

# Chapter 1

## Overview of Evidence-Based Practice

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### CHAPTER OBJECTIVES

At the conclusion of this chapter, the learner will be able to:

1. Discuss the differences between evidence-based practice and evidence-based teaching.
2. Identify the evolution of evidence-based practice within health care.
3. Explain key aspects of critical thinking.
4. State the specific steps involved in evidence-based teaching.
5. List the steps needed to conduct a literature review to find evidence related to a teaching/learning topic.

### KEY TERMS

- Critical thinking
- Evidence-based practice
- Evidence-based teaching
- PSCOT format

### INTRODUCTION

As nursing continues its migration toward professionalism and advancement of the profession, the idea of scholarship becomes increasingly important. The American Association of Colleges of Nursing (AACN) (1999) states that “scholarship in nursing can be defined as those activities that systematically advance the teaching, research, and practice of nursing through rigorous inquiry that (1) is significant to the profession,

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(2) is creative, (3) can be documented, (4) can be replicated or elaborated, and (5) can be peer-reviewed through various methods” (para. 5). With the confirmation of **evidence-based practice** (EBP) as a foundational aspect within nursing, the idea of methodically and analytically strengthening the fundamental principles while advancing scholarship to move EBP toward **evidence-based teaching** (EBT) is judicious and appropriate. According to Shultz (2009), nursing education requires work by all the members involved in the provision of the educational experience. This process takes time and energy as the questioning and evaluation of the educational experiences occur. Careful steps and strategies for assimilating the multiplexity of the teaching/learning process require that each of us stay vigilant in asking the right questions. The other side of the coin requires that nursing faculty members stay committed to the lifelong pursuit of knowledge. Kuehn (2010) notes that the Institute of Medicine (IOM) demands that the nursing workforce become a dedicated member at the decision table for health care, which in turn demands that nursing education take on the challenge of preparing the next generation to be successful in this expanded role. While it is imperative that the health care delivered to patients be based on the best evidence, teaching processes used to educate nurses must also be based on best practices.

The healthcare community has embraced, and even has come to expect, EBP. The different activities that are assumed within healthcare delivery are expected to be based upon the best evidence that is available. Can we expect anything less when we move into the area of teaching/learning? Wexler (n.d.) makes an interesting and true statement: “All the rhetoric about passionate teaching, and whether professors care about or value teaching, is meaningless if they are bad or ineffective teachers” (para. 4). Moving away from the idea that anyone can teach and toward the concept that effective and productive teaching must be founded on sound, defensible strategies becomes the desired outcome. No longer can academia accept mediocre teaching. Our overarching goal must be, “Effective teaching results in successful learning.” The nursing education community must ensure that the strategies and practices incorporated into the classroom and the learning environment are firmly founded on the best evidence as to what improves the acquisition of knowledge.

Boyer (1990) stated that “we believe the time has come to move beyond the tired old ‘teaching versus research’ debate and give the familiar and honorable term ‘scholarship’ a broader, more capacious meaning, one that brings legitimacy to the full scope of academic work” (p. 16). The handiwork of the scholar requires each of us to step back from only encouraging

an individual's exploration and move toward networking, constructing connections between theory and practice, and communicating knowledge efficiently to students and others. The process of bringing each of the multiple threads together to form a beautiful tapestry of teaching and learning necessitates the scholar to organize and conceptualize the components based upon the best evidence available. It requires willingness to try new ideas and struggle with the process while keeping an eye on the goal of improving the educational process. Shultz (2009) summarizes the ideas in the statement: "Every faculty member can contribute to the development of the science of nursing education by searching for evidence to support the teaching strategies and evaluation methods to be used in their courses and talking with colleagues about gaps in our knowledge when such evidence is not found" (p. 302). Each and every one of us must accept the responsibility to strive for innovative avenues to engage the student and transfer the knowledge needed to result in competent healthcare providers. In addition to seeing what is currently available in the evidence, we must validate the evidence through research and quality improvement efforts.

## HISTORICAL PERSPECTIVES

The nursing process has been at the foundation of nursing practice for well over three decades. Beyea and Slattery (2013) confirm the idea that EBP provides the foundation for clinicians and patients to use for the engagement of shared decision making as it relates to individualized healthcare management. The profession of nursing has begun to look beyond this foundation toward knowledge based upon a firm underpinning of evidence. Malloch and Porter-O'Grady (2009) termed this movement as *disciplined clinical inquiry*. Disciplined clinical inquiry provided nurses with alternatives that allowed learning and engagement with the knowledge available, as it applied to nontraditional settings. The concept of disciplined clinical inquiry evolved into the current term **critical thinking**. As the profession was challenged to base the provision of care on sound knowledge supported by evidence, the inspiration for EBP was born.

EBP was first acknowledged in the 1970s. It was during this time period that different people from different areas realized that the practice of health care needed to be established on facts, rather than just what had been done for years. Dr. Archie Cochrane, a British physician, gained the distinction of being the pioneer and inspiration for the evidence-based medicine movement. As a result of his groundbreaking work in 1972, the

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UK Cochrane Centre in Oxford, England, was established in 1992. This effort led to The Cochrane Collaboration being recognized in 1993. The premise for The Cochrane Collaboration was to advance healthcare decision making through the use of systematic reviews concerning the outcome of evidence from healthcare interventions. The Cochrane Collaboration and Centre are international, not-for-profit, independent organizations that are committed to ensuring that state-of-the-art, accurate information concerning the outcomes of healthcare interventions is accessible by the global community.

Following in the footsteps provided by Dr. Cochrane, several nursing leaders transformed the principles to address the profession of nursing. Beyea and Slattery (2013) cite the early efforts of the Western Interstate Commission on Higher Education, the Conduct and Utilization of Research in Nursing, and the Nursing Child Assessment Satellite Training Program. The initial efforts related to EBP were directed toward accessing and the assessment of research findings.

Evidence-based nursing practice models are numerous. Each of the models was formulated to address a key aspect within the nursing practice. The Stetler model was one of the initial prototypes to be established. It was formulated in 1976 as a research utilization model. This version of EBP was initiated as a practitioner-oriented model with a concentration on critical thinking and individual use of the findings. Another well-known international collaboration within EBP and nursing is the Joanna Briggs Institute. This institute was established in 1996 for use by nurses, medical and allied health researchers, clinicians, academicians, and quality managers. The Joanna Briggs Institute is utilized in over 40 countries and on every continent. The centralized impetus for this institute is to establish the usefulness, suitability, meaningfulness, and practicability related to health routine, tradition, and healthcare delivery approaches. A third EBP model, developed in 1999, is the Rosswurm–Larrabee model. This model is based upon the use of theoretical and research literature. It is used to guide practitioners toward the effective utilization of EBP.

