SECOND EDITION

The Praxis of Critical Thinking in Nursing

By Nancyruth Leibold

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The Praxis of Critical Thinking in Nursing

By Nancyruth Leibold

Second Edition

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Dedication

This book is dedicated to my best friend and husband, Craig and my son, Nic. Craig is the most wonderful and admirable man ever. My husband lives each day with impeccable integrity and faith. My son, Nic is a dedicated scholar who ministers the Christian faith. Nic is admirable in his steadfast devotion and piety. Craig and Nic are continuous supporters of my many projects!

Cover:

The pictures on the cover of this book were taken by Nancyruth Leibold at Lake Superior on the Minnesota North Shore during a cold December visit.

Reviewers:

Many thanks for the faithful reviewers who donated their expertise in the reviews of this book. Their gift of scholarly expertise and time is priceless.

Mary Bemker, PhD, PsyS, MSN, CNE, LADC, LPCC, RN

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Accessibility note: The Praxis of Critical Thinking in Nursing

Accessibility Information

This textbook was written with accessibility standards in mind.

In places where there are images, a word accessibility note is included underneath the image that may be used with a text reader.

Reviews

Peer Review by Dr. Mary Bemker, PhD, PsyS, MSN, CNE, LADC, LPCC, RN

The Praxis of Critical Thinking in Nursing is a phenomenal resource for the beginning and experienced nurse. It is written in such a way that both novice and experts will get something from this work. In fact, my belief is that new insights will come after multiple readings of this text.

The concept of critical thinking moved from general to specific, and each level of Bloom's Taxonomy is reflected in this effort. Moving from definitions, beliefs and problematic dynamics linked to critical thinking, this text offers a foundation upon which further knowledge is built. With some "common terms" in nursing, such as critical thinking, many may assume familiarity and not have a holistic perspective of the concept at all. Over the years, this term has been identified in a plethora of ways, and it is a plus to have that overall process reviewed, identified and explained here.

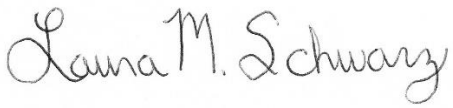
Next, the application of this principle founded upon an evidence- based framework directs the ready in applying such to quality improvement in nursing. Reflections upon critical thinking supports the synthesis of concepts within and around this term. The questions, activities, quotes and pictures offer a multisensory experience in considering critical thinking and the best nursing practice possible.

Kudos to Dr. Leibold for offering a framework and venue that promotes higher level thinking and application within nursing. She has taken a very complex and evocative concept and made it useable in every day nursing care.

February 20, 2019

It was an honor to review *The Praxis of Critical Thinking in Nursing* written by Dr. Nancyruth Leibold. There are many strengths of the textbook. Firstly, the open sourcing is a huge asset to nursing scholars and learners alike. This open source textbook is published in an online format and can be freely accessed at no charge by faculty and learners throughout the world. Critical thinking is a skill for all nursing professionals to continuously develop over their careers. This is the first open source textbook written exclusively on the topic of critical thinking in nursing. Critical thinking in nursing is introduced and explored in a practical and straightforward manner learners will appreciate. QSEN and Baccalaureate Essentials are woven throughout the textbook for easy integration into nursing curricula. Each chapter explores a variety of critical thinking skills, not only essential to nurses in practice, but as life skills. The chapters as well as textbook as a whole unfold logically and promote scaffolded learning. The textbook begins with an overview of critical thinking, then explores critical thinking topics with good depth and breadth of topics, and finally wraps up with reflections and a summary about critical thinking. Each chapter begins with an overview of objectives and terms to facilitate learning. The chapters then explore concepts and then facilitates practical application of concepts though case studies and story-telling. The storytelling not only demonstrates application, but adds interesting real-life situation learners at all levels of education and practice will appreciate. Lastly, chapters wrap-up with questions for thinking and a variety of application exercises to employ and solidify new knowledge and skills. References cited in each chapter and resources for additional exploration are further provided at the end of each chapter. I enjoyed the photos and quotes provided in each chapter. These not only add interest, but stimulate refection, itself a critical thinking skill, contributing to reflective learning. The textbook design incorporates elements to facilitate usability including being written with accessibility standards in mind, friendly font size and type-face, appropriate use of whitespace, headings for ease of and cues in reading, increased font size and bolding where appropriate, table of contents, straight-forward language and terminology, reasonable chapter length, logical flow, use of APA including a variation that is friendlier to use in MS Word, and an index at the end. Also, inherent in an online open-sourced textbook is the ability to easily update the textbook in real time. The only suggestion I have for this online open-sourced textbook, is to provide hyperlinks in the index to bring learners to specific chapters, as well as hyperlinks in the index to bring learners to specific pages within the textbook. This is an easy addition that can be accomplished though hyperlink features built into MS Word. This textbook will surely be of great value to nursing learners globally and is an excellent addition to the body of knowledge for nursing as a whole. Thank you for allowing me to review your textbook Dr. Leibold, it was an honor and pleasure!

Sincerely,



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“The first step to being a great thinker is to believe in yourself.”

Nancyruth Leibold, 1994

Preface

By Nancyruth Leibold

In the early 1990s, while I was teaching at Creighton University, School of Nursing my interest was captured in a “buzz word” that was appearing in the nursing literature.

Critical Thinking was the term. I thought to myself, “What is the definition of critical thinking?” I went to five School of Nursing Professors that I greatly admired and asked them one by one— “What does critical thinking in nursing mean?”

Each professor stuttered and attempted to answer my question, and then admitted they had never really thought about it. It was then at those very moments, when I knew what work I wanted to focus on: Critical Thinking in Nursing Practice. I began my first inquiry about critical thinking—a qualitative study to ask “What does critical thinking mean?” This question turned out to be a complex one!

Then my work spread to how is critical thinking is used in nursing practice and how to teach others to develop their critical thinking skills. Many decades later, the work I have done in this area still has application. No new medication or medical procedure or even smart phone has emerged to change the definition of critical thinking. The use of critical thinking in nursing and the teaching of how to think critically has perhaps evolved with time. But not the foundations.

This book captures the forever applicable definition and application of critical thinking.

Yes, there will be storytelling.

Enter now.

Introduction

The focus of this textbook is to explore the concept of critical thinking and stimulate development of critical thinking skills in nurses. Nursing is the content area, although there are some everyday life applications that are included! Related concepts, such as clinical reasoning, and clinical judgments are also explored. The text structure is the conceptual framework of critical thinking in further detail with several application areas. Each chapter includes content, evidence, and application exercises that are crafted specifically to the critical thinking conceptual framework.

In 2011, the Institute of Medicine (IOM) published a report, *The Future of Nursing: Leading Change, Advancing Health* that included four key messages for nurses to advance the nursing discipline. The key messages include:

- Nurses should practice based on their education.
- Nurses should obtain higher degrees in an improved educational system.
- Nurses should partner with other health care professionals.
- The workforce should have a better information infrastructure.

Collaborating with other health care professionals is a key theme in this textbook. It is interesting to note that the IOM key messages require collaboration with others in health care to accomplish.

The American Association of Colleges of Nursing (AACN) essentials for baccalaureate nursing education and the Quality and Safety Education for Nurses (QSEN) competencies are used within this textbook. The AACN essentials of baccalaureate nursing education of concentration in the text book are:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

Essential III- Scholarship for Evidence Based Practice

Essential VI- Interprofessional Communication and Collaboration for Improving Patient Health Outcomes.

Essential VIII-Professionalism and Professional Values

Essential IX- Baccalaureate Generalist Nursing Practice

The QSEN competencies of emphasis in this text book are Teamwork and Collaboration, Evidence-based Practice, Quality Improvement, Informatics, and Safety. They are identified in the chapters for easy reference.

Chapter Features

- Photos, quotes, graphics, and images to illustrate the concepts
- Key Terms identified at the beginning of each chapter and in bold in the text.
- AACN Essentials Identified
- QSEN Competencies Identified
- Storytelling (narratives)
- Application of Critical Thinking to Nursing Practice
- Case Studies
- Brain Workouts that include a variety of:
  - Critical Thinking Application Exercises
  - Critical Thinking Discussion Questions
  - Questions for Thinking
  - Thinking Games
  - Knowledge Self-Check Questions
  - Evaluation Exercises

References

American Association of Colleges of Nursing (2008). *The essentials of baccalaureate education for professional nursing practice.* Retrieved from http://www.aacn.nche.edu/education-resources/baccessentials08.pdf

Kelly, P., Vottero, B. A., & Christie-McAuliffe, C. A. (2018). *Introduction to quality and safety education for nurses: Core competencies for nursing leadership and management*. (2nd ed.). New York, NY: Springer Publishing Company.

Quality and Safety Education for Nurses (QSEN) (n.d.). QSEN Competencies. Retrieved from http://qsen.org/competencies/pre-licensure-ksas/

Accessibility note: The Praxis of Critical Thinking in Nursing

Chapter 1: Introduction to Critical Thinking

Nancyruth Leibold

Image 1.1. Bench at Lake Superior, Picture by Nancyruth Leibold

Accessibility note: wooden bench on the shores of Lake Superior

Quote

"Do not go where the path may lead; go instead where there is no path and leave a trail."

- Ralph Waldo Emerson

Learning Outcomes

After active engagement, the learner will

1. Define critical thinking.
2. Describe the importance of knowing what critical thinking means.
3. Explain why critical thinking by nurses is important for nursing practice.
4. Differentiate between critical thinking, clinical reasoning, clinical judgment and decision making.
5. Create a plan for self-development of critical thinking.

Chapter 1: Introduction to Critical Thinking

Definitions/Terms

Critical Thinking is an active, internal process of defining the problem, situation, issue, or dilemma; performing a systematic search; planning; inquiring; determining assumptions; exploring alternatives; independently analyzing; logically reasoning; explicating rationales; and reaching a conclusion.

