The Empirical Ebb and Flow of Professional Nursing

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The profession of nursing has found itself in a rather unique position. We not only have a direct impact on patient care and patient outcomes, but we also have a direct impact on realizing the objectives set forth in the Affordable Care Act of 2010. Nursing is the largest workforce in healthcare and has the potential to lead the innovative changes required to transform our healthcare system as it relates to patient care (Institute of Medicine of the National Academies and the Robert Wood Johnson Foundation [IOM], 2011). To fully embrace this opportunity, the profession of nursing must first confront the obstacles precluding the integration of Evidence-Based Practice (EBP) with practical knowledge and expertise in clinical practice (Melnyk & Fineout-Overholt, 2011).

Evidence-Based Practice and clinical expertise may appear to co-exist in professional conflict for many professionals. The aim of this paper is to offer support for the premise that these concepts are in fact mutually beneficial, co-existing in a synergistic relationship that not only has the ability to promote and improve patient outcomes, but also has the empirical foundation to propel the transformation of healthcare beyond current expectations. A thorough review of the literature will explore the philosophical tenants of the EBP model as well situated cognition and expertise through experiential knowledge, respectively. The model provides a contextual basis for the assertion that EBP and the development of expertise through the growth of practical knowledge are mutually beneficial. When fully appreciated and integrated into clinical practice, it promotes the highest quality in patient care and the best outcomes in clinical practice (Melnyk & Fineout-Overholt, 2011). The purpose of this paper is twofold: first, to examine the merits of the EBP model as well as situated cognition and expertise through experiential knowledge; and, secondly, to provide an in-depth discussion of the relationship between these dichotomies in practical application within the clinical setting.

**Evidence-Based Practice**

The principles of Evidence-Based Practice (EBP) are solidly grounded in empirical philosophical tradition. The cornerstone of the EBP model is empirical research through scientific methodology and in the analysis of integrative literature reviews of research (Avis & Freshwater, 2006; Cody, 2013). The proponents of the EBP model follow the logical positivists’ view (Avis & Freshwater, 2006; Cody, 2013) that evidence in its purest verifiable form is the only source of credible knowledge worthy to direct clinical practice (Godfrey-Smith, 2003). The literature is concise and consistent in providing a clear working definition of EBP that heavily references the work of Sackett, Rosenberg, Gray, Haynes, & Richardson (1996), who defined Evidence Based Medicine and Evidence Based Practice, respectively.

Sackett et al. (1996) defined EBP as “Evidence-Based Medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients… ; whereas, EBP means integrating individual clinical expertise with the best available external clinical evidence from systematic research” (p. 71). This would include research findings, quality improvement data, clinical expertise and patient values to guide healthcare decisions (Hauck, Winsett, & Kuric, 2012). More to the point, EBP is a problem-solving approach to clinical practice that integrates a systematic search for, and critical appraisal of, the most relevant evidence to answer burning questions (Melnyk & Fineout-Overholt, 2011).

The EBP model incorporates five distinct phases in the process of evidentiary discovery (Leufer & Cleary-Holdforth, 2000). Clinical problems typically give rise to inquiry and investigation. Questions may reference concerns related to diagnosis, treatment options or preventive education (Tanjong-Ghogomu, Tugwell, & Welch, 2009). Hess (2013) asserts that the search for best practice begins with a clearly articulated, well framed question to guide the search. This question has four components and can be articulated using the mnemonic ‘PICO’: patient or problem, intervention, comparison, and outcomes (Hess, 2013; Leufer & Cleary-Holdforth, 2000).

The development of the question is followed by the integrative literature review (Hess, 2013). This process requires knowledge and skill to efficiently search and cultivate the most rigorous, most relevant, and most current evidence. A thorough review of literature entails a search for the strongest empirical evidence covering a variety of databases. The literature review is expected to produce transferable empirical evidence for synthesis and possible integration into practice ( Leufer & Cleary-Holdforth, 2009; Melnyk & Fineout-Overholt, 2011).

Appropriate data from the literature search is collected for review and analysis. The critical appraisal involves systematically assessing and interpreting the data to consider the validity and usefulness of the evidence in relation to a particular context (Tanjong-Ghogomu et al., 2009 ; Winters & Echeverri, 2012). Critical appraisal of literature findings is instrumental in selecting clinically relevant evidence. It is an important skill that must be refined and cultivated (Schlosser, 2006). When considering the most relevant evidence it is also important to seek verifiable empirical evidence (Melnyk & Fineout-Overholt, 2011). The strongest evidence would be found within the synthesis of well-conducted randomized controlled trials (Hess, 2013).

