

Titler, M. G., Everett, L. Q., & Adams, S. (2007). Implications for Implementation Science. *Nursing Research July/August,* 56(4), S53-S59.

Titler, M.M., Kleiber,C., Steelman,V.,Rakel, B., Budreau,G., Everett,L. (2001). The Iowa model of evidence-based practice to improve quality care. *Critical Care Nursing Clinics of North America,* 13(4), 497-509.

The Joint Commission. (2016) *National Standards and National Patient Safety Goals*. Retrieved from https://www.jointcommission.org/standards_information/standards.aspx

Twentieth Anniversary of Tertiary Graduates in Nursing [online]. Nursing. aust, Vol. 9, No. 1, Autumn 2008: 3-5. Accessed from http://search.informit.com.au.ezproxy.lib.monash.edu.au/documentSummary; dn=069382905988568;res=IELHEA> ISSN: 1443-1491.

United Kingdom Central Council (UKCC) for Nursing, Midwifery and Health visiting. (1986). *Project 2000- A New Preparation for Practice, Achieved Publication*. http://www.nmc-uk.org/Documents/Archived%20Publications/UKCC%20Archived%20Publications/Project%202000%20A%20New%20Preparation%20for%20Practice%20May%201986 PDF

Upton, P., Scurlock-Evans, L., Williamson, K., Rouse, J., & Upton, D. (2015). The evidence-based practice profiles of academic and clinical staff involved in pre-registration nursing students' education: A cross sectional survey of US and UK staff. *Nurse Education Today,* 35(1), 80-85. doi: 10.1016/j.nedt.2014.06.006

Vanhook, P.M. (2009). Overcoming the barriers to EBP. *Nursing Management*, 9-11.

Vernall, G., Haas, B., Duke, G., & Hudson, K. (2008). Effect of an educational intervention on attitudes toward and implementation of Evidence-Based practice. *Worldview on Evidence-based Nursing,* 172-181.

Vessey, J., & Demarco, R. (2008). The undergraduate research fellows program: A unique model to promote engagement in research. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing,* 24(6), 358-63.

Wallen, G. R., Mitchell, S. A., Melnyk, B., Fineout-Overholt, E., Miller-Davis, C., Yates, J., & Hastings, C. (2010). Implementing evidence-based practice: effectiveness of a structured multifaceted mentorship programme. *Journal of Advanced Nursing*, 66 (12), 2761–2771. http://doi.org/10.1111/j.1365-2648.2010.05442.x

Walshe, C., Ewing, G. & Griffiths, J. (2011). Using observation as a data collection method to help understand patient and professional roles and actions in palliative care settings. *Palliative Medicine*, 26(8), 1048-1054.

Waters, D., Crisp, J., Rychetnik, L., & Barratt, A. (2009a). The Australian experience of nurses' preparedness for evidence-based practice. *Journal of Nursing Management,* 17(4), 510-518.

Waters, D., Rychetnik, L., Crisp, J., & Barratt, A. (2009b). Views on evidence from nursing and midwifery opinion leaders. *Nurse Education Today,* 29(8), 829-834. doi: 10.1016/j.nedt.2009.04.006.

Weaver, C .A., Warren, J.J. & Delaney, C. (2005). Bedside, Classroom and bench: collaborative strategies to generate evidence-based knowledge for nursing practice. *International Journal of Medical Informatics,* 74, 989-999.

Williams, B., Perillo, S., & Brown, T. (2015). What are the factors of organisational culture in health care settings that act as barriers to the implementation of evidence-based practice? A scoping review. *Nurse Education Today,* 35(2), e34-e41. doi:http://dx.doi.org/10.1016/j.nedt.2014.11.012

Williamson, K. M., Fineout-Overholt, E., Kent, B., & Hutchinson, A. M. (2011). Teaching EBP: Integrating Technology into Academic Curricula to Facilitate Evidence-Based Decision-Making. *Worldviews on Evidence-Based Nursing,* 8(4), 247-251. doi:10.1111/j.1741-6787.2010.00192.x

Willison, J. & O'Regan, K. (2007). Commonly known, commonly not known, totally unknown: a framework for students becoming researchers . *Higher Education Research and Development,* 26(4), 393-409.

Winters, C.A. & Echeverri, R. (2012). Teaching strategies to support evidence-based practice. *Critical Care Nurse,* 32(3), 49-54.

Wonder, A. H., & Otte, J. L. (2015). Active Learning Strategies to Teach Undergraduate Nursing Statistics: Connecting Class and Clinical to Prepare Students for Evidence-Based Practice. *Worldviews on Evidence-Based Nursing,* 12(2), 126-127. doi:10.1111/wvn.12075.