Clinical Reasoning is “reflective, concurrent, critical, creative, and systems, and complexity thinking processes embedded in nursing practice that nurses use to filter, frame, focus, juxtapose, and test the match between a patient’s present stated and the desired outcome state” (Kupier, O’Donnell, Pesut, & Turrise, 2017, p. 424).

Clinical Judgment is a developmental process that includes the cognitive skills of noticing, interpreting, responding in the application of knowledge and experience to make clinical decisions about the care of patients/families/communities (Tanner, 2006; Pouralizadeh, Khankeh, Ebadi, & Dalvandi, 2017).

Decision Making is the act of deciding something

Praxis is the practice of a behavior or skill

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Included Essentials and QSEN:

Essentials

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

> Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care (AACN, 2008, p. 3).

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

Quality Improvement

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems (QSEN, n.d.).

Safety

Definition: Minimizes risk of harm to patients and providers through both system effectiveness and individual performance (QSEN, n.d.).

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Introduction to Critical Thinking

Critical thinking is an essential skill for nurses to develop in their practices. The attributes, attitudes, and praxis of critical thinking is introduced in this chapter with an emphasis on what the concept of critical thinking means. Leibold's (1993) definition of critical thinking and the defining attributes are presented. Other non-nursing definitions and nursing specific definitions of critical thinking are also introduced. Other concepts explored in this chapter are critical thinking dispositions and praxis. Clinical reasoning, clinical judgment, decision-making, and problem solving are discussed in relation to critical thinking to illustrate the many applications of critical thinking in nursing. The chapter concludes with a brain workout of exercises to practice critical thinking.

Definitions of Critical Thinking

Critical thinking, is defined by Leibold (1993) arrived from using Walker and Avant concept analysis (1988). **Critical thinking** is an active, internal process. Since critical thinking is an internal process, only the outcomes are measurable. Outcomes which may be recognized are defining the problem, situation, issue, or dilemma; performing a systematic search; planning; inquiring; determining assumptions; exploring alternatives; independently analyzing; logically reasoning; explicating rationales; and reaching a conclusion. These cognate functions are not required to occur in any certain order. However, the conclusion is most likely the final component. The components interact with each other (Leibold, 1993).

There are many definitions of critical thinking! Thinkers should select a definition that is the best fit for their practices. This textbook is set up using the Leibold (1993) definition of critical thinking. Each chapter probes uses of the defining attributes. Next, we will examine several more definitions of critical thinking and the classic works are highlighted.

Non-nursing Definitions of Critical Thinking

Richard Paul defines critical thinking as "The art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, or more defensible" (1992, p. 643). May be selfish or fair-minded. Entails self-improvement.

Dictionary.com defines critical thinking as
"disciplined thinking that is clear, rational, open-minded, and informed by evidence" (2018, para 1).

Robert H. Ennis (2011; para 1) defines critical thinking as "reasonable reflective thinking focused on deciding what to believe or do."

Peter Facione (2011) defines critical thinking as “purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based” (p. 26).

Glaser (1941) defines critical thinking as “(1) an attitude of being disposed to consider in a thoughtful way, the problems and subjects that come within the range of one’s experiences, (2) knowledge of the methods of logical inquiry and reasoning, and (3) some skill in applying those methods” (p, 5-6).

Nursing Definitions of Critical Thinking

Alfaro-LeFevre defines critical thinking in nursing as “purposeful, informed, outcome-focuses thinking that is guided by standards, policies, ethics codes, and laws (individual state practice acts and state boards of nursing)” (2017, p. 6). Alfaro-LeFevre also (2017) describes critical thinking in clinical nursing practice as a continuous process focused on improving outcomes.

Harding and Snyder (2016) define critical thinking in nursing as recognizing the problem, selecting the pertinent data/information, recognizing assumptions, formulating decisions, and drawing a conclusion related to the situation.

Three Elements of Critical Thinking

The history of the critical thinking movement includes the work of Glaser. In 1941, Edward Glaser, an educator did a landmark study about critical thinking. This work resulted in his publications about the three elements of critical thinking (Glaser, 1941). The three elements are a dispositional attitude to consider problems and topics of knowledge/expertise in a thoughtful way; knowledge about methodology related to logical inquiry and reasoning; and some ability in the skill of applying these methods (Glaser, 1941). This work by Glaser (1941) is still fitting today!

Elements of Critical Thinking (Glaser, 1941)

- An attitude that disposes one to consider problems/topics that one has knowledge to consider in a thoughtful way.
- Knowledge about a method of logical inquiry and reasoning.
- Ability in the skill of critical thinking.

Critical Thinkers

Ennis (2011) describes critical thinkers as having specific qualities:

- ✓ Open-minded

- ✓ Mindful of alternatives
- ✓ Well-informed as much as possible
- ✓ Evaluates the credibility of sources
- ✓ Practices the identification of assumptions, conclusions, and reasons
- ✓ Evaluates the logic and reason of an argument
- ✓ Can develop/defend a reasonable position
- ✓ Asks questions to gain knowledge
- ✓ Develops hypothesis and is able to test
- ✓ Able to define terms
- ✓ Reaches conclusions when appropriate

These qualities are helpful to consider when developing critical thinking. Take a look at the qualities Ennis (2011) pointed out again. Are you open-minded? Do you consider multiple alternatives? Do you scrutinize the credibility of sources? Do you routinely identify assumptions, conclusions, and reasons? Do you evaluate the logic and reason of an argument? Are you able to develop or defend your position? Do you ask questions to learn more knowledge? Do you develop hypotheses and test your hypotheses? Do you define terms so it is clear what is meant? Do you reach conclusions when appropriate? These are things you will learn more about in this book!

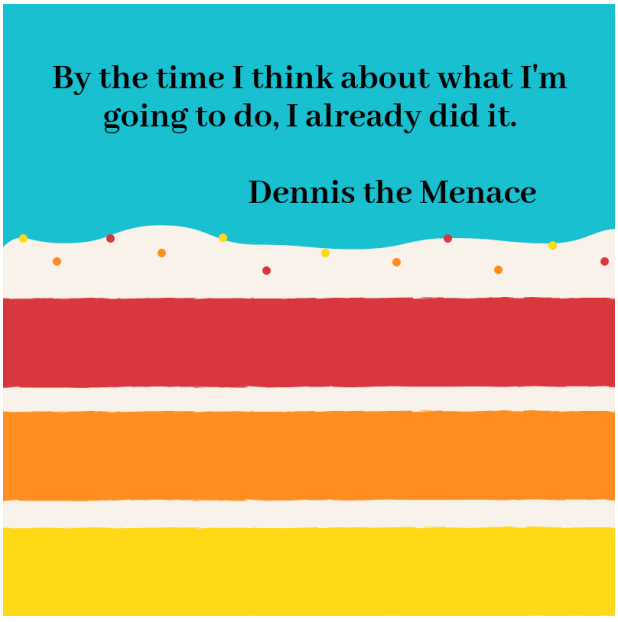


Image 1.2. Quote Banner by Nanza using Canva Software

Accessibility Note: “By the time I think about what I’m going to do, I already did it.” Dennis the Menace

Why is Knowing the Meaning of Critical Thinking Important?

The importance of knowing what critical thinking means is valuable for nurses. Knowing what critical thinking means allows nurses to use this knowledge to develop their own thinking, apply the concept of critical thinking to nursing practice, and be able to question if their own thinking is accurate. The Essentials of Baccalaureate Education for Professional Nursing Practice by American Association of Colleges of Nursing (AACN) (2008) includes the ability to use critical thinking, inquiry, and analysis to use in professional nursing. Perhaps this seems overwhelming. However, by breaking down the cognate function of these thinking terms and zooming in on one area at a time, it is easier to advance one's thinking skills.

To improve one's own critical thinking skills, the focus on one or a few of the elements is helpful in skill development. For example, a common need is to develop skills in checking assumptions. Often, people skip over checking and questioning of assumptions. This can result in thinking errors. Another example is the study of the concept of critical thinking. It is easier to apply critical thinking to nursing practice when the meaning of critical thinking is clear. Being aware of the defining attributes (these are the elements of critical thinking, such as defining the problem) allows nurses to question their own thinking to better refine the process.

Critical thinking impacts quality care, patient safety, and be used for quality improvements. To provide safe patient care that is quality improvements, nurses must be able to apply, analyze, and evaluate using critical thinking skills. To create nursing innovations and quality practices, nurses must also use critical thinking skills. The use of critical thinking by nurses is imperative to quality outcomes for patients (Von Colln-Appling, & Giuliano, 2017). The quote by Dennis the Menace (see Image 1.2) describes the exact opposite of using critical thinking to accomplish quality outcomes for patients. Nurses should deliberately think through the best approach to provide quality outcomes for patients.

Think and Wonder, Wonder and Think!

-Dr. Seuss

Critical Thinking Dispositions and Abilities

Critical thinking is a tool for advancing nursing. The development of critical thinking is a lifelong venture. There is always room for improvement and refinement of one's critical thinking skills. Attributes, critical thinking dispositions, and abilities may be sharpened throughout life. The attributes were mentioned in the first critical thinking definition in this chapter and will continue throughout the book. Keep reading to learn more about critical thinking dispositions and abilities.

Two different areas to understand are the dispositions and abilities. Dispositions refer to character and personality, whereas abilities refer to capabilities and talents. Ennis (2011) has written a great deal about dispositions and abilities. Remember, Ennis defines critical thinking as "reasonable and reflective thinking focused on deciding what to believe or do" (2011, p. 1). Now, lets highlight some of his work about critical thinking dispositions and abilities.

Critical Thinking Dispositions

Ennis (2011) also wrote about critical thinking dispositions. He developed three different categories, 1). Care about the truth or accuracy, 2). Care to grasp and communicate a position honestly, and 3). Care for every person. Within the three categories, he described the dispositions into items.