Literature provides a framework of evidentiary relevance to guide clinicians in the review of research. The literature consistently describes a hierarchy of evidentiary rigor to determine the degree of reliability and relevance (Winters & Echeverri, 2012, p. 51; Melnyk & Fineout-Overholt, 201). As noted in the literature, Randomized Controlled Trial (RCT) is the most rigorous scientific measure assessing the presence of a potential cause-effect relationship between variables and assessing the cost effectiveness of a given treatment (Sibbald & Roland, 1998). For that reason, RCT’s are afforded the highest level of confidence when analyzing research findings (Leufer & Cleary-Holdforth, 2009; Winters & Echeverri, 2012).

The literary search and subsequent critical analysis are only complete if the most current, relevant data is translated into clinical practice (Tanjong-Ghogomu et al., 2009). Formative and summative evaluations of clinical relevance, clinical compliance, and anticipated patient outcomes must be made to determine the efficacy of the evidence (Hess, 2013; Winters & Echeverri, 2012).

The EBP model is a strategy structured to keep clinical knowledge up-to-date while enhancing clinical judgment and promoting cost effective treatment modalities (Facchiano & Snyder, 2012). Momentum for EBP accelerated over the last fifteen years as it became apparent that the quality of clinical care significantly lagged behind current knowledge (Stevens, 2007). Clinical decisions are often entrenched in outdated policies and standards of care denying patients the best possible care (Tanjong-Ghogomu et al., 2009). Melnyk & Fineout-Overholt (2011) supports the assertion and, more importantly, research validates the assertion that the consistent application of EBP ensures optimal patient outcomes while delivering the highest quality of care. Findings from numerous studies have indicated that an evidence-based approach to practice versus the implementation of clinical care “steeped in tradition or based upon outdated policies” (p.3) results in a multitude of improved health, safety, and cost outcomes, including a decrease in patient morbidity and mortality. Relying on outdated policies is detrimental to patient care and denies patients the benefit of more relevant treatment options (Tanjong-Ghogomu et al., 2009).

“Clinicians are confronted with information overload when trying to identify relevant evidence to incorporate into clinical practice” (Tanjong-Ghogomu et al., 2009). Advances in technology, and particularly, healthcare technology, have exponentially exploded in the twenty-first century. Nursing informatics and technology have progressed faster than available research methods and the ability to process and empirically evaluate the relevance and efficacy of new practices (Melnyk & Fineout-Overholt, 2011; Ramacciati, 2013). The most relevant evidence is never static, but constantly changing in response to growing discovery and validation (Hess, 2013).

Full integration of an EBP model will have a direct impact on the financial viability of the institution. CMS (2012) outlines how it has changed the payment plan for hospital reimbursement incentivizing reimbursements to hospitals based on how closely they follow best clinical practices and how well hospitals enhance patients’ experiences of care. When hospitals follow proved best practices, patients receive higher quality care and experience better outcomes in the clinical setting (p. 8). Scott & McSherry (2011) asserts that EBP has the potential to maximize reimbursements from CMS and other third party payers.

The role of empirically generated evidence is to create scientific knowledge that is generalizable to similar situations, populations and clinical environments (Facchiano & Snyder, 2012). Transferability is critical to the success of EBP. It is important that clinicians have the ability to apply current research findings in their own clinical practice and achieve the same or similar clinical results as derived from the original body of evidence in research (Melnyk & Fineout-Overholt, 2011). The EBP model provides the mechanism by which clinicians can integrate empirical research-based evidence with internal evidence derived from clinical practice to improve the quality of healthcare and patient outcomes (Melnyk & Fineout-Overholt, 2011).

**Expertise and Practical Knowledge**

Patricia Benner is a noted nursing philosopher, educator, and researcher (Brykczynski, 2010). In her seminal work *From Novice to Expert: Excellence and Power in Clinical Nursing Practice* published in 1984, she attempted to discover and elucidate knowledge embedded within clinical nursing practice. Through rich descriptive exemplars of actual nursing practice, Benner articulates that which defines the ‘art’ of clinical practice. Benner’s ideas are based upon the difference between practical and theoretical knowledge and the import of the rich embedded knowledge held within clinical nursing practice. She further states that nursing practice has been primarily studied from a sociological perspective. We have learned much about role relationships and acculturation into nursing practice; but, we have not learned much about the knowledge embedded within actual clinical practice. She discovered an embedded knowledge base that accrues over time and through experience that remained uncharted territory. This practical knowledge has gone unexplored and obscurely unnoticed because the difference between practical and theoretical knowledge has been misunderstood and under explored (Benner, 2001).