In the last 10 years, several nursing EBP models have been showcased to reflect the practical nature of EBP. These initial models are viewed as scholarly in nature. The Iowa Model was established to assist the clinician at the bedside in the acute care setting to utilize a practical EBP organizational model. Within this model, triggers are used to assist the bedside nurse to take the steps to carefully consider the clinical decision-making process as he or she delivers EBP care. The Advancing Research and Clinical Practice Through Close Collaboration (ARCC) model was established to help advance practice nurses to implement EBP successfully. With the ARCC

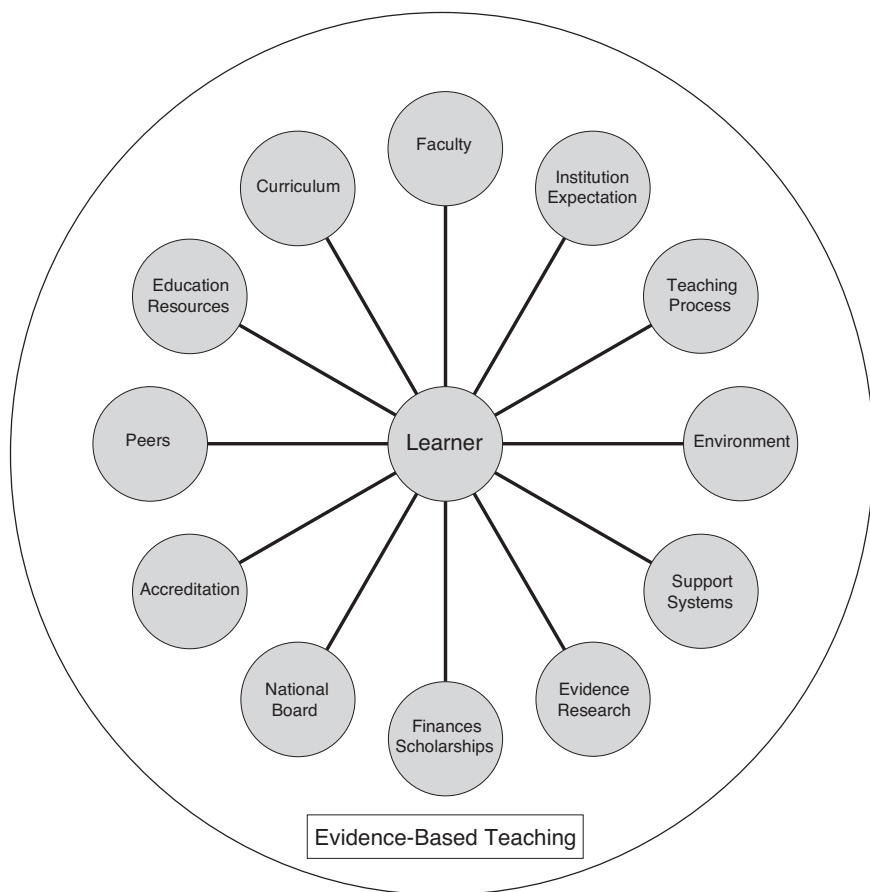
model, the idea of establishing a network of clinicians who are willing to disseminate best evidence and to function as champions for EBP was the foundational support for this model. Another EBP model to consider is called the ACESTAR model. This model originates from the idea of knowledge transformation. It attempts to comprehend the sequences, essence, and characteristics of knowledge. These models are a few of the many EBP models that can be found and used in the clinical provision of health care; furthermore, new models are being developed to address key aspects and applications of EBP.

Though these models are developing and escalating, evidence-based teaching (EBT) models are not found. The concepts and ideas considered in relation to EBT are noted within the literature, but actual models of how to implement EBT are not found. It appears that the accepted attitude leans toward the idea that the models for EBP are enough. With the idea that teaching and learning strategies should be established based on valid and reliable evidence, the application of evidence-based principles directly related to teaching becomes increasingly important. According to Emerson and Records (2008), “The practice of nursing education is that which we do, including teaching didactic and clinical courses, advising students, and designing curricula, as well as our programs of study and the environments in which they are conducted” (p. 359). The teaching/learning environment includes the entire community that comes into play within the teaching/learning experience. The process of EBT must address all of the facets that impact the educational process (**Figure 1–1**). Danielson (2008) presents an important idea that “meaningful conversations about teaching and valid evaluation of teaching must be grounded in a clear definition of practice—a framework for teaching” (para. 1). As we evolve the idea of EBT, a dialogue pertaining to the multifaceted aspects integrated into the acquisition of knowledge within the educational community, will be initiated and followed.

## STEPS OF EBP WITH APPLICATION TO EBT

Evidence-based *practice* has been growing in popularity and functionality for many years. As we begin to move this concept into the area of evidence-based *teaching*, several aspects need to be carefully considered. Felver et al. (2010) list several key principles that can help guide the EBT process. For EBT and EBP to be effective, faculty members must embrace and utilize best practices both in teaching and clinical practice. Only when faculty members demonstrate effective decision making and utilization of best

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**Figure 1–1** Evidence-Based Teaching Diagram

practice can students truly comprehend the usefulness and efficiency of the process.

The definitions of EBP are numerous, so when you then consider EBT, even more problems arise. Is the definition of EBT different from that of EBP? If so, then how? Is finding a unique definition for EBT just splitting hairs? How is EBT different from EBP? In addition to the definition, the process of performing EBT also has unique characteristics that move it beyond the idea of EBP. Whereas EBP works within the clinical realm, EBT resides within a multiplicity of settings, which can include the clinical realm. Teaching is part of the work within the clinical space domain, but it does not take place only within that sphere. Teaching takes many

different directions. According to Emerson and Records (2008), “The ultimate imperative facing nursing today is the creation of a culture that values the practice of nursing education and expands evidence-based education through the design, testing, and refinement of education strategies from nursing and other disciplines” (p. 359). The concepts and practices embodied within EBP must be applied to the system of nursing education. The steps and definitions applied to the management of EBP must be tailored to meet the expectations and actions embodied within the delivery of nursing education.