1) Care about the truth or accuracy
    a. "Seek alternative hypotheses, explanations, conclusions, plan, sources, etc.; and be open to them.
    b. Consider seriously other points of view than their own
    c. Try to be well informed
    d. Endorse a position to the extent that, but only to the extent that, it is justified by the information that is available
    e. Use their critical thinking abilities" (Ennis, 2011, p. 1)
2) Care to grasp and communicate a position honestly
    a. "Discover and listen to others' view and reasons
    b. Be clear about the intended meaning of what is said, written, or otherwise communicated, seeking as much precision as the situation requires
    c. Determine, and maintain focus on, the conclusion or question
    d. Seek and offer reasons
    e. Consider the total situation
    f. Be reflectively aware of their own basic beliefs" (Ennis, 2011, p. 1)
3) Care for every person

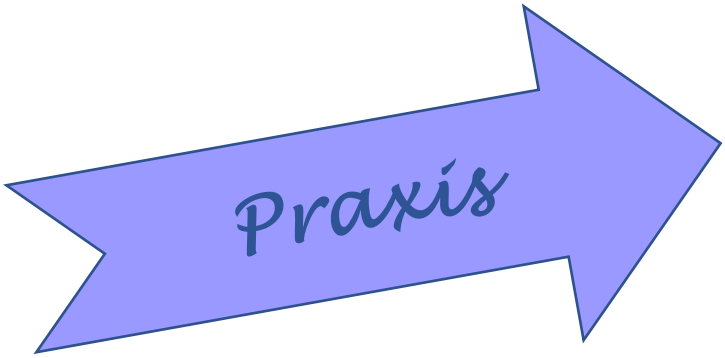
a. “Avoid intimidating or confusing others with their critical thinking prowess, considering others’ feelings and level of understanding
b. Are concerned about others’ welfare” (Ennis, 2011, p. 1)

Critical Thinking Abilities

Ennis (2011) writes of fifteen abilities of critical thinkers. The following abilities are summarized from what Ennis (2011) says are abilities of ideal critical thinkers:

1. Forming a question with criteria to evaluate answers
2. Analyze arguments by evaluating the conclusions, reasons, premises, assumptions, relevant and irrelevant information, and argument
3. Asking a question to clarify or challenge a point, that includes the why, what, meaning, an example, facts, and more detail
4. Evaluate a source for credibility and consider expertise, conflict of interest or lack of, consistency with other sources, reputation, reasons, and procedural knowledge
5. Observe and evaluate reports, including checking for inferring, first hand knowledge, as recorded, and corroborated
6. Evaluate deductive reasoning and logic; take note of words such as “only, some, unless”
7. Evaluate inductive reasoning or inferences
8. Judge value statements, including background facts, consequences of accepting or rejecting the judgement and exploring options
9. Define concepts and evaluate the concept definitions
10. Check assumptions
11. Consider premises, reasons, assumptions, and propositions of doubt or disagreement with an open mind
12. Assimilate the dispositions
13. Use problem solving skills, apply metacognition, and use a thinking checklist
14. Apply emotional intelligence to be sensitive to the feelings and abilities of others
15. Use organization in writing and speaking

To read the full original source, see The Nature of Critical Thinking: An Outline of Critical Thinking Disposition and Abilities by Robert H. Ennis at https://education.illinois.edu/docs/default-source/faculty-documents/robert-ennis/thenatureofcriticalthinking_51711_000.pdf?sfvrsn=7bb51288_2



Praxis: the practice, skill, art, science, or custom (Merriam-Webster, 2018).

Nursing Praxis: regular scholarly inquiry that evolves into clinical practice (Newman, 2008).

Example: Susie, a Pediatric Nurse is a member of the evidence-based nursing team at her facility. The team selects problems related to Pediatrics and uses an evidence-based approach to address clinical problems.

Praxis: What does Praxis Mean?

According to Merriam-Webster Dictionary, praxis means the practice, skill, art, science, or custom (2018). Simply put, praxis means doing something in the present or regularly. For example, when an artist paints water colors every day—that is their praxis. Or a person who reads books regularly—reading is their praxis. Margaret Newman (2008) describes nursing praxis as scholarly inquiry that evolves into clinical practice. For example, a quality improvement nurse uses praxis to improve patient outcomes. Nurses that work in Dialysis Centers use the latest evidence in their praxis of providing patients with renal dialysis.

Working in teams is one area of praxis for most nurses. Nurses work with nurses but also with other healthcare professionals to improve patient outcomes and provide safety. For example, a team of health care professionals work together to address patient falls in a facility. The team meets and communicates their different perspectives that are related to patient falls. A computerized literature search is completed to access information about fall risk. The team splits up the journal articles found in the search and each team member reads the articles assigned and reports back to the team at the next meeting. An evidence-based approach is used to develop new policies and protocols to prevent patient falls in the facility. Developing this example as a routine in the workplace is an example of a praxis of interprofessional teams to provide patient safety and quality outcomes using evidence-based practice. Throughout the entire process, the team members use critical thinking.

Clinical Reasoning

Clinical Reasoning is “reflective, concurrent, critical, creative, and systems, and complexity thinking processes embedded in nursing practice that nurses use to filter, frame, focus, juxtapose, and test the match between a patient’s present stated and the desired outcome state” (Kupier, O’Donnell, Pesut, & Turrise, 2017, p. 424). Clinical reasoning has a strong connection to critical thinking. Nurses use critical thinking skills to practice clinical reasoning. One model to use as a framework for clinical reasoning is the Outcome-Present State-Test (OPT) model of clinical reasoning by Kuiper et al. (2017).

The OPT model is designed to help nurses gain insight about the present state and the desired outcome. Kuiper et al. (2017 tell nurses to think of a coin with one side as the problem and the other side as the outcome. For example, consider pain as one side of the coin and comfort as the other side of the coin. The reasoning of nursing interventions will promote the outcome. Primary concepts within the OPT model include reflection, outcome specification, decision-making, and judgment testing. These concepts are applied to patient situations to provide quality care. Critical thinking, creative thinking, systems theory thinking, and complexity thinking are used in the process (Kuiper et al., 2017).

Another strategy described by Kuiper et al. (2017) is the use of a Clinical Reasoning Web (CRW). A CRW is like a concept thinking map or a mind map. Nurses may use a CRW to be able to see the big picture and the detailed aspects of a patient situation. Mind mapping is another strategy explained by Doenges, Moorhouse, and Murr (2016) as one way nurses may consider many pieces of information to view a patient situation in a holistic manner.

Clinical Judgment

Clinical Judgment is a developmental process that includes the cognitive skills of noticing, interpreting, responding in the application of knowledge and experience to make clinical decisions about the care of patients/families/communities (Tanner, 2006; Pouralizadeh, Khankeh, Ebadi, & Dalvandi, 2017). The relationship between critical thinking and clinical judgments is of interest for nursing praxis. Cazzell and Anderson (2016) examined critical thinking and clinical judgments in nursing students and found an overlap of the two concepts. Deduction was found to be a factor in clinical judgment skills (Cazzell & Anderson, 2016). In Chapter 6, you will learn more about inductive and deductive reasoning, and do some practice activities.

Decision Making

Decision-making is the act of deciding something (Merriam-Webster, 2018). Humans make decisions every day. Some decisions are easier than others to make. Decisions such as what to wear or eat are easy to make. Decision-making by nurses is a complex process in which multiple factors are considered when making decisions related to patient and family care (Jasper, Elliott, & Koubel, 2011; Tanner, 2006).

Critical thinking is used to make decisions. Critical thinking ability impacts decision-making (Von Colln-Appling, & Giuliano, 2017). According to Santovec (2013) there are seven steps to good decision-making. The first step is to clarify the situation or problem. The second step is to create a decision-making environment that is rich with integrity, the overall mission, and acknowledgment of priorities. The third step is the generation of possible solutions. Fourth, is the evaluation of possible solutions. This may require the use of asking additional questions or weighing the pros and cons of each solution. The fifth step is making the decision. Santovec (2013) explains this is based on the use of logic, but intuition is also used. The sixth step is to check the decision. Challenging assumptions is one way to check a decision. Santovec advocates team feedback to check the decision (2013). The seventh step is to communicate and implement the decision. Be sure to evaluate the decision after implementation.

Decision making is critical in the practice of nursing and has received great research attention. In a study of critical care nurses by Luden (2018) a relationship between critical thinking disposition and decision-making was found. Holland and Ulrich (2016) examined the use of critical thinking cards with nursing students in their obstetrics clinical course. The critical thinking cards prompted question asking, problem solving, coaching, and higher-order thinking to promote clinical decision making. The critical thinking cards bridged thinking about content and clinical decision making (Holland & Ulrich, 2016). The findings of these studies support the connection between decision making and critical thinking in nursing.

Problem Solving

Critical thinking is also used to solve problems (Paul, 1992). Although problem solving is like decision-making, it is not the same concept. One may decide, without the presence of a problem, such as making a value decision. Feuerstein developed a critical thinking model for educators to use (1980). Instrumental Enrichment (IE) is an educational approach to promoting independent thinking skills in students (Feuerstein, 1980). Research evidence on the effectiveness of IE to promote critical thinking skills is mixed (Martin, 2014; Plunkett, 2014; Schmidt, 2014). After a review of the literature on this topic, a possibility is that the population in the studies and the study methodology is

related to the study results of success of IE at improving critical thinking skills. IE has shown success in students that have learning difficulties (Ben-Hur, 1992) and intellectually gifted (Kaniel & Reichenberg,1992). More research is necessary to document the effects of IE. IE includes a framework of cognate skills to develop. One advantage is the cognate skills are described at the micro level for educators to help individuals with specific skill development. This may have application for help with specific skill development, such developing skills in checking assumptions, inductive reasoning, and deductive reasoning.