Stuart and Hubert Dreyfus are professors at the University of California at Berkeley. In 1982 when Benner completed her PhD in stress, coping, and health (Brykczynski, 2010), the Dreyfus brothers had already developed and published the Dreyfus Model of Skill Acquisition by studying language acquisition, the performance of chess masters, and pilots in emergency situations (Dreyfus & Dreyfus, 1980). The model is based in situated performance and experiential learning (Benner, 2004) and asserts that individuals, while acquiring and developing skills, must “pass through five levels of proficiency: novice, advance beginner, competent, proficient, and expert” (Benner, 2001, p. 13). An individual’s progression from novice to expert is characterized by the transition from explicit rules governing behavior to intuitive, contextually determinant behavior (Altmann, 2007). The model has a developmental component in that skill acquisition focuses on the strengths of the individual stages rather than deficits, and describes practice capacities rather than traits or talents that can be compared across time and situation (Benner, 2001).

 “Nursing is relational and therefore cannot be adequately described by strategies that leave out content, context, and function” (Benner, 2001, p. 42). Benner was introduced to qualitative phenomenological research by Hubert Dreyfus while at Berkeley. Through qualitative descriptive research, Benner applied the Dreyfus Model of Skill Acquisition to clinical nursing practice (Brykczynski, 2010, p. 149). Her approach to exploring clinical nursing practice was interpretive and inductive where synthesis of the evidence rather than analysis brought forth a philosophy of nursing practice “laying the foundation for understanding nursing expertise and skill acquisition” (Altmann, 2007). Benner (2001) also stated that not all sources of knowledge embedded in expertise can be captured in theory or with analytical linear strategies. However, the intentions, expectations, meanings, and outcomes of expert practice can be described with aspects of clinical know-how and are illuminated by interpretive descriptions of actual practice (Benner, 2001). Capturing the description of expert performance is difficult because the expert clinician works from a deep understanding of the global situation. Salient pieces of the situation are contextually grounded and grasped intuitively as the expert is immersed within and focused on the entirety of the situation. Individual details are lost to conscious thought and difficult to ascertain (Benner, 2001).

 Nursing as a practice requires the use of techne’ and phroneis as described by Aristotle (Dunne, 2009). Techne’ is a skill or activity that can be captured by procedural and scientific knowledge. Phroneis is the kind of practical reasoning engaged in by the practitioner whose actions are governed by the concern for doing well in a particular circumstance. Phronesis through experiential learning continually improves for the sake of good practice (Benner, 2004, p. 189; Dunne, 2009; Gadamer, 1997). To clarify these concepts, we can review the distinctions offered by Aristotle. “Techne’ refers to the process of producing something on explicit context-free guidelines and rules in contrast to phronesis, which is concerned with human ends that cannot be made fully explicit in advance of a situation” (Smithbattle & Diekemper, 2001, p. 403). Excellent patient care is patient-centered and tailored to specific situations. As a result of the variability of human meanings and the varied responses that nurses confront in clinical practice, outcomes cannot be imposed in advance. Instead, outcomes will emerge based upon what is relevant in the situation (Gadamer, 1977; Smithbattle & Diekemper, 2001). Benner (2001) asserted that by establishing interactional causal relationships between events, scientists come to “know that.” Philosophers of science, such as Kuhn and Polanyi, have observed “knowing that” and “knowing how” are two different kinds of knowledge. They point out that individuals who have many skills “know how,” and those who acquire knowledge through interactional causal relationships “know that” (p.2).

 For the human being is not only a natural object. Rather, each of us in a mysterious way,

 unknown both to ourselves and to others. There are always unpredictable elements that

 play their part; those things that require understanding here are quite different from those

 laws of nature (Gadamer, 1977, p. 164).

 Learning happens in context as people address challenges and problems (Morrison & Symes, 2011). Praxis is a type of human engagement that is embedded within a tradition of mutually shared understandings and values that remain vitally connected to life experiences. It requires that an individual make wise and sensible practical judgments about how to act in a given situation (Dunne, 2009).

 Knowing the patient leads to a sense of salience, this is known as an ability to recognize aspects of the patient’s situation that stand out as important cues to guide the nurses’ judgment and action (Morrison & Symes, 2011). Practices grow through experiential learning and through transmitting that learning in practical settings (Benner, 2001, p. vi). Transfer of knowledge is the understanding of learned concepts that promote clinical reasoning and allows flexibility and applicability of new knowledge to new situations. It is the nurses’ intense involvement in reflective practice that allows them to make judgments and to take action in clinical situations. These judgments and actions are based on experience and prior knowledge (Bobay, Gentile, & Hagle, 2009, p. 49).
 A conceptual definition of expertise is the fluid, flexible, and anticipatory practice demonstrated by nurses who have a comprehensive understanding of the total situation (Bobay et al., 2009). A move from novice to expert is characterized by the transition from explicit rule governed behavior to intuitive, contextually determinate behavior (Altmann, 2007). Recognizing the unexpected when tacit global expectations of a patient’s recovery are not met is also a hallmark of expert behavior in clinical practice (Benner, 2004). Sackett et al. (1996) defined individual clinical expertise as “the proficiency and judgment that individual clinicians have acquired through clinical experience and clinical practice (p. 71). The judicious use of good quality research is a vital aspect of expert practice (Avis & Freshwater, 2006, p. 222). Altman’s review of Benner’s work suggests that she believes expert nurses use empirics, ethics, and personal knowledge to fully immerse themselves within the context of the situation (Altman, 2007).