As a person begins to look deeply into the topic of EBP, multiple definitions can be found. Mitchell (2013) characterizes EBP as an organizational, shared, and interdisciplinary effort that resides within the clinical decision-making arena. Care must be given to ensure that EBP and EBT remain a decision-making effort to improve care and that it does not become a cost determination tool. Mitchell (2013) warns that evidence can become a political tool, which can result in voice and power being removed from nursing practice and human care. Evidence must remain a foundation for improving care but not controlling care delivery.

These definitions somewhat address the same areas of concern, but each has a unique focus. According to Boswell and Cannon (2014), the constant characteristics that are found within the multiple definitions relate to the decision-making scheme, clinical application, provider expertise, and client contribution. **Table 1–1** lists several definitions of EBP along with their related characteristics to provide an overview of the challenge in trying to reach a common definition. Bastable (2014) adds one facet for EBT—commitment to the lifelong problem-solving process. This added dimension, which relates to teaching, augments the general aspects of evidence, decision making, patient preference, and clinician expertise that are found in most EBP definitions. The lifelong involvement by individuals in the learning process is key to the process. Only when EBP becomes a key and foundational aspect within our provision of nursing care and nursing education will the *nature* of the process become *natural*. Each of the nursing EBP models seems to have a focal point, such as academia advanced nursing practice, bedside nursing care, and so forth. The definition used for the model is then aimed at addressing the aspects prevailing within that practice arena. Since there is not a common definition for EBP, the likelihood that a universal definition for EBT exists is next to impossible. EBT is just beginning to gain acceptance and support. Prior to this time period, the focus has been, and continues to be, aimed at ensuring that healthcare providers begin to understand and embrace the concepts of EBP. As different groups become increasingly comfortable with the EBP

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**Table 1–1** Evidence-Based Practice Definitions

Source	Definition	Characteristics Noted
Melnyk & Fineout-Overholt, 2010	A process that permits healthcare providers to achieve the highest standard of care when managing the intricate needs of their patients and families	Quality of care Multifaceted
Rutledge & Grant, 2002	Treatment that assimilates the top scientific data with clinical proficiency, knowledge of pathophysiology, knowledge of psychosocial concerns, and the decision-making processes of the clients	Decision making Clinical focus Evidence Expertise Pathophysiology Psychosocial
Porter-O’Grady, 2010	The assimilation of the paramount research to evidence with clinical proficiency and with client requests	Clinical focus Evidence Expertise Client involvement
Magee, 2005	The meticulous, unambiguous, and prudent utilization of existing preeminent evidence in formulating decisions about the treatment of a particular patient	Decision making Evidence Client involvement
Pravikoff, Tanner, & Pierce, 2005	A methodical tactic of problem solving for healthcare providers exemplified by the employing of top data presently existing for clinical decision making to facilitate reliable and preeminent care to patients	Decision making Clinical focus Evidence Client involvement
Boswell & Cannon, 2014	A method of employing established evidence (research and quality improvement), decision making, and nursing proficiency to regulate the provision of holistic client care	Decision making Clinical focus Evidence Client involvement

foundation, attempts to understand distinctive aspects such as teaching can be explored.

Several definitions for the scholarship of teaching are available for consideration as a definition for EBT is contemplated. According to the AACN (1999), “The scholarship of teaching is conducted through application of knowledge of the discipline or specialty area in the teaching-learning process, the development of innovative teaching and evaluation methods, program development, learning outcome evaluations, and professional



role modeling” (para. 12). Each of these areas is viewed as an important theme that must be conscientiously considered as we venture to address teaching as a distinctive coordination of key hallmarks of excellence. The National League for Nursing (NLN) has not communicated a definition for EBT but has developed an Excellence in Nursing Education Model that depicts the different aspects central to the delivery of effective nursing education. The NLN took on the challenge of determining hallmarks of education and establishing academia as a unique discipline within the profession of nursing. This model can be viewed at the NLN website ([www.nln.org/excellence/model/index.htm](http://www.nln.org/excellence/model/index.htm)). The model covers the areas of student-centered, interactive, innovative programs and curricula; recognition of expertise; clear program standards and hallmarks that raise expectations; well-prepared faculty; qualified students; well-prepared educational administrators; evidence-based program and teaching/evaluation methods; and adequate, quality resources. For each area, the model further delineates multiple aspects to provide insight into the different foci and facets that reflect the content within those areas.

Definitions for EBT are few in number. Emerson and Records (2008) define EBT practice in nursing as “the validation, generation, application, and perpetuation of those methods that facilitate the preparation of skilled and thoughtful nurses who function in a constantly evolving, global health care environment” (p. 361). It is interesting that within this definition the global aspect of health care is incorporated. Emerson and Records (2008) consider the integration of the responsibility of teaching with the scrutinization within teaching that embraces all of the roles and competencies from administrator to advisor to faculty. This definition reflects the idea that all aspects within the practice and management of the educational environment and process must be embedded in EBT.

Appling, Naumann, and Berk (2001) set forth the requirements subsumed within EBT as “the comprehensive measurement and evaluation of faculty teaching activities, with tools that capture multiple sources of evidence key to the accurate and complete measurement of teaching outcome” (p. 247). Within this definition, the focus of the process appears to be on the faculty and the classroom environment. Other aspects inherent in the academic environment and teaching routine are not evident in this definition. The evidence is intended for confronting the challenges faced within the classroom and learning ecosystem.

As each of these definitions for EBP and EBT is carefully considered and conceptualized, a working definition to be used within this text can be developed. For this text, EBT is a dynamic, holistic system using educational principles validated by evidence to support, maintain, and promote

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a new level of knowledge for a learner in a variety of settings. The process is viewed within a systems approach, and a system is considered to be a collection of organized, related, and/or mutually dependent components coming together to make a whole that is complex and multifaceted (*Webster's II New College Dictionary*, 1999). Each of the many different components within the EBT diagram (Figure 1-1) supports, interacts, and challenges the other components within the model. The learner is viewed as the center of the process within EBT. Each and every educational session and resource is intended to ensure that the learner is effectively placed in a position to gain the utmost knowledge from the educational environment. Though the individual learner is the focal point of the process, that center can also be represented by a cohort of learners.