An explanation of how critical thinking is used using Feuerstein's (1980) Instrumental Enrichment theory is given next, coupled with the Military Problem-Solving Process (Stroman, 1990). The first step is identification of the problem which employs the cognate functions of a clear perception, labeling, and defining the problem. The second step of gathering information requires the cognate functions of clear perception, systematic search, spatial and temporal orientation, precision and accuracy and using two sources of information. Developing courses of action is the third step which utilizes the cognate functions of interiorization and planning. Fourth, analyzing advantages and disadvantages of each course of action employs the cognate functions of looking for relationships, comparing similarities and differences, hypothetical thinking, and using logical evidence to support or defend. Deciding the best course of action exercises the use of strategies and plans to eliminate trial and error, and restraining impulsive behavior by limiting alternatives is the fifth step. Implementation of the decision is the sixth step and uses precision and accuracy in response, along with clear visual transport. The seventh step in the problem-solving process is supervision and evaluation of the decision. This final step requires a clear perception, precision and accuracy, remembering various bits of information, hypothetical thinking, and clear visual transport. The recognition of these cognate functions explains how critical thinking is used in problem solving.

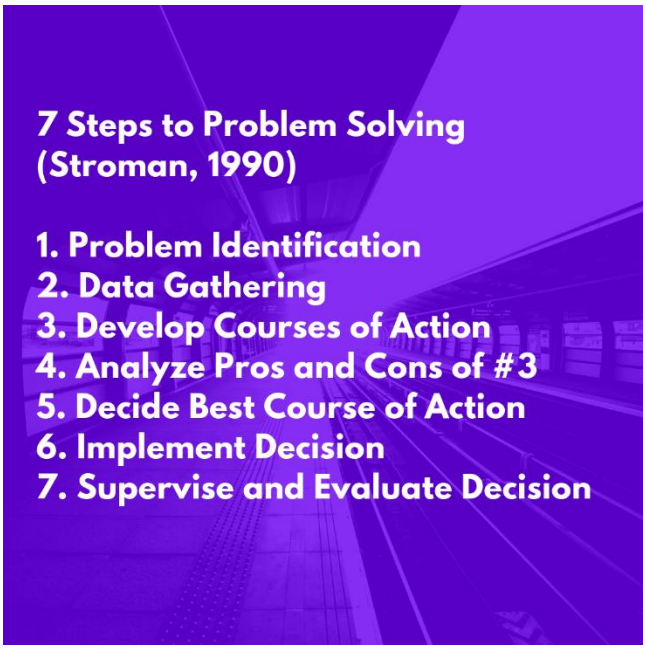


Image 1.3. Banner by Nanza using Canva Software

Accessibility Note: "7 Steps to Problem Solving (Stroman, 1990) 1. Problem Identification, 2. Data Gathering, 3. Develop Courses of Action, 4. Analyze Pros and Cons of #3, 5. Decide Best Course of Action, 6. Implement Decision, 7. Supervise and Evaluate Decision"

Nursing Process

Effective utilization of the nursing process requires the ability to think critically. There is a difference between using nursing process care plan books to write a nursing care plan and creating an individualized care plan for a client based on their situation. Copying information from a care plan book to a care plan does not promote critical thinking. Scrutiny of advice from books in combination with individualizing the plans does provide opportunities for critical thinking. Using references to create an individualized care plan is beneficial, but the creator must recognize that a pre-written plan may not best suit the individual at need. The nurse must question any pre-written plan through inquiry of each action and rationale. In other words, one must not assume that every pre-made plan will work for every client. Therefore, one must critically think about every action in the nursing process.

The scientific process to problem solving is the foundation to the origin of the nursing process (Doenges & Moorhouse, 2013; Doenges, Moorhouse, & Murr, 2016). It involves the components of assessment, problem identification, planning, implementation, and evaluation. Assessment is the systemic gathering of information relating to clients and their problems (Doenges & Moorhouse, 2013; Wilkinson, Treas, Barnet, & Smith, 2015). The cognitive functions of clear perception, systematic search,

labeling, spatial and temporal orientation, conservation of size and shape, precision and accuracy, and using two sources of information are used in assessments. Problem identification is the interpretation of client information (Doenges & Moorhouse, 2013; Doenges, Moorhouse, & Murr, 2016). The cognitive functions of defining the problem, selecting relevant cues, and categorizing are used to identify problems and diagnose. Planning is the action of choice selection (Doenges, Moorhouse, & Murr, 2016). Planning, remembering various bits of information, using strategies and plans to eliminate trial and errors, and hypothetical thinking are the cognitive functions used in planning. Implementation is the action state of the plan (Doenges, Moorhouse, & Murr, 2016). Implementation demands the cognitive function of precision and accuracy in response, and clear visual transport. Evaluation is the assessment of how effective the plan was, followed by revision when necessary (Doenges, Moorhouse, & Murr, 2016). Clear perception, labeling, precision and accuracy, and comparing similarities and differences are used in evaluation.

This links back to what Ennis (2011) said about critical thinking abilities. People have a variety of abilities and critical thinkers are aware of the feelings and abilities of others. To say more about this, Tonya has been a nurse for 15 years and has developed a vast level of expertise. A new nurse, Samantha would not have the abilities of a nurse with 15 years-experience. However, as a critical thinker, Tonya is aware of the difference in abilities from a seasoned nurse to a new nurse and is sensitive to Samantha's needs. A nurse who is a critical thinker recognizes feelings and abilities in others.

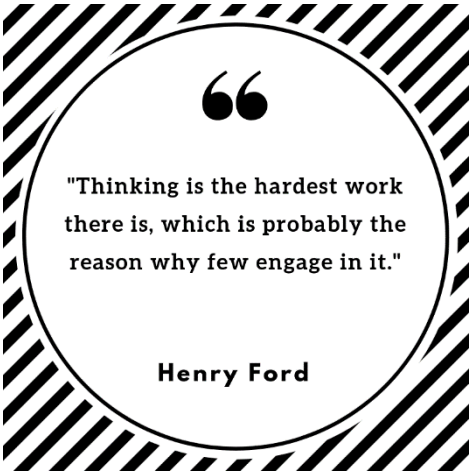


Image 1.4. Banner by Nanza

Accessibility Note: "Thinking is the hardest work there is, which is probably the reason why few engage in it."

Henry Ford

Summary

The definition of critical thinking in nursing was shared in this chapter. **Critical thinking** is an active, internal process. Since critical thinking is an internal process, only the outcomes are measurable. Outcomes which may be recognized are defining the problem, situation, issue, or dilemma; performing a systematic search; planning; inquiring; determining assumptions; exploring alternatives; independently analyzing; logically reasoning; explicating rationales; and reaching a conclusion. These cognate functions are not required to occur in any certain order. However, the conclusion is most likely the final component. The components interact with each other (Leibold, 1993). There are many definitions of critical thinking and some common ones were also shared.

In addition, some related concepts, such as clinical reasoning, clinical judgment, and decision making were also discussed. Developing critical thinking skills is a lifelong adventure. There is always an opportunity to improve one's thinking skills. Life events may add new perspectives to thinking skills. Complete the following critical thinking activities to help you on your lifelong journey of developing critical thinking skills.

Brain Workout

Questions for Thinking

1. What definition do you like the best for critical thinking and why?
2. Are there parts of several definitions you like and why or why not?
3. Have you ever thought about what critical thinking means before? If so, reflect on this experience.
4. List and describe 4 cognitive skills that are important for critical thinking.
5. List and describe 4 attitudes or dispositions that are important for critical thinking.
6. What do you think is the difference between critical thinking and intuition? Are there any similarities between the two concepts?

Answers: no one set answer; multiple answers are expected

Critical Thinking Application Activities: Creating a Self-Plan

Creating a self-plan for developing one's own critical thinking skills is a helpful approach. Growing critical thinking skills is a lifelong learning process. There is always a way to advance thinking skills. Thinking about critical thinking as a whole may be a bit overwhelming. Think about specific elements and focus on two elements of critical thinking to cultivate. Set goals to achieve. Then write objectives that are specific and measurable. Keep reading this book as the defining attributes of critical thinking are elaborated on in the upcoming chapters!

Two Critical Thinking Dispositions that I would like to Develop:

1.

2.

Critical Thinking Development Self-Plan Goals:

1.

2.

Critical Thinking Development Self-Plan Objectives:

1.

2.

Answers: no one set answer; multiple answers are expected

Critical Thinking About Critical Thinking Media

What this video about clinical reasoning. As you watch the video (less than 3 minutes long) think about how analytical reasoning and pattern recognition relates to your nursing practice.

What is Clinical Reasoning by Inga Hege at
https://www.youtube.com/watch?v=gud5xeHmvXw

Answers: no one set answer; multiple answers are expected

Critical Thinking Discussion Questions

1. Explain your strengths as a critical thinker and tell why you think these are your strengths.
2. Describe two skill areas for improvement with your critical thinking skills.
3. Why is (or is not) analysis a type of critical thinking?
4. What are two critical thinking dispositions (Ennis, 2011) that you would like to develop more?
5. How does this quote relate to an experience you have had in nursing?

   To the world you may be one person; but to one person you may be the world. Dr Suess

Answers: no one set answer; multiple answers are expected

Evaluation

Complete this sentence: “I am at my peak performance for critical thinking when …”

Answers: no one set answer; multiple answers are expected

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Chapter 2: Defining Problems, Situations, Issues, and Dilemmas

Nancyruth Leibold

Image 2.1. Lighthouse at Lake Michigan; Photo by Nancyruth Leibold

Accessibility note: picture of a lighthouse on the West side of Lake Michigan

Quote

"You have a brain and mind of your own. Use it, and reach your own decisions."

- Napoleon Hill

Learning Outcomes

After active engagement, the learner will

1. Describe the importance of correctly identifying a problem, situation, issue, or dilemma.
2. Explain why a faulty identification of the problem, situation, issue, or dilemma may lead to thinking errors.
3. Apply strategies to test for the correct identification of a problem, situation, issue, or dilemma.
4. Demonstrate the use of cognitive rehearsal with Socratic questioning.
5. Create Socratic higher order questions to use.