 Reflective practice is a demonstrated behavior of expert nursing care. Expert nurses describe a self-directed approach to learning from a variety of experiences, including reflecting on results or mistakes, which has enhanced their development (Morrison & Symes, 2011). Expert practice depends upon the use of critical reflection to interpret a range of evidence in order to decide how to act in each individual healthcare situation. This kind of complex and intricate evaluation of the evidence should be regarded as quintessentially rational (Avis & Freshwater, 2006, p. 223). Critical reflection, based upon hypothetic reasoning, can be used to explicate the tacit knowledge that informs our thinking and decisions when we act on the basis of ‘gut instinct’ or intuition. While the results of critical reflection on the particulars of experience do not have the same kind of generalizability as the results of research, they do have an intrinsic transferability as we apply the beliefs and hypothesis in new situations in order to evaluate their usefulness (Avis & Freshwater, 2006).

 Nurses develop complete trust in their experience of knowing. Intuition is an ordered logical development of clinical experience, while embodied intuition is the ability to “process information on both conscious and unconscious levels,” a process that becomes innate in expert practice (Morrison & Symes, 2011). Benner and Tanner (1996) used the six key aspects of intuitive judgment devised by Dreyfus in the skill acquisition model to describe how intuition occurs in expert practice by experts using pattern recognition, similarity recognition, commonsense understanding, skilled know-how, sense of salience, and deliberate rationality combined to form automaticity of action. Benner et. al concluded that mature and practical reasoning, accompanied by an intuitive grasp of the patient’s situation, characterized expert nursing practice (Christensen & Hewitt-Taylor, 2006, p. 1534). Consequently, responses to patients become more contextualized and attuned. Thus, the intuitive grasp is based on experience and it is situated in the clinician’s grasp of the situation. A sense of salience develops over time identifying some behaviors as standing out and being more plausible and appropriate than others. Intuition is seen as the key element of expert practice (Benner, 2004, p. 190).

 Expert nursing practice entails a holistic and finely tuned grasp of clinical situations. This intuitive grasp must be more fully articulated if we are to understand and support the relational and interpretive skills that lead to positive outcomes for the individuals, families and populations served by the profession of nursing (Smithbattle & Diekemper, 2001). Expert practice supports individualized nursing care, and it should be based on a rigorous process of critical reflection on all evidence we have obtained through individual healthcare encounters (Avis & Freshwater, 2006, p. 223). Benner’s model has become the foundation for professional career ladders, preceptorship programs for students, and advanced beginners in clinical practice, as well continuing education programs (Altmann, 2007). She has elucidated the embedded qualities of clinical practice previously undiscovered and uncharted to explicate through actual clinical exemplar the expectations of expert practice and skill acquisition (Altmann, 2007).

**Empirical Waltz**

“Possibly the single most important philosophical question to be posed within a practice discipline is “what guides practice?” (Cody, 2013, p.5). There are two overarching thoughts to consider when reflecting on the relationship between EBP and clinical expertise: positivism and constructivism. EBP is grounded in the philosophy of positivism, which dictates that evidence exists as empirically verifiable and generalizable. Thus, it is referred to as the scientific method of discovery. Conversely, proponents of practice governed by clinical expertise and practical knowledge recognize an ideology, which is more grounded in constructivism. This school of thought dictates that evidence is qualified dependent upon the context or situation. Therefore, knowledge is constructed and contextualized through experiential learning (Earl-Foley, 2011).

Much of the literature appears to suggest that only the positivists’ paradigm can support true evidence for EBP. Marks (2002) provides that the integration of research evidence from each paradigm in a complimentary rather than competitive manner should be the ideal goal of the EBP movement (Earl-Foley, 2011). As professionals we must address the evidence debate before we can move forward. It is evident that the competing paradigms define the concept of evidence differently and the establishment of evidentiary hierarchies implies superiority (Earl-Foley, 2011).