The items within the diagram that network with and have effects on the learner during the educational process are faculty, institutional expectations, teaching process, environment, support systems, evidence research, finances/scholarship, national board, accreditation, peers, education resources, and curriculum. When considering each of these items, faculty, curriculum, and peers are familiar aspects within the educational community. Institutional expectations can be viewed as the mission, philosophy, goals, strategic plan, and/or objectives established by the university or school. The aspects subsumed within the teaching processes are those strategies utilized within the educational process to deliver information. Another facet that affects the learner is the environment. The learning environment is a key feature that sets the stage for learning to occur. When the learning environment is stressful, disorganized, or threatening, the learner's ability to assimilate the information is compromised and impeded. Support systems are identified as another feature influencing the learner. Within this diagram, the support systems can include family, consulting services, health services, and other resources provided by the institution, community, or family for the students. On the other side of the diagram, the education resources are those measures such as tutoring services, testing departments, computer services, and so forth that are provided to aid in the delivery of instruction and the facilitation of the instructional process. An additional aspect that should impact the learner is the evidence supported by educational research. Each of these aspects should be founded on supporting evidence related to the feature. One more facet that has a large impact on the learner is the financial cost of acquiring an education. Within this aspect, the idea of scholarships, loans, and grants can play a part, as these different financial resources are used to support the learner's educational experience. The final two aspects are similar but occur at different levels. Accreditation concerns are frequently at the federal level and

may be impacted by multiple agencies. National and state boards impact the learning process for several disciplines, nursing being just one.

Though each of these aspects has varying effects on the educational experience, each is viewed as important. Some of the aspects are more readily encountered by the learner, such as the faculty, teaching process, finances, peers, educational resources, and curriculum. Other aspects within the groups are of critical importance but may remain more in the background rather than being readily encountered during the day-to-day practice of the educational process. The holistic educational approach must address all of the aspects that impact the learner, such as peer support, curriculum, accreditation rules, and so forth. This approach is marked by continuous opportunities to evolve through the discovery and application of innovative evidence related to the teaching/learning process. The application of EBT to nursing is a multifaceted process that incorporates key components related to effective methodologies and roles to meet the needs of an ever-changing healthcare environment.

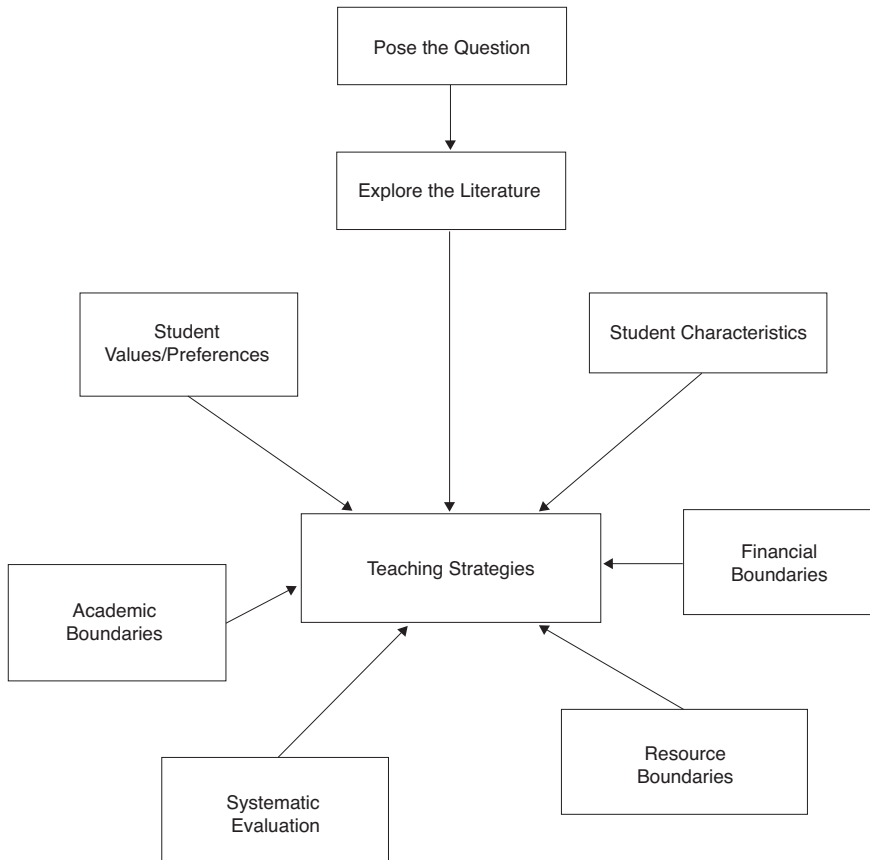
As a definition for EBT is resolved, the process then moves to the activities that are paramount to the successful management of the endeavor. **Figure 1–2** presents a visual depiction of the sequence embedded in the evolution of the process. The posing of the question is the crucial first step in initiating an investigation into the evidence surrounding the educational process. The wording of the question must be clear and concise. By taking care to ensure that the question is effectively developed, the management of the literature review becomes increasingly more attainable. A well-developed question provides the keywords and concepts imperative for identifying and narrowing the selection of the articles. By ascertaining the articles through the literature search driven by the question, the evidence that supports the teaching environment can be discovered. The reviewing of these articles allows for the determination of EBT strategies. Many aspects—such as student values/preferences, student characteristics, academic boundaries, systematic evaluations, and financial/resource boundaries—come to bear on the teaching strategies. Within the synthesis of the evidence, each of these aspects along with other aspects must be carefully and systematically considered as the analysis of the evidence is completed. The evidence used to address the questions may come from faculty or course evaluations.

Within the process of EBP, questions are presented in the PICOT format (**Table 1–2**). The PICOT format structures the question by looking at:

**P** = Population

**I** = Intervention(s)

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**Figure 1-2** Schematic for Evidence-Based Teaching

**C** = Comparison(s)

**O** = Outcome(s)

**T** = Time

By carefully examining each of these aspects, clarity and precision within the question are substantiated. Emerson and Records (2008) suggest the use of the STCO format for EBT questions. The STCO format includes:

**S** = Student

**T** = Teaching technique

**C** = Comparison

**O** = Outcome

**Table 1–2** Comparison of Evidence-Based Practice and Evidence-Based Teaching

Evidence-Based Practice	Evidence-Based Teaching
Pose the clinical question using the PICOT format: P (population), I (intervention), C (comparison), O (outcome), T (time).	Pose the education question using the PSCOT format: P (population), S (strategy), C (comparison), O (outcome), T (time).
Explore the evidence available to determine the best practice using a critical appraisal approach.	Explore the evidence available to determine the best practice using a critical appraisal approach.
Consider individual clinical expertise and client preferences/values as interventions are deliberated.	Integrate teaching expertise with the students' characteristics, preferences, and values in the teaching/learning environment as solutions and ideas are formulated.
Instigate clinical changes as needed within the parameters of the resources and stakeholders.	Initiate educational modifications as needed within the academic, financial, and resource boundaries.
Appraise the change in regard to patient satisfaction, financial considerations, institutional considerations, and professional considerations.	Consider the changes based on key performance criteria identified with the systematic evaluation for the academic setting.