Chapter 2: Defining Problems, Situations, Issues, and Dilemmas

Definitions/Terms

Cognitive rehearsal: is practicing what to say in a situation in a safe environment prior to the real-life situation (Clark, 2018; Roberts et al., 2018).

Exploring important concepts are a type of Socratic question that are used to take a deeper look at conceptual abilities.

Exploratory questions serve to find out what a person knows or understands about a problem, situation, issue, or dilemma.

Dilemma: a situation that involves a choice to be made (Merriam-Webster, 2018)

Focused questions serve to provide a platform for sharing information about ideas, insights, and perspectives.

Issues are unsettled matters (Merriam-Webster, 2018)

Problem: a question or matter that involves doubt

Situation: a combination of certain circumstances at a given point in time (Merriam-Webster, 2018)

Socratic questioning is a type of higher order critical thinking questioning.

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Included Essentials and QSEN:

Essentials

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

> Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care (AACN, 2008, p. 3).

Essential VI- Interprofessional Communication and Collaboration for Improving Patient Health Outcomes.

> Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care.

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

Quality Improvement

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems (QSEN, n.d.).

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Defining Problems, Situations, Issues, and Dilemmas

Defining the problem, situation, and/or issue is an important first step as thinking will be based on the perception of the problem, situation, or issue. It is the most basic attribute to critical thinking. It is important for the thinker to know what is the topic of thought. One cannot think about a topic that they have not correctly determined yet. Although this seems obvious, it is a commonly missed attribute (Leibold, 1993).

First, it is important to define the concepts of problems, situations, issues, and dilemmas. According to Merriam-Webster, an **Issue** is an unsettled matter (Merriam-Webster, 2018). A **problem is** a question or matter that involves doubt (Merriam-Webster, 2018). **Situation** is defined as a combination of certain circumstances at a given point in time (Merriam-Webster, 2018). A **dilemma** is a circumstance that involves a choice to be made (Merriam-Webster, 2018).

A common error in critical thinking is mistakes in defining the problem, situation, issue, or dilemma (Leibold, 1993). Do you ever have frustrations at work about encountering the same problems over and over? Does the same problem occur without any resolution? Do you keep doing the same thing over and over? Or do you try another strategy? Could it be the problem, situation, issue, or dilemma has not been correctly identified?

Consider the case of Amanda. Amanda was upset with a patient who she called non-compliant with their health care. Amanda did the patient education over and over the same way each time. Amanda was frustrated that the patient would not follow the patient education. Amanda did not stop to think about trying another strategy that might work better. Amanda never interviewed the patient to find out more about their lifestyle or what would motivate them to be successful. Amanda did not re-think the approach to develop a deeper understanding to know if it matches the patient's situation better. Can you see the mistake that Amanda is making? What thinking errors has Amanda made? Amanda did not stop to take the time to know her patient a little better or ask questions to know if the treatment recommendations really match the patient lifestyle.

Assessment

The use of assessment is a critical aspect of critical thinking. It is important to gather information and facts about a problem, situation, issue, or dilemma to process and think about the assessment data. Assessment data helps the nurse to define the problem, situation, issue, or dilemma. Failure to gather needed assessment information and evidence may result in faulty thinking. Butler (2012) refers to this as 'real world'

critical thinking. It is important for nurses to do individualized assessments to help define the problem, situation, issue, or dilemma.

Systematic assessment involves an organized search using two or more sources of information to gather information. The critical thinker has a plan or method approach for assessment. This cognitive step requires precision to ensure competence in the remaining thinking process. Systematic assessment may include information gathered by library use, journals, books, interview, physical assessment of a patient/client, or psychosocial assessment of a patient/client. By performing a thorough systematic assessment, the thinker is guarded from jumping to a conclusion before knowing the facts. The purpose of systematic assessment is to use multiple sources of information in the assistance of the thinking process.

A nursing example is how important patient assessment is to the nursing process and patient outcomes. It is important to nurses to consider pertinent patient assessment and health history information to provide quality nursing care. Specifically, the case of Joseph is one that all nurses may learn from. Joseph received education to check his pulse and blood pressure every day at home and keep a log. When he came to the clinic for his check-up, he brought the log. The nurse looked at the log and saw the same pulse rate and same blood pressure recorded for every date. This puzzled the nurse. The nurse asked Joseph if he had been doing this pulse and blood pressure checks and he said yes. Yet, the nurse found it odd that the pulse and blood pressure would be the same every day. The nurse had a private conversation with the physician about how odd it was that the pulse and blood pressure were the same every day. Then they both shrugged. Finally, a nurse asked Joseph to demonstrate how he checks his pulse and blood pressure each day. Joseph was happy to demonstrate. He put on the blood pressure cuff around his arm. Then he turned on the blood pressure machine and as it warmed up, it displayed the same values as on his log: 130/80 and pulse of 72. Then Joseph shut the machine off. It became clear to the nurse that he thought the values during the machine start up were his blood pressure and pulse and that he did not realize he had to let it warm up and then inflate his cuff to check his blood pressure. Only when the nurse assessed his ability to check his pulse and blood pressure was this realized. This example is a reminder of how important it is to do a thorough assessment.

The Art of Questioning

The use of questioning is an essential element for critical thought. Some functions that nurses attend to do require yes and now questions. For example, when helping a patient in severe chest pain, the nurse should not ask a plethora of open-ended analytical questions. Instead, the nurse should ask short answer, such as yes and no type questions to assess the facts of the situation to conserve oxygen for the

patient. However, there are times when asking open-ended questions to stimulate thinking and a deeper assessment is helpful. The art of asking high yield, open-ended questions is the concentration of this section.

Next, a focus of short answer questions and high yield questions is explained. Some short answer, yes and not type questions are automatic, such as “How are you today?” and “How was your weekend?” These types of questions are lower level cognitive recall questions (Nappi, 2017). Questions crafted at the higher order thinking level, such as application, analysis, evaluation, and synthesis foster the development of critical thinking. Questions stimulate the thinking process (Paul & Elder, 2009). High yield questions result in an answer of more than just yes or no, and provide rich data. The more questions we ask, the more thinking is stimulated and this creates a habit of thinking. Sadly, some people become frustrated with persons who ask a lot of questions. However, asking questions is a sign of thinking and should be encouraged.

Socratic questioning is a type of higher order critical thinking questioning. Socratic questions are deep, systematic, and relate to concepts, problems, situations, principles, issues, or theories (Paul & Elder, 2007). Socratic questions serve to explore the truth, and identify problems, situations, issues, and dilemmas. Exploratory, exploring important concepts, focused are three types of Socratic questions described by Paul and Elder in their classic article about the art of Socratic questioning (2008). These types of questions are explained next.

Exploratory questions serve to find out what a person knows or understands about a problem, situation, issue, or dilemma. Exploratory questions help to identify any fuzzy areas or values or biases the person may have (Paul & Elder, 2008). For example, “What are concerns you have about the medications you are prescribed?”

Exploring important concepts are a type of Socratic question that are used to take a deeper look at conceptual abilities. Nurses should question:

“What is the difference between empathy and sympathy?”

“What is shared governance?”

“What is fiscal responsibility in nursing?”

“What is polypharmacy and how does this impact patients?”

Focused questions serve to provide a platform for sharing information about ideas, insights, and perspectives. For example, the nurse manager might ask the staff nurses about their ideas related to holiday schedules and staffing. When using focused questions, the asker should anticipate the need to ask further focused questions, about the consequences, justice, ethics, and so on of the discussion (Paul & Elder, 2008). For example, in the case of the nurse manager asking staff about their ideas related to

holiday schedules and staffing, anticipate asking further focus questions about the consequences of staffing coverage, safety, staff morale, and fiscal ramifications related to ideas.

The skill of questioning is one that takes time and practice to develop. Cognitive rehearsal is practicing what to say in a situation in a safe environment prior to the real-life situation (Clark, 2018; Roberts et al., 2018). Combining higher order questions and cognitive rehearsal is one strategy nurses may use to develop their critical thinking skills. Roberts et al. (2018) found cognitive rehearsal was helpful for nursing students when undergoing interactive civility training. Cognitive rehearsal has other uses such as interprofessional communication and collaboration and conflict management (Leibold, 2018). Think about some questions you might use and say them to practice them first. Consider the yield of the questions and be sensitive to how the questions could be interpreted. Create some open-ended, high yield questions to use and practice using the questions before using in real life situation. This is one way to combine questioning and cognitive rehearsal.

Plan

Planning is a cognate function and defining attribute of critical thinking. Well thought out plans guard against impulsive behavior, and erroneous attempts at trial and error (Leibold, 1993). Impulsive behavior and trial and error engage the person in higher risk and lower success probabilities. Impulsive behavior and trial and error are dangerous behaviors in the profession of nursing, when the lives of clients depend on appropriate actions. Hypothetical thinking is often used in planning to consider what would happen with different choices. The purpose of making a plan is to act methodically in a manner that will promote reaching the intended goal.

Inquiry

The use of inquiry is paramount to critical thinking. Sometimes inquiry is not explicitly realized by people, and therefore taken for granted (Leibold, 1993). It is encouraged that inquiry takes plan on an ongoing basis throughout the thinking process, because it promotes use of many other attributes. One should not assume the truth until the have substantiation of the truth. The expression, “I wonder if …then will…happen,” is an example of inquiry using hypothetical thinking. Often this type of cognition is also combined with planning.

Teamwork, Communication and Collaboration

The Future of Nursing: Leading Change, Advancing Health, a report published by the Institute of Medicine (Institute of Medicine, 2011). The report includes four key messages based on practice barriers with the intent to raise awareness for nurses for the future. In this section, an introduction of the four points is given.

The four key messages:

- Nurses should practice based on their education.
- Nurses should obtain higher degrees in an improved educational system.
- Nurses should partner with other health care professionals.
- The workforce should have a better information infrastructure.