Sackett (1998) defined EBP generally as expertise in the form of evidence that informs practice. He includes the disclaimer that all evidence should be interpreted and applied in the light of individual patient circumstances, and that practitioners should use their expert judgment in deciding whether to apply evidence within a given situation (Christensen & Hewitt-Taylor, 2006). Knowing how to practice is a matter of expertise, which embodies an approach to intuitive and reasoned decision-making that utilizes evidence from a variety of sources (Avis & Freshwater, 2006). The application and integration of EBP requires a high level of clinical skill and judgment from the caregiver to apply the most up-to- date and relevant evidence, to the right patient, at the most appropriate time, and at the most appropriate place, utilizing the most appropriate resources; while balancing the individual values and expectations of the patient and family in the plan of care and decision-making process (Hess, 2013; Leufer & Cleary-Holdforth, 2009). EBP integrates individual clinical expertise with the most current knowledge gleaned from evidence-based, systematic research and the patient’s values and expectations to promote optimal patient outcomes (Hess, 2013).

 One of the key arguments of EBP centers on the definition of evidence. In the early 1990’s, most of the literature referred to evidence as being derived from quantitative research methods with RCT being the golden standard (Earl-Foley, 2011). Of late, the focus on empirical evidence in EBP movement has been viewed as one of the factors that has widened, rather than bridged, the theory- practice gap in the practical application of nursing (Earl-Foley, 2011, p. 42). The heavy emphasis on empirical evidence has discounted the relevance of other sources such as: nursing intuition, expertise, and clinical judgment in relation to decision-making practices (Earl-Foley, 2011).

 A randomized controlled trial is merely an evaluative technique (Avis & Freshwater, 2006) but according to Leufer & Cleary-Holdforth (2009) and other published authors, it could be perceived that EBP is particularly concerned with the use of mathematical probability, scientific experimentation and empirical rigor in order to make healthcare decisions predicating clinical practice decisions on the “gold standard studies of randomized controlled trials” despite clinical relevance. This presents the philosophical tenants of the empiricists’ viewpoint. The hierarchy of evidence has a direct correlation to scientific principle and empirical evidence highlighting the tenants of a positivistic philosophy. It is demonstrated in the ordering of evidence along rigorous precepts as well as in the language and of actions of EBP practitioners (Avis & Freshwater, 2006).

 EBP is considered a strategy to keep knowledge at the cutting edge, enhance clinical judgment and lead to cost effective treatment modalities (Facchiano & Snyder, 2012). Experts’ recognize the importance of integrating clinical expertise and the best available external evidence in practice, while acknowledging that neither alone is enough. Without clinical expertise, practice risks may become tyrannized by evidence. It is noted that even excellent external evidence may be inapplicable or inappropriate for an individual patients. Without staying abreast of current best practice, clinical decisions may be compromised to the detriment of patient care (Sackett et al., 1996).

 The concepts of nursing expertise, clinical guidelines and care protocols are not necessarily incompatible. National clinical guidelines come with the caveat that they are not intended to replace the use of expert clinical judgment and consideration of individual need (Christensen & Hewitt-Taylor, 2006). Clear scientific knowledge provides a necessary cushion for the novice nurse who lacks experience and guides the experienced nurse when confronting clinical situations at the limits of the nurses’ experience. However, scientific, technical knowledge is eventually assimilated or eclipsed by know-how and experience (Smithbattle & Diekemper, 2001). The devaluation of clinical reasoning is an important loss that results from bringing human practices, such as education and nursing into the realm of scientific normalizing procedures (Smithbattle & Diekemper, 2001). Dunne (2009) warns that the expansion of technical scientific rationality “involves the loss of significant substance as the price to be paid for its gains in rigor and apparent control. But fascination with the gains serves to distract attention from the losses which they entail” (p. 360).

Within critical care nursing, the American Association of Critical Care Nurses (AACN) has developed a Synergy Model for Patient Care in which patients and families provide influence and direction to nursing practice. Nursing care is reflective of an integration of evidence-based knowledge, skill, experience, and attitude in meeting the unique needs of the patient and family (Egerod, 2006). Critical reflective practice and empirical science both use evidence as a basis for knowledge (Avis & Freshwater, 2006, p. 218). The integration of EBP, practical knowledge, and expertise co-exist in a synergistic relationship that has the ability to promote and improve patient outcomes. Further, it has the empirical foundation to propel the transformation of healthcare beyond current expectations. The scientific method has become the most important means of generating evidence about the world and humanity. Thus, considerable effort has been made to improve the reliability of scientific evidence.