Source: Adapted from 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.

Although this format places focus on the educational aspects, it limits the population to students only. The educational process is much more than just the students. Many aspects within the educational process need to be founded upon evidence. Modifying the PICOT format to embrace the educational community results in increased continuity within the process of confirming evidence to support best practices. As a result, the use of the **PSCOT format** can address the educational process. PSCOT can be described as follows:

- P** = Population
- S** = Strategy
- C** = Comparison
- O** = Outcome
- T** = Time period

As you can see, the “P” continues to be for the population. The population within the educational process can be directed toward students,

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administrators, faculty, alumni, candidates, preceptors, coaches, and many other groups of individuals who are involved in the educational process. The population can be either the individual or the cohort. Care needs to be given to understanding that within the academic arena, the student body or cohort may be viewed as the population instead of the individual student. As the population is designated, care must be given to narrowing the focus of the designation to allow for a clearer identification of the associates to be investigated. The narrowing of the population can be accomplished by carefully considering such items as the educational level, race/ethnicity, gender, and/or age of the cohort and/or individual. The “S” represents the educational strategy. Educational strategies are any aspect within the educational environment that comes into play for advancing the success of the learning process. Any intervention (strategy) that can affect the population must be carefully investigated to ensure that the overriding evidence is used to manage the learning environment for the betterment of the educational process. The “C” within the format mirrors the “C” within the EBP format. The incorporation of a comparison of educational strategies provides an evaluation of the different avenues for advancing the learning environment. Vigilantly looking at the different strategies within the context of the specific EBT question allows for determination of any divergence between the strategies. The “O” within the format also parallels the inclusion of outcome as used in the EBP format. As the EBT and EBP questions are posed, the identification of the expected outcomes allows the individual to clarify what is believed about the populations and the strategies being considered. The final aspect, the “T,” within the question is the incorporation of the time period when applicable. Each and every question does not require the inclusion of the comparison nor a time setting, but it is helpful to clarify the question when used. When all five aspects can be used, locating appropriate articles and evidence becomes easier. The use of all five provides increased clarification for use in discovering the evidence to be considered.

Let’s look at some examples of PSCOT questions to see how the different aspects come into play in an EBT setting.

Example 1:

- P** = first-semester students
- S** = use of care maps
- C** = use of care plans
- O** = improved pathology comprehension
- T** = (none used)

By looking at these different aspects, the question can be stated as: Do first-semester students who use care maps instead of care plans demonstrate an improved knowledge of the pathological aspect? Another example for consideration is to see how the posing of the question directs the entire EBT process.

Example 2:

- P** = students in the clinical setting
- S** = simulation experiences
- C** = experiences with actual clients
- O** = improved perception of clinical principles
- T** = (none used)

As these aspects are composed into a question format, the resulting question emerges: Do students who use simulation experiences in place of clinical experiences with actual clients exhibit improved knowledge of clinical principles within the clinical setting?

A third example of the use of the PSCOT format to determine the best practices available in the learning environment is as follows.

Example 3:

- P** = students between the ages of 18 and 45
- S** = delivery of course materials via an online hybrid course-delivery method
- C** = delivery of course materials via face-to-face active participation course-delivery method
- O** = increased comprehension of course material
- T** = (none used)

Taking these components to direct the inquiry into the investigation of the evidence would result in the question: Do students between the ages of 18 and 45 have increased comprehension of course material when the material is delivered by an online hybrid method in comparison to a face-to-face active participation format? A final example of the development of EBT questions is as follows.

Example 4:

- P** = novice faculty
- S** = use of designated mentors
- C** = use of scheduled faculty development sessions
- O** = increased ease in managing the role
- T** = following the first year of practice

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When using these concepts to formulate a question to investigate, the question could be worded as: Do novice faculty members who have a designated mentor compared to the use of scheduled faculty development sessions during the first year of working as a faculty member have increased ease in performing the faculty role?

Once the question has been determined, the process of EBT continues with the investigation into the evidence (Table 1–2). The exploring of the evidence results from the key concepts and facets identified within the question. Each of the different pieces of the puzzle is used to distinguish the strategic articles and data that can be used to support and/or negate the educational strategy under scrutiny. The discovery and analysis of the articles and data can take many different forms but must address the gaps and/or consistencies within the information available in relation to the teaching strategy.

As the articles and data are summarized to provide a clear and concise picture of the evidence that is accessible related to the topic, the process of EBT necessitates that the students' characteristics, preferences, and values be considered at this point. Though EBT and EBP utilize the evidence as the foundation for practice, the characteristics, preferences, and values of the participants must also be considered as plans for the next phases of the process are considered. Damron-Rodriguez (2008) acknowledged three stages within the "knowledge transfer framework," saying that "knowledge is created and distilled, then it is diffused and disseminated, and finally it is adopted, implemented, and institutionalized" (p. 41). The knowledge transfer framework is supported and utilized by the Agency for Healthcare Research and Quality (AHRQ). Evidence is critical but must be balanced by the individualization of the process for the unique setting in which the teaching strategy is to be used.

After carefully composing the question, investigating the evidence, and considering the uniqueness of the participants, the process of EBT challenges the members involved to integrate academic, financial, and resource boundaries into the plan for utilization of best practices. As opportunities to use the optimum teaching strategy in an educational setting are determined, each of these facets (students, academic environment, finances, and resources) must be conscientiously considered and integrated to ensure that the final outcome is effective. Within the educational environment, it is ill advised to plan changes without considering the financial boundaries, resource availability, student population, and academic environment. Each educational institution is unique and must be considered within the plans to incorporate changes in the learning process based upon the evidence.