Woods, C., West, C., Mills, J., Park, T., Southern, J., & Usher, K. (2015). Undergraduate student nurses' self-reported preparedness for practice. *Collegian,* 22(4), 359-68.

Young, L., & Paterson, B.L. (2007). *Teaching Nursing: Developing a Student-Centered Learning Environment*. Philadelphia, PA: Lippincott Williams & Wilkins.

Young, T., Rohwer, A., Volmink, J., Clarke, M. (2014). What are the effects of teaching evidence-based healthcare (EBHC)? Overview of systematic reviews. *PLoS One,* 9, 1.

Yousefi-Nooraie, R., Rashidian, A., Keating, J. L., & Schonstein, E. (2007). Teaching evidence-based practice: the teachers consider the content. *Journal of Evaluation in Clinical Practice,* 13(4), 569-575.

Zelenikova, R., Beach, M., Ren, D., Wolff, E., & Sherwood, P. (2014). Faculty Perception of the Effectiveness of EBP Courses for Graduate Nursing Students. *Worldviews on Evidence-Based Nursing,* 11(6), 401-413. doi:10.1111/wvn.12068

Zhang,Q., Zeng,T., Chen,Y., & Li.X. (2012). Assisting undergraduate nursing students to learn EBP through self-directed learning and workshop strategies during clinical practicum. *Nurse Education Today*, 32, 570-575.

Appendixes

Appendix 1: Ethical Approval from MUHREC

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project Number:	CF13/2959 - 2013001603
Project Title:	Integration of Evidence-Based Practice in Undergraduate Nursing Education: A Grounded Theory Study
Chief Investigator:	Prof Lisa McKenna
Approved:	**From:** 12 November 2013 **To:** 12 November 2018

Terms of approval - *Failure to comply with the terms below is in breach of your approval and the Australian Code for the Responsible Conduct of Research.*

1. The Chief investigator is responsible for ensuring that permission letters are obtained, <u>if relevant</u>, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must include your project number.
6. **Amendments to the approved project (including changes in personnel):** Require the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Appendix 2: Study Demographic and Guiding Questions

Title of the Project

Integration of evidence-based practice in undergraduate nursing education: A grounded theory study

Demographic Details

Gender ☐ Male ☐ Female

What is your age?

☐ 21- 30yrs ☐ 31-40yrs

☐ 41-50yrs ☐ 51-60yrs

☐ 60+ yrs

What position do you currently hold?

☐ Professor

☐ Associate Professor

☐ Senior Lecturer

☐ Lecturer

☐ Sessional

☐ Other please specify:_____

What is your highest completed qualification?

☐ Diploma

☐ Bachelor Degree

☐ Graduate certificate

☐ Graduate diploma

☐ Master Degree

☐ PhD

☐ Other please specify:_____

Do you work ☐ full time ☐ Part time ☐ Casual

How many years of nursing experience do you have?

☐ 0 – 5 years

☐ 6 – 10 years

☐ 11 – 15 years

☐ 16 – 20 years

☐ > 20 years

How many years of teaching experience do you have?

☐ 0 – 5 years

☐ 6 – 10 years

☐ 11 – 15 years

☐ 16 – 20 years

☐ > 20 years

What undergraduate level do you teach?   ☐ Year 1

☐ Year 2

☐ Year

What undergraduate units do you teach?   ☐ Theoretical Units

☐ Clinical Units

☐ Both

Interview Guide

Introduction

- Introduce Researcher
- Provide participant with a brief explanation of the study
- Ensure the participant explanatory sheet is provided to the participants and consent form has been signed by the participant. (Reiterate the aims of the study- How do nurse academics incorporate EBP into their teaching and learning practices and how EBP is integrated into undergraduate curriculum)

Body of Interview

I am interested to understand:

- *How do you incorporate evidence based practice into your teaching and learning practices?*
- What do you think how evidence based practice is integrated in undergraduate nursing curriculum?

Examples of some questions explored during interviews using theoretical sampling

- How would you describe the term/phrase 'evidence-based practice'?
- How would you see knowledge of research process differs to EBP?
- Evidence generation versus evidence users?
- What do you think when the EBP concept should be introduced, at what level?
- Are there any graduate/ undergraduate competencies exist?
- How the clinical units are aligned to the theoretical units?
- What teaching methods do you utilise while teaching EBP concepts to undergraduate nursing students?
- Evidence generation, evidence syntheses, knowledge transfer and evidence utilisation, which aspect of EBP, you tend to focus more in undergraduate curriculum?
- What do you identify as facilitators to incorporating EBP?
- What do you see challenges/ barriers to EBP teaching?
- How do you evaluate students' knowledge and skills of EBP?
- Are there any particular areas in terms of further knowledge and skills you would like to update relating to EBP?
- Is there anything else that you would like to add on this topic?
- If you ever get an opportunity to change the curriculum what would you change for better integration of EBP.