The first key point is that nurses should be able to practice based on their education, whereas now, it is based on the state laws where they practice nursing. The report gives the example of a nurse practitioner who can prescribe medications in one state, but not in another (Institute of Medicine, 2010). So, even though the nurse practitioner has received education to prescribe medications, they are not allowed to do so in the state of practice. The second key point is that nurses should have higher education levels through an improved education system (Institute of Medicine, 2010). Nurses should be able to obtain higher levels of education (for example, the associate degree nurse should attend a Baccalaureate of Science in Nursing-completion program).

The third key point is nurses should partner with all health care providers in leading the way for improved health care (Institute of Medicine, 2010). This requires nurses to collaborate with others in health care with the effect to improve care delivery and outcomes. The fourth key point is that the information infrastructure should be improved to create an environment for workforce planning and policy development (Institute of Medicine, 2010). This includes a better way to collect data and analyze data regarding workforce information and demographics.

It is interesting to note that collaboration, communication and teamwork with others is the third key, but vital to the process of all four points. This is the point of this section. Critical thinking may benefit the most people when collaboration, communication, and teamwork is included in health care. Communication is a lifelong learning topic. Communication is a dynamic area that is influenced by past experiences and culture. Nurses should be sensitive to cultural uniqueness when working in teams. Healthcare professionals have the ability to collaborate to identify problems, situations, issues, and dilemmas.

Safety and Quality Improvement

The skill of identifying the problem, situation, issue, or dilemma is the keystone of improving safety and quality improvement in health care. Knowing what the real problem, situation, issue, or dilemma is provides a point where planning interventions to improve the occurrence so the best outcomes may be obtained. Without a clear understanding of the problem, situation, issue, or dilemma any interventions taken to improve safety and quality may not be effective. Critical thinkers remember to correctly define the problem, situation, issue, or dilemma.

Summary

The center of this chapter is the importance of defining the problem, situation, issue, or dilemma. A thorough assessment is required to correctly define the problem, situation, issue, or dilemma. Thinking and interventions based on an inaccurate definition of the problem, situation, issue, or dilemma may result in flawed thinking and actions. Accurate assessments and definitions are more likely to be successful. The skill of asking questions is helpful to defining the problem, situation, issue, or dilemma. Nurses may combine questioning with cognitive rehearsal to develop some high yield questions to improve critical thinking. Teamwork, communication, safety, and quality outcomes are all related to correct identification of the problem, situation, issue, or dilemma. Working together in a team improves the thinking processes by having combining ideas and thoughts together.

Brain Workout

Questions for Thinking

1. Reflect on your previous use of cognitive rehearsal, if you have used this strategy previously.

2. For what reason might you use cognitive rehearsal when working in an interprofessional team to determine the problem, situation, issue, or dilemma?

Answers: no one set answer; multiple answers are expected

Application Activities

Think of an area at work that is challenging. What are some possible root causes or problems that are creating this challenge? Make a list of possibilities to start your thinking on this topic. Be aware of your thinking while you are thinking!

Josh Assessment Thinking Exercise

You are a nurse working in a medical/surgical nursing unit. You in to Josh S.'s room to check on him and notice his intravenous (IV) pump screen is blank. You look at Josh and he breathing easy and appears to be dozing. To troubleshoot the IV pump, you check several things. What is the first thing you check?

Accessibility note: decorative scroll

Answer to Josh Assessment Exercise: You might have checked several things, but the first item should be the power to the IV pump. Is the pump turned on? Is there battery power or is the pump plugged in?

Cardiac Assessment Thinking Exercise

Elena is a Registered Nurse (RN) in intensive care. While charting she notices a patient's cardiac rhythm monitor is flat line (asystole). What should Elena do?

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Answer to Cardiac Assessment Thinking Exercise: Elena should assess the patient first. The electrocardiogram (EKG) wires may have come unconnected. Although this seems so simple and obvious, a nurse manager who was an Advanced Cardiac Life Support (ACLS) instructor once called a code for a patient and started resuscitation before realizing the patient had come unconnected from the cardiac monitor and was sleeping. She failed to "shake and shout to establish unresponsiveness" and we later teased her about it!

Critical Thinking Discussion Questions

1. In Chapter 1, you studied Critical Thinking Dispositions. Identify one critical thinking disposition that you think is especially important for being able to define a problem, situation, or issue. Explain why you think this critical thinking disposition is particularly important for defining the problem, situation, issue, or dilemma. You may want to refer to Chapter 1 to review the Critical Thinking Dispositions.
2. In Chapter 1, you also studied Critical Thinking Abilities. Which of the Critical Thinking Abilities written by Ennis (2011) are used to define a problem, situation, issue, or dilemma? Explain why you think this ability (or abilities) are important to defining the problem, situation, issue, or dilemma?

Answers: no one set answer; multiple answers are expected

Questioning and Cognitive Rehearsal Practice Case Study

In this activity, you will combine what you have learned about the art of asking questions and cognitive rehearsal. Read the short case and then practice crafting high-yield questions and the use of cognitive rehearsal.

Anna works in a medical-surgical unit that is looking at the rate of urinary catheter related infections. Anna was asked to lead this project. What is some questions Anna could ask to learn information and perspectives of the staff in the unit?

Answers: no one set answer; multiple answers are expected

The Because Game

One way to check you have correctly defined a problem, situation, or issue is to play the Because Game. This is a variation of the Why Game used by the Institute for Healthcare Improvement (2017) for root cause analysis. In the Because Game, you tell the because for the way you defined a problem, situation, or issue six times. The purpose of this activity is to think through it multiple times. It is important to be as sure as possible since much of the critical thinking is based on the definition of the problem, situation, or issue. The purpose is to reinforce telling the "because" of a situation.

The problem, situation, or issues is _____

because_____

The problem, situation, or issues is _____

because_____

The problem, situation, or issues is _____

because_____

The problem, situation, or issues is _____

because_____

The problem, situation, or issues is _____

because_____

The problem, situation, or issues is _____

because_____

Answers: no one set answer; multiple answers are expected

Evaluation

Evaluate your own thinking to make it better! Think about your thinking. Pick a puzzle or game to think about your thinking while you solve the problem. Examples of helpful puzzles or games to help you think about your thinking are: solitaire, word search puzzles, crossword puzzles, scrabble, cribbage, spades, hearts, or other

Be aware of the strategies you are using and focus on how well the strategies are working. What strategy(ies) did you use to solve the puzzle?

Did the strategy work? Did you revise your strategy or try something different to solve the puzzle?

How could this strategy or a similar strategy be applied to workplace problem solving?

Answers: no one set answer; multiple answers are expected

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Chapter 3: *Assumptions*

Nancyruth Leibold

Image 3.1. The Boardwalk at Lake Michigan; Photo by Nancyruth Leibold

Accessibility note: picture of a boardwalk on the West side of Lake Michigan

Quote

"Believe what you like, but don't believe *everything* you read without questioning it."

— Pauline Baynes, *Questionable Creatures: A Bestiary*

Learning Outcomes

After active engagement, the learner will

1. Define the meaning of an assumption.
2. Explain how assumptions are often unchecked in our thinking.
3. Evaluate one's own assumptions.
4. Critique routine practices and underlying assumptions.

Definitions/Terms

Assumptions are thoughts or statements or perceptions believed to be true and taken for granted (Assumption, 2017).

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Included Essentials and QSEN:

Essentials

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

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Assumptions

When you started reading this chapter, did you assume the chapter would be here for you to read? If so, that is an example of how ingrained assumptions are in our thinking. Although the chapter is here to read, and the assumption was true, this may not be the case in other situations.

What is an Assumption?

Assumptions are thoughts or statements or perceptions believed to be true and taken for granted (Assumption, 2017). The importance of considering assumptions is crucial. They are often used as the basis of thinking, although they are ideas taken for granted. This chapter will focus in detail on the concept of an assumption and how to improve the skill of recognizing an assumption. Brookfield (1987) wrote that people fall into habits of thinking and doing. By identifying and challenging assumptions, one may analyze their routine practices of thinking and doing (Leibold, 1995). Socratic questions serve to explore and uncover assumptions (Paul & Elder, 2008). Ask yourself "What are my assumptions?" Assumptions are things so ingrained and taken for granted that it takes some practice to be aware of the assumptions.

Best Practices and Assumptions

Assumptions are not a wrong or bad thing to make. We all make assumptions in life. However, one should check their assumptions to improve their thinking skills. Errors in thinking happen when assumptions are not checked. The best practice is to routinely check assumptions for accuracy. By becoming more aware of what the assumptions are, reasoning processes may be potentiated. Assumptions may also continue to be realized throughout the thinking process. In this chapter are opportunities to practice checking assumptions.

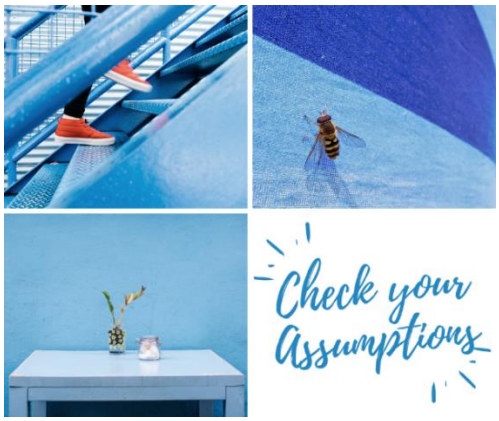

Image 3.2. Mini Banner by Nanza using Canva Software

Accessibility Note: Check your Assumptions

George. Next, practice checking assumptions with the case of George. George is a patient that is at the clinic where you are working today because he says he feels dizzy. His pulse is irregular and the rate varies from 20 to 48. His blood pressure is stable at 128/80. His skin is pale, warm, and dry. You have called 911 to transport him to the Emergency Room for treatment. The portable cardiac monitor at your clinic shows he is in heart block. George is alert and talkative. He tells you he checks his pulse everyday at home and it is always 60. He says this must be a new change with his heart rate as it is always 60.