The final aspect within EBT is the evaluation of the process. For each question and consideration, key performance criteria must be used to determine if the process and the changes are facilitating the learning within a particular environment. The PSCOT has outcomes listed. These outcomes reflect performance criteria that can be used to further advance the evidence related to the educational strategy under consideration. According to Adams and Valiga (2009), excellence in teaching is the crux of the process by which we understand what it is that we see and understand, although the process of defining the term *excellence* is convoluted and very difficult. Coming to an understanding of how to effectively apply EBP principles to the teaching/learning environment requires succinct and straightforward thinking by leaders in the educational community. Adams and Valiga (2009) further explain that to embrace EBP within teaching, the educational community must integrate high standards for everyone involved in the learning community. Only when each individual accepts the responsibility for these standards, regardless of the challenges or demands to diminish them, can the learning environment obtain the “best practices” within the process of education. Just like nurses had to step up to the plate and accept the principles of EBP, nursing educators must delve into the abyss to organize and establish the concepts and measures imperative for EBT. The advancement of the nursing educational environment requires that each member accept the responsibility of holding fast to high standards. A key approach that will allow the establishment and maintenance of high standards is the confirmation of the teaching/learning aspects through sound and effective evidence.

## CRITICAL THINKING

When discussing EBP and EBT definitions and steps, one essential requirement is consideration of the connection of critical thinking to EBP and EBT. Achieving positive patient outcomes requires faculty who think critically about how and what they teach and students who can take content and apply it to practice through critical thinking. Allen (2013) requires nurse educators to establish a process for staying in step and advancing quality care within the fast-paced, ever-changing practice environment. Before going further, perhaps an understanding of critical thinking is necessary.

Paul, Elder, and Bartell (1997) indicate that the origin of critical thinking began 2500 years ago in the time of Socrates and has gained momentum over the years. In 2005, Fitzpatrick suggested nursing, as a discipline, was

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influenced by David Schron in his classic 1983 work. Ard (2009) also suggested that critical thinking isn't new, and since the 1990s, many publications about critical thinking have emerged. Multiple organizations, such as the AACN, the NLN, and even the IOM, have emphasized the importance of the teaching and application of critical thinking in the provision of patient care. As a result, the subject of critical thinking is a major topic, and "critical thinking" has been listed as a common buzzword in education and practice.

The current emphasis surrounding critical thinking has generated two major controversies related to critical thinking. The first controversy centers on the definition of critical thinking. Thompson (2009), Webber (2008), and Birx (2006) all suggest there is no common standard definition of critical thinking in nursing. The lack of a clear definition leads one to question: If we don't know what it is, then how can we do it? If critical thinking is essential to providing nursing care, how can we translate it into practice? It is beyond the scope of this text to offer all aspects and definitions of critical thinking, but a review of several definitions will provide insight, terms, and an applicable definition for use in EBT.

In 1987, Ennis defined critical thinking as logical and realistic thoughtful judgments that are directed toward clarifying what is true and what is false. Birx (2006) suggests that Paul and Nosich's 1991 definition is more commonly accepted: "Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information gathered from or generated by observation, experience, reflecting, reasoning, or communication, as a guide to belief or action" (p. 4, p. 300). Paul (2004) suggests that critical thinking is an art that involves analyzing and assessing thinking to get to a better process of thinking.

Terms often associated with critical thinking in nursing include the nursing process, problem solving, rational approach, decision making, reflection, concept mapping, and evidence such as scientific research. The terms have relevance to defining critical thinking. For the purpose of this text, critical thinking will be defined as the art of analyzing and applying information gathered to make decisions regarding nursing care.

The second controversy involves whether or not critical thinking can be taught. Paul (2004) states that studies indicate faculty do not understand the concept of critical thinking. In addition, faculty teach content such as math or biology but not mathematical or biological thinking. At an AACN business meeting in 2009, Bain (2009) indicated that Dewey suggested people don't learn by experience but rather by thinking about experience. Heaslip (2008) goes further to say that a professional nurse must think like a nurse, which is different from the perspective of a doctor or other health professionals concerning how the patient is viewed and the problems associated with

providing nursing care. Thus, nurses reason differently than other healthcare providers. Nursing faculty need to teach nursing thinking. Perhaps an example of a clinical learning situation might provide insight into how you would approach critical thinking. Suppose a fourth-semester senior approaches you and says, “My patient is complaining of pain in her arm where I just started an IV. I don’t think I hurt her. What should I do?” How would you teach the student to critically think about the situation? Would you tell her what to do? Would you just take care of the problem and then discuss what you did and why? Is your approach a way to teach nursing thinking?

## ASSESSING SOURCES OF EVIDENCE-BASED TEACHING

According to Oermann (2009), “Without research and other types of evidence, decisions are often made by the most vocal faculty members, for expediency, or in response to a pressing need” (p. 64). It is unfortunate that nursing education bows to the most vocal faculty members rather than seeking and utilizing an EBT approach. As state-of-the-art teaching/learning strategies become increasingly accepted and expected, the need to access the literature to find the current data becomes of principal importance.

Nursing faculty members must ensure that they are information literate. *Information literacy* is defined by the American Library Association (2006) as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (“What Is Information Literacy,” bullet 1). Two key databases that can be used are the Cumulative Index to Nursing and Allied Health Literature (CINAHL; the database of nursing and allied health literature) and PubMed (the National Library of Medicine’s bibliographic database). Both of these databases index any published studies related to nursing education. Since EBT is a new area, a further investigation into the educational databases of Education Resources Information Center (ERIC), PsycINFO, and other databases specific to any question posed should be conducted. According to Salmond (2013), effective sources for identifying systematic reviews include the Database of Abstracts of Reviews of Effectiveness (DARE) ([www.crd.york.ac.uk/CRDWeb/](http://www.crd.york.ac.uk/CRDWeb/)), The Cochrane Library ([www.thecochranelibrary.com](http://www.thecochranelibrary.com)), The Campbell Collaboration ([www.campbellcollaboration.org](http://www.campbellcollaboration.org)), Joanna Briggs Institute for Nursing and Midwifery ([www.joannabriggs.edu.au](http://www.joannabriggs.edu.au)), and several other databases. Systematic reviews are extremely helpful when conducting EBP projects because they can provide summaries, synopses, and syntheses of the key articles related to the topic of interest.