Conclusion

- Do you have any questions for me?
- May I have your permission to contact you again should I require further clarification of the   data?
- Would you like a summary of the study when it's completed?

Thank you for the participation.

Appendix 3: Examples of Field Notes

Field note 1:

I observed Stacey's teaching session with undergraduate second year students. This was a 2-hour teaching session on neurological conditions covering stroke, brain injury and brain functions, conducted in a lecture theatre. I was given the objectives and session plan prior to the session. The session started with the revision of anatomy and physiology followed by detailed discussion on different types of stroke. Students were given break at this point and discussion continued on brain injury and kinds of brain infections. Throughout the presentation, Stacey had incorporated current literature and research evidence in each slide. She also informed students with current practice guidelines when discussed the management of patients with neurological conditions. Apart from this, she directed students for additional evidence-based resources which were available on stroke foundation website for patient care plans and patient education. I found this observation straightforward, however was wondering how students would use this information to inform their practice?

Field note 2:

I travelled interstate and observed a simulated session with undergraduate final year students. Melissa, an academic provided me session plan prior to the observation. I was a little nervous that day because setting was new and I never met with Melissa before. I reached early and had a pre-observation meeting with her before the actual session started. This was a scenario based simulation in which students were required to review and complete a self-directed virtual simulation exercise before coming for the laboratory session. The session was regarding respiratory devices and their use in clinical setting. Melissa started the session with

a scenario and walked student through the handover, clinical condition of the patient, clinical manifestations, pathophysiology, management plan and nursing care plan. At every step of discussion, she inquired students about what was going on and if they were aware of the current evidence/ literature to support their answers and arguments. If students weren't sure, she directed them to the current evidence. This one hour discussion stimulated students to ask questions, and promoted to look for additional literature to care of patients with respiratory devices. I observed Melissa had stimulated clinical reasoning skills, questioning skills, and critical thinking skills. She made an attempt to engage students with EBP process, though this wasn't very explicit, students were directed towards finding additional resources and complete post simulation exercise. On many occasions, she emphasised students the value of evidence-based practice guidelines and asked students to check their clinical placements intranet if they were up-to-date and if references were incorporated. She made theory- practice connection visible to students which was evident in the next hour when students were given opportunity to practice their skills by rotating through four stations. When students struggled, Melissa demonstrated the correct procedure to students and discussed her practice experiences. In the end, students were briefed about the next week session and discussed the plan. I found this observation very interesting, Melissa was keen and passionate about her teaching and appeared to be expert in the content. I had a couple of questions which I got an opportunity to ask with Melissa in the post observation meeting such as "I observed you walked student through EBP process, but explicitly did not mention? How did you make sure students apply practice guidelines/ evidence in practice? She responded to the first question that she wasn't aware of if students knew what EBP process was and didn't want to further confuse them as her discussion embedded nursing process. For the second question she answered that she directly didn't' know if students were able to apply evidence/ followed clinical practice guidelines they discussed through various cases

but after the placement she asked them to reflect on what they observed and practised during their placement. This generated another conversation about students' responses and how they were supported and debriefed by an academic.

Appendix 4: Explanatory Statement and Consent Form

MONASH University

Participant Explanatory Sheet (Nursing Academics)

Project Title: Integration of evidence-based practice in undergratuate nursing education: A grounded theory study

Chief Investigator: Professor Lisa McKenna

Co-Investigator: Dr Debra Griffiths

Student Researcher (PhD): Mrs Gulzar Malik

1. **Introduction**

   You are invited to take part in this research project. Nursing academics in the university setting are chosen in this study in order to explore how evidence-based practice (EBP) is being taught and incorporated in undergraduate nursing education. Evidence-based practice is paramount to delivering and achieving highest quality patient care outcomes. As nursing academics are key people in instilling the concepts of EBP among undergraduate nursing students, your participation towards this study will assist in gaining this understanding. The results of the study will benefit nursing education and practice and will positively contribute towards evidence-based practice area.

   The details of the project are outlined in the explanatory statement and the consent form. Please read the information carefully. You are welcome to ask questions if you like to know more or seek clarification on any aspects of the study.

   Participation in this research is voluntary. If you wish to take part, you will be requested to sign the consent form. However, by signing the consent form doesn't mean that you cannot withdraw from the study. If you wish to withdraw from the study completely or don't want to involve in any of the procedures, you have a right to do so.

2. **Purpose of the Research project**

   The aim of this study is to understand how nursing academics incorporate evidence-based practice into their teaching and learning practices. This will further help to identify and describe the teaching methods nursing academics use in lab, tutorial or classroom setting whilst teaching to undergraduate nursing students. This research will further highlight the integration of evidence-based practice within the undergraduate nursing curriculum. It is expected that approximately 20-25 nursing academics will be taking part in this study.