What are a few assumptions in this case? This can be challenging at first to think of assumptions—but an excellent thinking skill to develop.

Perhaps you had a few assumptions for the case.

Initially, the insistence of George that his pulse is always 60 stumped the staff. Then, after George was stabilized, one nurse dug a little deeper and asked George to demonstrate how he checks his pulse. George uses a large clock at home in his kitchen with a second hand. Then he finds his pulse and starts counting it. The nurse double checked and yes, he did correctly find his pulse. Then, George counted his pulse until it was 60 and stopped. The demonstration identified that George could find his pulse correctly, but misunderstood how to count the pulse. He thought he was to count until he reached 60.

Do you see how having George demonstrate how he takes his pulse revealed the assumption that was relevant to this case?

That is, was George correctly checking his pulse? And once this assumption was checked, further investigating found that George had been mixing up his medications. The heart block was found to be the result of mistaking medications.

Try it Out! Assumption Application Activity

You are already doing some assumption checking, but you may not be aware of it. Practice being aware of checking assumptions by making a conscious, explicit effort to be aware of the assumptions you make.

Let us do a few exercises using reflection to practice being aware of assumptions and checking assumptions.

1. You are entertaining a group of people for dinner and decided to prepare the food yourself. You decide to make your best dish and select two side dishes. You want the food to taste delicious. What might you do before you serve the food to your guests to make sure the food is delicious? What assumption are you checking?

You might have tasted the food or had someone taste the food and this is a very common answer. By tasting the food, the assumption the food would taste good was checked.

2. Now let us try a bit more complex example. In this thinking exercise, the impact of visual and auditory skills is present. Sometimes people assume things based on visual images or auditory experiences they have that may impact their thinking. While at the park you observe a woman put gloves on. Why is she wearing gloves? Be aware of any mental images you may have such as any type or color of gloves. You might have pictured a woman or gloves. If so, zoom in on the gloves—what type, color, style, etc. Any mental images you have may be correct or incorrect. Use the attribute of exploring alternatives to help you think. Open your mind. What are some types of gloves? Falcon holding gloves, winter gloves, ski gloves, driving gloves, baseball gloves, gardening gloves, etc. While looking at her gloves, you see they are thick brown leather. The visual clues contribute greatly to the ability to think, because they provide assessment information.

   In the case of a visually impaired person, another person could describe what they see to provide an auditory translation of the gloves.

   Be aware of any clues, such as mental images that come to you when thinking.

   Answer: The woman in the park is a volunteer gardener. She had been sitting on the bench taking a break, but got up and was putting her gloves on to go back to gardening.

Checking Assumption Practice

This is the case of the roof. The roof is red. What did you picture in your mind? Did you picture a roof on a building? Did you picture the inside of a human mouth? Or other? Information processing is closely linked to the five senses. This may also include mental representations, such as mental pictures or memories of scent or sounds. One way you can check your assumptions is to ask questions. Is it a roof on a building? Is it a roof in a mouth? Is the roof slanted? Flat?

Consider Cultural Implications

Culture is known to significantly impact critical thinking processes. Language is one such factor. The meanings of words may vary from one culture to another. Barb was having lunch with her friend Jan. Jan is from the United Kingdom, but lives in the U.S. now. This story demonstrates the impact of language in their thinking and communications. During lunch, Barb began to think about her hair appointment later

that afternoon. Barb has bangs and tends to wear them long, but thought about trying a shorter style of bangs. Barb asked Jan if she likes short bangs or long bangs. At first, Jan was quiet and had a shocked look on her face. So, Barb repeated her question again to Jan. Jan laughed and did not know what to say. Barb asked Jan what was so funny? Jan said in the United Kingdom, bang is slang for sexual intercourse. Both ladies laughed and laughed. Of course, Barb meant the hair over her forehead when she used the word bangs, but Jan knew a different meaning for the word bangs. This is one illustration of how language and culture may impact thinking and communication.

Teamwork and Collaboration

A team that works well together to achieve a collective goal or outcome is a positive experience. Assumptions occur among a team that may not be accurate. A clue this is happening is when a teammate says or does something that is not consistent with the overall goal. One strategy is to talk about assumptions in a team meeting. Members can list their assumptions or clarify any mis-assumptions. For example, Josh is to have an invasive diagnostic procedure done. The department that is responsible for doing the invasive diagnostic procedure assumed the nurses did the patient education, preparation, and obtained the signed procedure permit. The nurses assumed the responsible department will do the patient education, preparation, and obtain the signed procedure permit. Josh was not ready at his procedure time. By meeting and discussing the situation, the assumptions may be uncovered and the team is able to communicate and collaborate to develop work processes for the situation. It is recommended that organizations provide employee training about teamwork and collaboration for the best success (Ogbonnaya, Tillman, & Gonzalez, 2018). Nurses should be aware of the importance to make assumptions clear with teamwork.

Image 3.3. Mini Banner by Nanza using Canva Software

Accessibility Note: Be Aware of Your Assumptions

Summary

In this chapter, the concentration was on assumptions. Assumptions are often taken for granted. However, by being aware of and checking assumptions, critical thinking skills are improved. It takes conscious practice to become aware of and check assumptions. Areas to consider are language, culture, and the impact of assumptions in work processes. In this chapter's Brain Workout, there is practice for checking assumptions.

Brain Workout

Case Study Application

You have just completed cardiopulmonary resuscitation (CPR) recertification class. You are on your way home and in your neighborhood and see a man lying on the ground outside his house in the front yard. You do not see him moving. What do you wonder about the man? What assumption might you check? How would you check your assumptions?

Accessibility note: decorative scroll

Answer to Case Study Application: You might have wondered if the man was okay or not. If you walk over to check on him, you would see he is okay and be able to talk to him. The man is laying on his stomach with his arm in the window well where he is doing some work. Since the window well is below ground level, you are not able to see his hand and arm moving in the window well.

Application Activities

Questioning The "Routine" and Identifying Assumptions Exercise

Directions: The purpose of this exercise is to explore "routines" where you work. "Routines" are those things that we do "because we've always done it this way." In addition, we will explore and explicitly state the assumptions for each routine.

1. List 3 routines (because we have always done it this way) that you identified at work. Identify at least one assumption for each routine.

Three Routines	**Assumptions for Each Routine**
1.	
2.	
3.	

2. Choose one of the assumptions and describe it in relation to the routine activity. Is it logical? Rational? Current? Question the accuracy. How do you know it is accurate or inaccurate? Is it bias?

Answers: no one set answer; multiple answers are expected

Critical Thinking Discussion Questions

1. Remember a college/university course you took in the face to face mode. What assumptions did you make about going to class?
2. When you report to work at the start of your shift, what assumptions do you make? What assumptions do you check?

Accessibility note: decorative scroll

Answers to Critical Thinking Discussion Questions: There are multiple correct possibilities to the questions. For 1) Did you assume the teacher would show up on time? This is one assumption that many students take for granted. For 2) Did you assume that all the staff would be present? Or did you question some might be ill or late? Have you learned from any experiences to check your assumptions?

Evaluation

Complete this sentence: “In relation to my checking assumptions, I . . .”

Answers: no one set answer; multiple answers are expected

Accessibility note: arrow pointing to the right

Accessibility note: arrow pointing to the right

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Chapter 4: The Concept of Communication Specific to Critical Thinking

Nancyruth Leibold

Image 4.1. The Mighty Mac Bridge; Photo by Nancyruth Leibold

Accessibility note: picture of the Mighty Mac Bridge that connects the upper peninsula of Michigan, looking Southeast from the upper peninsula; a hazy summer day

Quote

"The value of a college education is not the learning of many facts, but the training of the mind to think."

-Albert Einstein

Learning Outcomes

After active engagement, the learner will

1. Define communication.
2. Explain the connection between communication and critical thinking.
3. Apply the communication skill of listening.
4. Analyze the art of asking questions.
5. Analyze how critical thinking and collaborating with other health care professionals impacts patient health outcomes

Definitions/Terms

Analysis: a thorough examination of anything complex to gain a comprehensive understanding (Merriam-Webster, 2018)

Apply is to use information in new situations

Collaboration: working together with others (Merriam-Webster, 2018)

Communication: a process in which information is relayed (Merriam-Webster, 2018)

Create: to make or produce something original (Merriam-Webster, 2018)

Engaging: actively thinking and doing

Evaluate is to justify a stand or decision. Interaction

Interprofessional Collaboration: working together with others in another profession

Listening: being attentive by hearing with consideration (Merriam-Webster, 2018)

Remember: to recall facts and basic concepts.

Understand: to explain ideas or concepts.

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Included Essentials and QSEN:

Essentials

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

Essential III- Scholarship for Evidence Based Practice

> Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

Essential VI- Interprofessional Communication and Collaboration for Improving Patient Health

> Outcomes.
> Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care (AACN, 2008, p. 3).

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

Informatics

Definition: Use information and technology to communicate, manage knowledge, mitigate error, and support decision making (QSEN, n.d.).

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The Concept of Communication

Specific to Critical Thinking

As discussed in Chapter 1, critical thinking is an internal body activity. One cannot look at another person and tell if they are using critical thinking or not. Communication is one way to express critical thinking. **Communication** is a process in which information is relayed (Merriam-Webster, 2018). In this chapter, a deeper look into the significance of critical thinking as related to critical thinking is taken. More about asking questions from the perspective of Paul and Elder (1996), interprofessional communication and collaboration are discussed. Bloom's taxonomy is explained as the verbiage relates to higher order thinking and communication. Evidence and concerns related to healthcare, communication, and critical thinking are also discussed. Communication and critical thinking are quite complex concepts.