As the limitations of empiricists’ view of knowledge demonstrate, evidence alone cannot provide necessary nor sufficient reason for holding a belief (Gadamer, 1997). Improving the quality of evidence through more advanced measurement techniques, greater objectivity and improved reliability cannot overcome the relevance of a whole network of beliefs in determining whether the results of empirical observations might constitute knowledge (Avis & Freshwater, 2006). Therefore, in science and EBP, it must be recognized that a range of beliefs, some not evidence-based, will play a role in deciding whether the results of a particular study or series of studies constitute knowledge or even grounded evidence for practice (Avis & Freshwater, 2006; Gadamer, 1997). The success of science as a means of generating evidence that enlarges our current beliefs is not reducible to the employment of protocols that eliminate bias and subjectivity. Rorty (1991) published that the aspects of science that make it extremely successful as a problem-solving activity are human qualities of caution, critical reflection, and rational debate. Without a straightforward empirical justification and recognition that evidence is constructed rather than given by our experiences, the impetus for scientific inquiry is the critical exploration of coherence between beliefs. Therefore, evidence must be treated critically through a lens of careful examination of the beliefs that are integral to interpreting and making sense of the evidence (Gadamer, 1997). Moreover, what lies at the heart of the success of empirical science as a means of generating knowledge relative to a world view is the quality of critical reflection upon the evidence generated by the scientific methods applied (Avis & Freshwater, 2006). Scientists and practitioners are championing empiricism when they subject evidence gained through experience through a critical thought process that is open to scrutiny and contributes to research (Avis & Freshwater, 2006). Critical reflection on the evidence also encompasses interpretation, using inductive logic to build new insights, and conceptual explanations from the identification of the basic elements of the evidence (Avis & Freshwater, 2006).

 Carper’s (1978) classic paper established the premise in nursing literature that there are ways of knowing, or patterns of knowing, which are not scientific, and possibly not empirical. Carper distinguished between ‘empirics,’ or those with scientific knowledge; and aesthetic knowing,’ ‘personal knowing’ and ‘moral knowing’ (Paley, Cheyne, Dalgleish, Duncan, & Niven, 2007, p. 692). There is consensus within the literature that embraces valid forms of knowledge aside from scientific knowledge. Aesthetic, personal, and moral knowing are also forms of knowledge which are characteristic of nursing and equally significant (Paley et al., 2007, p. 639). In recent years, Carper’s thesis has been deployed in the EBP debate. The concept of evidence typically associated with EBP is inappropriately restricted because it is identified with scientific evidence; even more narrowly, quantitative and experimental evidence, and excludes precisely those alternative ways of knowing to which Carper and others have drawn attention. Evidence must extend beyond the current emphasis on empirical research and randomized clinical trials to embrace the kinds of evidence generated from ethical, personal, and aesthetic theories (Fawcett, Watson, Neuman, Walker, & Fitzpatrick, 2001, p.118). Cognitive psychology supports the premise of different patterns of knowing and offers strong support for the concept of two distinct cognitive systems (dual process theory). This is cognition that is automatic, intuitive, holistic, parallel, implicit, and fast; while the other is deliberate, rule-based, analytical, serial, and explicit and slow (Paley et al., 2007, p. 693).

**Conclusion** **Empirical Waltz**

These positions are reconcilable in nursing and education. It is not a question of choosing between either science or practical wisdom, but rather how to relate the two (Benner, 2001, p. viii). Expertise is gained by developing interpretive abilities to identify the nature of practical situations and the development of skillful responses to what, when, and how it must be done (Benner, Benner, Tanner, & Chelsea, 2009, p. 22). Expert clinical practice is characterized by increased intuitive linking the salient issues in a situation and ways of responding to them (Benner et al., 2009, p. 137). In the context of professional practice, expertise should embrace both skills and knowledge; the combination of tacit, experiential, and theoretical knowledge yields best practice (Christensen & Hewitt-Taylor, 2006).

Research is clear in reference to experience versus theory. Experience is said not to be the mere passage of time, but rather the active transformation and refinement of expectations and perceptions in changing situations (Benner, Tanner, & Chelsea, 2009, p. 104; Gadamer, 1997). Theory offers what can be made explicit and formalized, but clinical practice is always more complex and presents many more realities than can be captured by theory alone” (Benner, 2001, p. 36). Gadamer (1997) proclaimed “… learn to build a bridge over the existing divide between the theoretician who knows the general rule and the person involved in practice who wishes to deal with the unique situation of this patient who is in need of care” (p. 94). “True theory guides clinicians and enables them to ask the right questions.” (Benner, 1984, p. 36). These citations further support the premise that evidence and experience are inextricably intertwined and cannot be mutually exclusive concepts.

In its broadest sense, EBP is a process for grasping how to practice using empirical evidence; as such, it draws on a familiar tradition of scientific empiricism. Interestingly, a number of criticisms of EBP suggest that it can overemphasize the value of scientific evidence while underplaying the role of clinical judgment and aspect of individual expertise relative to practice (Avis & Freshwater, 2006, p. 216). EBP has three components that in totality must be present for EBP to occur: best evidence, clinical expertise, and attention to patient’s values and perceptions (Roulstone, 2011, p. 44).