3. **Procedures involve in the research project**

   Participation in this research project involves interview and observation. You will be interviewed on one- on- one for up to 60 minutes and will be audio-taped. You will be given an opportunity to review and change the transcript. The researcher may also wish to observe your teaching methods/ Practices during lab, tutorial or lecture hour.

4. **Possible Benefits**

It is hoped that this study will contribute positively towards evidence-based practice in nursing education. Because academics shape the future practices of nursing through education and role modelling, it is essential to understand the processes and challenges they subject to while teaching evidence-based practice to undergraduate nursing students.

5. **Possible Risks**

Minor inconvenience may be experienced by participants as a result of the interview process. If you wish to be observed during teaching, you might also feel minor discomfort. At any point during observation if you feel uncomfortable with the presence of researcher, you can ask researcher to leave the room. The researcher is able to arrange counselling services if you become upset or feel distressed as a result of your participation in the research.

6. **Participation in the research project**

Participation in this research project is voluntary. If you decide to participate but later like to withdraw from the study, you can do so at any time during the study.

7. **Confidentiality and Anonymity**

At all stages of data analysis and reporting, the information obtain from you will not be identified. Your confidentiality and anonymity will be protected throughout the research process.

8. **Results of the Research Project**

Results of the study will be published in the form of the researcher's PhD thesis and at least two articles will be published in nursing journal. A summary of the research findings can be obtained from the researcher upon request.

9. **Data storage**

All information gathered will be stored securely by Monash University for seven years, upon the completion of research. The researcher and the supervisors will only be able to access the data. The information can only be disclosed with your permission, except as required by Law.

10. **Accessibility to research Information**

Participants of the study have a right to access to the information collected. Please contact one of the researchers named mentioned at the end of this document if you like to access the information. In addition, in accordance with the regulatory guidelines, the information will be kept for seven years from the study completion.

11. **Approval of the research project**

This research project has been approved by Monash University Human Research Ethics Committee (MUHREC). The project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007) produced by the National Health and Medical Research Council of Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies.

If you like to contact the researchers about any aspect of the study, please contact the chief investigator:	If you have a complaint concerning the manner this research has been conducted, please contact
Professor Lisa McKenna Head of Campus (Clayton) Director of Academic Programs (International), Faculty of Medicine, Nursing and Health Sciences Building 13c Room Clayton Campus Monash University VIC 3800 Phone: +61 3 9905 3492 Fax: +61 3 9905 4837 Email: lisa.mckenna@monash.edu	Executive Officer, Human Research Ethics Monash University Human Research Ethics Committee (MUHREC) Building 3e Room 111 Research Office Monash University VIC 3800 Phone: +61 3 9905 2052 Fax: + 61 3 9905 3831 Email: muhrec@monash.edu

MONASH University

Consent Form - Nursing Academics

Title: Integration of evidence-based practice in undergraduate nursing education: A grounded theory study

| NOTE: **This consent form will remain with the Monash University researcher for their records** |

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I will keep for my records. I understand that agreeing to take part means that:

I agree to be interviewed by the researcher ☐ Yes ☐ No

I agree to allow the interview to be audio-taped. ☐ Yes ☐ No

I agree to make myself available for a further interview if required ☐ Yes ☐ No

I agree to make myself available for observation during teaching ☐ Yes ☐ No

- I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

- I understand that any data that the researcher extracts from the interview or observation for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

- I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research.

- I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

- I understand that all data will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a seven year period.

Participant's name: _____

Signature:_____   Date_____

Declaration by researcher: I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood the explanation.

Researcher's name:_____

Signature:_____   Date:_____

Appendix 5: Focused Codes, Sub-Categories and Category using NVivo

Appendix 6: A Concept Map illustrating relationships between categories and codes

Appendix 7: Analytical Memo

Memo

Suggesting.

Saying — Contextualising the curriculum around EBP framework leading to clinical decision making

↓

- asking questions
- going & finding information
- appraising that information
- implementing it
- evaluating the outcome

Challenges   Academics

ANMAC has to emphasize more that EBP is integrated thoroughly.
Academics need to re-orient their thinking in their subject.

Reorient towards EBP → Integrate into Subjects

Time, efforts, constantly updating their knowledge & skills

Updating Knowledge & Skills

• Keeping abreast of the lit.
• Reading on EBP
• Talking to colleagues having similar interest

Factors which I can draw — Processes
Teaching & learning processes
Academics Incorporate into their teaching
Integrating into assessment pieces
Linking it to theoretical & practical learning
Reinforcing it when they are interacting with real pts
Joint appointment — having resource people

Linking the uni & clinical environment
Orienting the clinical environment to EBP