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When selecting a database, it is helpful to understand that databases can follow one of two structures. Some databases are set up as bibliographic databases. This type of database provides information about the publication such as author, title, journal name, or publisher. Within a bibliographic database, abstracts and/or synopses are available for review. The second structure for databases is the full-text format. Within this format, the database allows access to the whole article. Thus, an individual can view the text, charts, graphs, references, and so forth.

Another important aspect within information literacy is to understand that databases have languages unique to their materials. A database will either have a specific controlled vocabulary (thesaurus) or use the MeSH headings. The MeSH headings are those headings established by the National Library of Medicine's thesaurus for MEDLINE. The MeSH headings can be accessed through [www.nlm.nih.gov/mesh/meshhome.html](http://www.nlm.nih.gov/mesh/meshhome.html). By using the MeSH headings to direct the literature review, the number of articles can be streamlined to a more manageable level. These headings and/or other keys derived from the PSCOT help to narrow the focus and get at the appropriate articles within the literature, thus saving time and energy by not accessing ineffective articles.

Only by using healthcare, educational, and other specific databases to query the literature can a full understanding of the current state of a teaching/learning strategy be understood. It is imperative when conducting a literature search that multiple databases be utilized to ensure that the subject has been addressed from multiple directions. By using this approach, the strength of the search is improved.

As articles and evidence are located within the databases and other sites, an evaluation of the information located must be tempered by the nurse educator's specific educational setting. The rating and scoring of evidence related to the applicability is of prime importance. Several organizations have evidence-rating mechanisms available to use within this process. The Cochrane Collaboration, AHRQ, and multiple textbooks provide examples of the different rating mechanisms. Though these rating mechanisms provide a means for evaluating the literature, each instructor must also gauge the literature within the specific context of the educational setting. The instructor must weigh the evidence to determine if it answers the PSCOT question posed and whether it is applicable to the specific setting. The application to a specific setting is unique to the setting. Each faculty member must accept the responsibility of determining if the evidence is relevant in a particular setting. As Oermann (2009) correctly states, "Our problem is not a lack of innovation in nursing education, but instead a lack of evidence about those innovations" (p. 74). Faculty members must

take on the challenge of moving the preliminary studies into the next level, where fully developed studies in a larger controlled setting are conducted and disseminated. McCartney and Morin (2005) support this idea by stating that knowledge of the science of education is fundamental to improve the achievements of the individual both as a teacher and as a facilitator of learning for the students.

## **CRITICALLY APPRAISING KNOWLEDGE FOR TEACHING DECISION MAKING**

According to Allen (2013), “The Carnegie Foundation report helped launch a change from viewing students as passive learners to seeing them as active participants” (p. 46). The move toward active learning in place of passive learning requires each member to be responsible for the decisions made. Finding and assessing sources of EBT leads faculty to ask: How do I decide what needs to be taught? Although there may be a paucity of literature on EBT, the current explosion of information, regardless of content for any nursing course, can be overwhelming. Faculty members have a prescribed amount of time to teach a course. As a result, faculty cohorts have to sift through mountains of material and decide what must be taught versus what would be nice or great to teach. Once again, critical thinking must occur, but this time the faculty members aren’t teaching critical thinking; instead, they are applying it to the selection of content that will adequately supply knowledge about a given subject. Perhaps using the “see one, do one, teach one” phrase has application to the decisions faculty must make regarding the content to be taught. Through continuing nursing education and formal education programs, faculty members have seen other educators presenting content. Faculty can draw upon those experiences by thinking about how other educators assembled the content to be taught. Having seen items such as outlines, handouts, references, and all the multiple instructional aids, faculty can begin to see how content is selected, organized, and presented. Care must be taken to ensure that the educator is skilled. Another caution at this point is that always teaching the way you were taught may not be EBT.

Once again, faculty members need to turn to the literature. By using the methods for assessing courses as previously discussed, faculty members can then begin to cull through the content to be taught. Other aspects will play a major role in appraising knowledge for making decisions about what to teach. Program, curriculum, and evaluation design; teaching/learning strategies; licensure examinations; and accreditation are just a few

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considerations that will influence content and will be discussed elsewhere in this text.

## **SUMMARY THOUGHTS**

Evidence-based practice (EBP) and evidence-based teaching (EBT) go hand in hand with critical thinking. Kuehn (2010) reports that nurses must take a greater role in the healthcare system, which requires that enhancements and modifications occur in nursing education. The emergence of EBP and now EBT has provided an educational environment that promotes critical thinking for both faculty and students. The steps of EBP and EBT are foundational to critical thinking about the sources of EBT and the selection of content to be presented. Jones (2013) categorized five items needed by nurses to be successful in implementing EBP—education, access to information, executive/administrative encouragement, mentors, and evidence-based decision making demonstrated by nursing leadership. These same five aspects are critical for nursing faculty members to embrace and demand when accepting and implementing EBT.

## **SUMMARY POINTS**

1. Scholarship in EBT advances the development of the art and science of nursing education.
2. Several models of EBP have emerged since the 1970s.
3. Multiple definitions of EBP exist, but definitions for EBT are few in number.
4. EBT is defined as a dynamic, holistic system using educational principles validated by evidence to support, maintain, and promote a new level of knowledge for a learner in a variety of settings.
5. The steps of EBP have application to EBT.
6. To structure an EBT question, the format should include population, strategy, comparison, outcome, and time (PSCOT).
7. Critical thinking is much discussed, but two major controversies exist: What is critical thinking, and can it be taught?
8. Assessing sources of EBT requires faculty to be informed about literature databases.
9. Critically appraising knowledge for making decisions for teaching involves EBP, EBT, and critical thinking.

## TIPS FOR NURSE EDUCATORS

1. Be knowledgeable about EBP and EBT in relation to definitions, steps, similarities, and differences.
2. Explore your own values regarding what critical thinking is and whether you believe it can be taught.
3. Connect with a librarian to obtain current, accurate sources for EBT.
4. Identify how you critically appraise content to be taught.
5. Begin to ask questions about your teaching strategies and educational activities

## MULTIPLE CHOICE QUESTIONS

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1. The initial EBP method resulted in the development of the:
  - A. ARCC.
  - B. **Cochrane Centre/Collaboration.**
  - C. Joanne Briggs Institute.
  - D. Rosswurm-Larrabee model.