 Experience enables the expert to make situational decisions with automaticity based upon concrete examples. In addition, to use past concrete examples as paradigm the expert must develop many perceptual distinctions that one cannot learn or grasp conceptually. Thus, the theoretician is wise to defer to the practitioner for clinical knowledge development and for finding patterns and developing avenues of questioning that current theorizing cannot predict or address (Benner, 1984, p. 187).

Benner’s research supports the thinking that evidence and experience are inextricably intertwined and are not mutually exclusive. The marriage of these concepts provides a much stronger union than is present when applied independently. EBP involves building on hypotheses as plausible ways of explaining evidence from which testable consequence can be deduced. The beliefs that are generated by this process should be logical, coherent, and consistent with prior experiences. This line of thinking is not exclusive to the scientific method, but an intuitive method used to validate the consistency of our beliefs (Avis & Freshwater, 2006, p. 219).

References

Altmann, T. K. (2007). An evaluation of the seminal work of Patricia Benner: Theory or philosophy. *Contemporary Nurse*, *25 (1)*, 114-123.

Avis, M., & Freshwater, D. (2006). Evidence for practice, epistemology, and critical reflection. *Nursing Philosophy*, *7*, 216-224.

Benner, P. (2001). *From novice to expert: Excellence and power in clinical nursing practice* (Commemorative ed.). Upper Saddle River, NJ: Prentice Hall Health.

Benner, P. (2004). Using the Dreyfus model of skill acquisition to describe and interpret skill acquisition and clinical judgment in nursing practice and education. *Bulletin of Science Technology & Society*, *24 (3)*, 188-199. http://dx.doi.org/10.1177/0270467604265061

Benner, P., Benner, P. E., Tanner, C. A., & Chelsea, C. A. (2009). *Expertise in Nursing Practice: Caring, Clinical Judgment & Ethics* (2 ed.). New York, NY: Springer Publishing Company LLC.

Bobay, K., Gentile, D. L., & Hagle, M. E. (2009). The relationship of nurses’ professional characteristics to levels of clinical nursing expertise. *Applied Nursing Research*, *22*, 48-53. http://dx.doi.org/10.1016/j.apnr.200703.005

Brykczynski, K. (2010). Caring, clinical wisdom, and ethics in nursing practice. In M. R. Alligood, & A. M. Tomey (Eds.), *Nursing Theorists and Their Work* (7th ed., pp. 137-164). Maryland Heights, MO: Mosby Elsevier.

Carper, B. A. (2013). Fundamental patterns of knowing in nursing. In W. K. Cody (Ed.), *Philosophical and Theoretical Perspectives for Advanced Nursing Practice* (5th ed., pp. 23-34). Burlington, MA: Jones and Bartlett.

Carroll, K., Bradford, A., Foster, M., Cato, J., & Jones, J. (2007, March). An emerging giant nursing informatics. *Nursing Management*, 38-42.

Christensen, M., & Hewitt-Taylor, J. (2006, December). From expert to tasks, expert nursing practice redefined? *Issues in Clinical Nursing*, 1531-1539. http://dx.doi.org/10.1111/j.1365-2702.2006.01601.x

Cody, W. K. (2013). Values-based practice and evidence-based care: Pursuing fundamental questions in nursing philosophy and theory. In W. K. Cody (Ed.), *Philosophical and Theoretical Perspectives for Advanced Nursing Practice* (5th ed., pp. 5-14). Burlington, MA: Jones and Bartlett.

Cody, W. K. (Ed.). (2013). Values-based practice and evidence-based care: Pursuing fundamental questions in nursing philosophy and theory. *Philosophical and Theoretical Perspectives for Advanced Nursing Practice* (5th ed., pp. 5-14). Burlington, MA: Jones and Bartlett.

Dreyfus, S. E., & Dreyfus, H. L. (1980). *A five-stage model of the mental activities involved in directed skill acquisition* (Doctoral dissertation). Retrieved from http://en.wikipedia.org/wiki/Dreyfus\_model\_of\_skill\_acquisition#The\_original\_five-stage\_model

Dunne, J. (2009). *Back to the rough ground: Practical judgment and the lure of technique*. Notre Dame, IN: University of Notre Dame Press.

Earl-Foley, V. (2011, January-March). Evidence-based practice: Issues, paradigms, and future pathways. *Nursing Forum*, *46(1)*, 38-44.

Egerod, I. (2006). Evidence-based practice and critical care nursing. *British Association of Critical Care Nursing*, *11(3)*, 107-108.

Eizenberg, M. M. (2010, September 10). Implementation of evidence-based nursing practice: Nurses’ personal and professional factors. *Journal of Advanced Nursing*, 33-42.

Facchiano, L., & Snyder, C. H. (2012). Evidenced-based practice for the busy nurse practitioner: Part one: Relevance to clinical practice and clinical inquiry process. *Journal of the American Academy of Nurse Practitioners*, *24*, 579-586.