### **Rationale:**

As a result of Cochrane's pioneering work in 1972, the UK Cochrane Centre in Oxford, England, was established in 1992 and The Cochrane Collaboration was recognized in 1993. The premise for The Cochrane Collaboration is to advance healthcare decision making through the use of systematic reviews concerning the outcome evidence from healthcare interventions. The Cochrane Collaboration and Centre are international, not-for-profit, independent organizations that are committed to ensuring that state-of-the-art, accurate information concerning the outcomes of healthcare interventions is accessible by the global community.

2. One area *not* seen in the characteristics of EBP is:
  - A. provider expertise.
  - B. client contribution.
  - C. **cost.**
  - D. decision-making scheme.

### **Rationale:**

According to Boswell and Cannon (2014), the constant characteristics that are found within the multiple definitions are the decision-making scheme, clinical application, provider expertise, and client contribution.



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3. A systems approach is understood to include:
  - A. **interrelated, interacting, and/or interdependent constituents.**
  - B. unit-specific constituents.
  - C. unilateral, reactive, and/or interdependent constituents.
  - D. global, specific constituents.

**Rationale:**

The EBP process is viewed within a systems approach, and a system is a collection of organized, related, and/or mutually dependent components coming together to make a whole that is complex and multifaceted (*Webster's II New College Dictionary*, 1999).

4. The PSCOT format for developing an EBT statement represents:
  - A. problem, situation, cost, outcome, time.
  - B. problem, strategy, comparison, outcome, time.
  - C. population, situation, comparison, outcome, target.
  - D. **population, strategy, comparison, outcome, time.**

**Rationale:**

The “P” represents the population. The population within the educational process can be directed toward students, administrators, faculty, alumni, candidates, preceptors, coaches, and many other groups of individuals who are involved in the educational process. The “S” represents the educational strategy. Educational strategies are any aspect within the educational environment that comes into play for advancing the success of the learning process. The “C” within the format mirrors the “C” within the EBP format. The incorporation of a comparison of educational strategies provides an evaluation of the different avenues for advancing the learning environment. The “O” within the format also parallels the inclusion of outcome as used in the EBP format. The final aspect, the “T,” is the incorporation of the time period when applicable.

5. In what manner is EBP different from EBT?
  - A. **EBP focuses on the clinical setting.**
  - B. EBT focuses on the educational setting.
  - C. EBP includes only research results.
  - D. EBT is no different than EBP.

**Rationale:**

Whereas EBP works within the clinical realm, EBT resides within a multiplicity of settings, which can include the clinical realm.



6. The two key databases for use during the literature review are:
- A. CINAHL and ERIC.
  - B. **CINAHL and PubMed.**
  - C. PubMed and ERIC.
  - D. PubMed and Google.

**Rationale:**

The two key databases are CINAHL (the database of nursing and allied health literature) and PubMed (the National Library of Medicine's bibliographic database).

7. The critical step required to be successful in conducting EBT is:
- A. conducting a thorough literature review.
  - B. always including a comparison and intervention.
  - C. establishing the student preferences.
  - D. **posing an effective question.**

**Rationale:**

Posing the question is the crucial first step for initiating an investigation into the evidence surrounding the educational process. The wording of the question must be clear and concise.

8. The initial step used when conducting a literature review is:
- A. pulling all of the articles that can be located on the topic.
  - B. **selecting appropriate terms, such as MeSH terms, related to the topic.**
  - C. omitting all articles older than 5 years.
  - D. selecting only articles that are research based.

**Rationale:**

A database will either have a specific controlled vocabulary (thesaurus) or use the MeSH headings. The MeSH headings are those headings established by the National Library of Medicine's thesaurus for MEDLINE. By using the MeSH headings to direct the literature review, the number of articles can be streamlined to a more manageable level.

9. Critical thinking in nursing can be defined as:
- A. the science of teaching ways of thinking about nursing care.
  - B. **the art of analyzing and applying information gathered to make decisions regarding nursing care.**
  - C. a method of making decisions about nursing care.
  - D. the systematic process of thinking that results in optimal patient outcomes.

**Rationale:**

For the purpose of this textbook, critical thinking is defined as the art of analyzing and applying information gathered to make decisions regarding nursing care.

10. The current knowledge explosion in health care:
- A. **impacts what is taught in nursing courses.**
  - B. makes selection of course content easier.
  - C. allows faculty to quickly decide content to be taught.
  - D. is not a problem for determining course content.

**Rationale:**

As a result of the knowledge explosion, faculty members have to sift through mountains of material and decide what must be taught versus what would be nice or great to teach. Once again, critical thinking must occur, but this time the faculty members aren't teaching critical thinking; instead, they are applying it to the selection of content that will adequately supply knowledge about a given subject.

11. The center of the process within EBT is the:
- A. client.
  - B. faculty member.
  - C. **student.**
  - D. school process.

**Rationale:**

The learner is viewed as the center of the process within EBT. It is within the learner that each and every educational session and resource intermingles to ensure that the learner is effectively placed in a position to gain the utmost knowledge from the educational environment.

12. A well-developed PSCOT question provides the focus for:
- A. **selecting keywords and concepts used to narrow the determination of the articles.**
  - B. selecting articles based on the population and outcomes.
  - C. directing the literature search by identifying selected articles.
  - D. managing the EBP process outside of the educational focus.

**Rationale:**

A well-developed question provides the keywords and concepts imperative for identifying and narrowing the selection of the articles. By successfully ascertaining the articles through the literature search driven by the question, evidence that supports the teaching environment can be discovered.

## DISCUSSION QUESTIONS

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1. You have been assigned to teach nursing theories in a 6-week online course. How will you approach the selection of content to be taught?

**Considerations:**

- How many nursing theories exist? Which theories are most commonly used?
- Determine the reading assignments and coursework students must be able to complete each week.
- Assign a group or individual students to a theorist to report back on a discussion board.

2. As you begin to mentor a novice faculty member, the individual asks for help in determining the best way to facilitate a fundamental clinical group of 10 students. Formulate a PSCOT question and determine the keywords to use for a literature review as you demonstrate EBT to this individual.

**Considerations:**

- PSCOT—population, strategy, comparison, outcome, time.
- Key terms should reflect MeSH terms.

3. Identify one example of evidence that is available for each of the following:

- A. A teaching strategy that you are comfortable using.
- B. A teaching strategy that was regularly used when you were a student.
- C. A teaching strategy that you are considering using.

**Considerations:**

- Formulate PSCOT question.
- Pull keywords using MeSH terms.

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