Fawcett, J., Watson, J., Neuman, B., Walker, P. H., & Fitzpatrick, J. J. (2001). On nursing theories and evidence. *Journal of Nursing Scholarship*, *33(2)*, 115-119.

Gadamer, H. (1997). *The enigma of health: The art of healing in a scientific age*. Stanford, CA: Stanford University Press.

Godfrey-Smith, P. (2003). *Theory and reality: An introduction to the philosophy of science*. Chicago, IL: University of Chicago Press.

Hauck, S., Winsett, R. P., & Kuric, J. (2012, April 28). Leadership facilitation strategies to establish evidence-based practice in an acute care hospital. *Journal of Advanced Nursing*, 664-674.

Hess, D. R. (2013, October). Science and evidence: Separating fact from fiction. *Respiratory Care*, *58(10)*, 1649-1661. http://dx.doi.org/10.4187/respcare.02591

Institute of Medicine of the National Academies and the Robert Wood Johnson Foundation. (2011). *The future of nursing: Leading change, advancing health* [white paper]. Washington, DC: The National Academies Press.

Leufer, T., & Cleary-Holdforth, J. (2009, October 14). Evidence-based practice: Improving patient outcomes. *Nursing Standard*, *23(32)*, 35-39.

Melnyk, B. M., & Fineout-Overholt, E. (Eds.). (2011). Making the case for evidence-based practice and cultivating a spirit of inquiry. *Evidenced-based practice in nursing and healthcare: A guide to best practice* (2nd ed., pp. 3-24). Philadelphia, PA: Wolters Kluwer Health/ Lippincott Williams and Wilkins.

Morrison, S. M., & Symes, L. (2011, February 26, 2011). An integrative review of expert nursing practice. *Journal of Nursing Scholarship*, *43 (2*), 163-170. http://dx.doi.org/10.1111/j.1547-5069.2011.01398.x

Paley, J., Cheyne, H., Dalgleish, L., Duncan, E. A., & Niven, C. A. (2007, August). Nursing’s ways of knowing and dual process theories of cognition. *Journal of Advanced Nursing*, *60(6)*, 692-701. http://dx.doi.org/10.1111/j.1365-2648.2007.04478.x

Ramacciati, N. (2013). Health technology assessment in nursing: A literature review. *International Nursing Review*, *60*().

Rorty, R. (1991). *Objectivity, relativism and truth: Philosophical papers volume I*. New York, NY: Cambridge University Press.

Roulstone, S. (2011). Evidence, expertise, and patient preference in speech-language pathology. *International Journal of Speech- Language Pathology*, *13(1)*, 43-48. http://dx.doi.org/10.3109/17549507.2010.491130

Sackett, D. L., Rosenberg, W. M., Gray, J. M., Haynes, R. B., & Richardson, W. S. (1996, January 13). Evidence based medicine: What it is and what it isn’t: It’s about integrating individual clinical expertise and the best external evidence. *British Medical Journal*, *312(7023)*, 71-72.

Schlosser, R. W. (2006). *The role of systematic reviews in evidence-based practice, research, and development* [Technical Brief]. Retrieved from National Center for the Dissemination of Disability Research website: http://www.ncddr.org/kt/products/focus/focus15

Scott, K., & McSherry, R. (2008, May 27). Evidence-based nursing: Clarifying the concepts for nurses in practice. *Journal of Clinical Nursing*, *18*, 1085-1095. http://dx.doi.org/10.1111/j.1365-2702.2008.02588.x

Sibbald, B., & Roland, M. (1998, January). Understanding randomized controlled trials: Why are they important? *BMJ*, *316*. http://dx.doi.org/doi: http://dx.doi.org/10.1136/bmj.316.7126.201

Smithbattle, L., & Diekemper, M. (2001, November/ December). Promoting clinical practice knowledge in an age of taxonomies and protocols. *Public Health Nursing*, *18(6)*, 401-408.

Stevens, K. R. (2007). *Essential elements of evidence-based practice* [PowerPoint slides]. Retrieved from Academic Center for Evidence-based Practice website: http://www.acestar.uthscsa.edu/modules/Basic/Intro-to-EBP/PrintableSlides-c2007Stevens-Intro.pdf

Tanjong-Ghogomu, E., Tugwell, P., & Welch, V. (2009). Evidence-based medicine and the Cochrane Collaboration. *Bulletin of the NYU Hospital for Joint Diseases*, *67(2)*, 198-205.

Winters, C. A., & Echeverri, R. (2012, June). Teaching strategies to support evidence-based practice. *Critical Care Nurse*, *32(3)*, 49-54. http://dx.doi.org/http://dx.doi.org/10.4037/ccn2012159