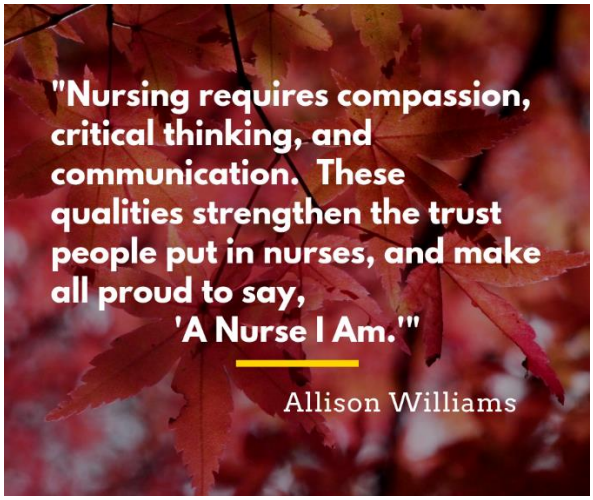

Image 4.2. Mini Banner by Nanza, using Canva Software

Accessibility note of banner words: "Nursing requires compassion, critical thinking, and communication. These qualities strengthen the trust people put in nurses, and make all proud to say, 'A Nurse I Am.'" By Allison Williams

Communication and Critical Thinking in Nursing

Communication is a main aspect of critical thinking (Rubenfeld & Scheffer, 2015). Thinking impacts communication and communication affects thinking! For example, a complete assessment is critical for basing a decision on critical thinking. The act of inquiry and asking questions is a critical piece to gain information so that thinking is based on a complete assessment. Elder and Paul (2009) wrote that thinking that may get us into trouble and even include a list of troubles. Many of the items on the list involve communication, which shows the importance connection between

communication and critical thinking. However, nurses are not born with communication or critical thinking skills. Knowledge is an antecedent for the communication of critical thinking that applies knowledge. A nurse cannot critically think about a patient situation without some knowledge foundation. It is important to nurses to continuously develop communication skills throughout their careers.

Critical thinking is communicated in many ways, but all require some form of interaction. This is because thinking is an internal process (Leibold, 1993). Some examples include:

- Written word
- Technology
- Spoken word
- Singing
- Signing
- Dance
- Art

In school, students are often assigned projects or papers that require analysis, planning, evaluation, or creating. The assignment is an expression of critical thinking about a content topic.

Learning the Art of Asking Questions

Learning the art of asking questions is a valuable skill. In this chapter, you will build on what you have learned about questioning in previous chapters by considering the classic work of Paul and Elder (1996). The critical thinker knows how to ask probing questions to power thinking (Paul & Elder, 1996). Questions may be asked to help us understand the context in thinking. Nurses do this when they take health history information or ask patients questions about their health.

Asking questions also helps the critical thinker inquire about their own thinking. Nurses do this when they break down their thinking into parts and question the parts for accuracy. For example, a nurse that is admitting a new patient compiles a great deal of information using questions. A nurse using critical thinking will also break down each piece of information compiled to check for patterns, accuracy, or any missing data. Some nurses even use lists to check that they have compiled all the necessary information when admitting a patient.

The nurse who is a critical thinker will also check assumptions. For example, when a patient says they check their pulse every day, the nurse might question if the patient is correctly checking their pulse. This does not mean the nurse will ask the patient if they know correctly how to check their pulse. However, the critical thinker nurse will check if the data compiled shows any inconsistencies that raises the question

of accurate pulse checking. Paul and Elder (1996) point out that the more one questions their own thinking, the more skilled they are at doing so.

Questions pointed out by Paul and Elder (1996; para 30) that may be used are

"Is my thinking clear?

Is my thinking accurate?

Is my thinking as precise as it needs to be?

Is my thinking relevant to the issue?

Is my thinking dealing with the complexities of this issue or problem?

Is my thinking too narrow or one-sided?

Is my thinking logical?

Is my thinking focusing on what is most significant?"

Practice asking yourself these questions as you develop your critical thinking.

Teamwork, Interprofessional Communication and Collaboration

Communication is a process in which information is relayed (Merriam-Webster, 2018) by the activity of giving and receiving messages. The messages may include information about a patient, feelings, thoughts, ideas, and beliefs. Non-verbal communication includes body posture, body position, tone of voice, facial expressions, eye contact, and gestures (Lavender, 2016). Verbal communication is through spoken, sung, or written word. Whereas, **collaboration** is the act of working together with others (Merriam-Webster, 2018). **Interprofessional Collaboration** is working together with others in another profession. Critical thinkers in health care practice collaborate with interprofessional teams. Interprofessional communication and collaboration to improve patient care includes the use of critical thinking by the health care team.

Professional development of health care providers on the topic of effective communication has positive results. McCaffrey et al. (2012) studied interprofessional communication via the attitudes of nurses and medical residents specific to positive communication and collaboration. Participants benefited from educational interventions about using effective communication and collaboration skills. Nurses reported better

problem solving in the units six months post education (McCaffrey et al., 2012). In another study, Currey, Eustace, Oldland, Glanville, and Story (2015) used a team-based learning, an educational approach to develop critical thinking and clinical problem solving in critical care nurses. Participants reported accelerated learning, and the themes of engagement, learning effectiveness, critical thinking, and motivation to participate emerged. Lifelong education about communication skills coupled with successful teaching and learning methods are chief for all healthcare professionals.

SBAR or Situation-Background-Assessment-Recommendation is a commonly used tool to improve communication in healthcare. When using the SBAR tool during patient handoffs, healthcare providers report information about the patient's presenting condition (situation), the patient's previous medical history (background), the patient's current medical condition (assessment), and their care plan/medical orders (recommendation) (Murray, 2017). SBAR serves the purpose of providing a tool for asserting communication and an order for providing information during a handoff. Lee et al., (2016) studied the use of SBAR in other than acute care settings with healthcare professionals and found it easy to use and applicable in a variety of settings. Additionally, the SBAR tool was found to be a common language to use, efficient, promote interprofessional team communication, and adaptability in various settings, such as spoken, written, and electronic, and face to face (Lee et al., 2016). The SBAR is a widely used communication tool in healthcare due to the ease and flexibility of use.

There are several research studies that relate communication to patient safety and/or patient outcomes. According to the American Academy of Pediatrics (2016) and The Joint Commission (2012) 80% of medical errors are related to miscommunication. The Joint Commission (2012) reports that most errors occur related to communication during patient hand offs. Handoffs occur among all healthcare professionals. This evidence supports the point that interprofessional communication, collaboration and teamwork improvements in healthcare are required to decrease the number of errors.

Multiple studies have examined the effectiveness of interventions to decrease medical errors related to miscommunications with handoffs. Standardized checklists, reporting protocols, and handoff tools were studied by various healthcare professionals. A decrease in medical errors was found in the studies that examined the use of these interventions to improve communication during patient hand off (Horwitz, 2013; Starmer et al., 2014; Zou & Zhang, 2016; Mueller, Yoon, & Schnipper, 2016).

Further studies associate errors to other specific communication aspects. Frequent communications with patients in acute care hospitals is linked to lower fall rates and lower medication errors reported (Brewer et al., 2018). Interestingly, the more staff members in a facility, the higher the patient fall rates were and the more medication errors reported (Brewer et al., 2018). Ernst, McComb, and Ley (2018)

studied all the factors involved with nurse handoffs from shift to shift. Multiple factors were found from staffing, rounding, preparation, having time to read the patient records and more were found. The authors concluded these factors provided insight to developing an effective system to improve communication during patient handoffs. Communication is the key factor to address to decrease errors.

The Guidelines for Team Communication, published by the AORN includes standard processes and tools to guide effective communication (Link, 2018). The guide is specific to perioperative care. It includes such items as communication with patient hand overs, before and after debriefing, and time outs for verification of the correct patient, procedure, site, and side. A standardized safety checklist is recommended. Communication tools included are I PASS the BATON, SWITCH, and SURgical PAtient Safety System (SURPASS) and SBAR. These guidelines are intended to improve team communication (Link, 2018).

Communication Tools in Healthcare

Name of Communication Tool	Items in Tool
I PASS the BATON	introduction, patient, assessment, situation, safety concerns, background, actions, timing, ownership, next
SWITCH	Surgical procedure, wet, instruments, tissue, counts, have you any questions
SURPASS	SURgical PAtient Safety System
SBAR	Situation-Background-Assessment-Recommendation
Table 4.1 sources: (Cornell, Gervis, Yates, & Vardaman, 2014; DeVries et al., 2010; Department of Defense Patient Safety Program, 2005; Logsdon, Fournier, & Fisher, 2014)	

Table 4.1 Communication Tools in Nursing.

Informatics and Communication

Informatics are an important part of communication in healthcare. From documentation, doing evidence searches, collecting data, to improving patient safety, information systems are being used widely in healthcare. In an interesting project by Mueller, Yoon, and Schnipper (2016) a web-based handout communication tool was created and implemented. A significant reduction in medical errors related to communication errors during patient handoffs was found. Mobile informatics are a branch of informatics that include mobile applications, sensors, and analytic methods. Telehealth is an innovative method of delivering healthcare remotely. Telehealth is a

promising avenue for rural areas (Nelson, 2017). Some counties in states do have enough population to warrant healthcare providers, so telehealth is an option to communicate with citizens to provide services.

Blooms Taxonomy

An educational taxonomy used to describe levels of thinking is Blooms Taxonomy (Haring, Warmelink, Valente, & Roth, 2018; Kusumoto, 2018). Bloom's Taxonomy is used to write learning objectives and plan curriculum by educators. Nurses also use it to write learning objectives for patient education. There are level of thinking and learning from simple to complex. When starting to learn about a topic, it begins with understanding and knowledge, as signified as the lower part of the pyramid (see Image 4.3). After learning knowledge, it may be applied. Higher order thinking and learning occurs with analysis, evaluation and creation.

Perhaps you may remember doing research article critiques, or evaluating a patient education material, creating a PICOT statement, creating an evidence-based project presentation, or doing a community assessment. These assignments are all higher order learning projects that require higher order thinking. The terms of Bloom's Taxonomy are also used in critical thinking skills and explained next.

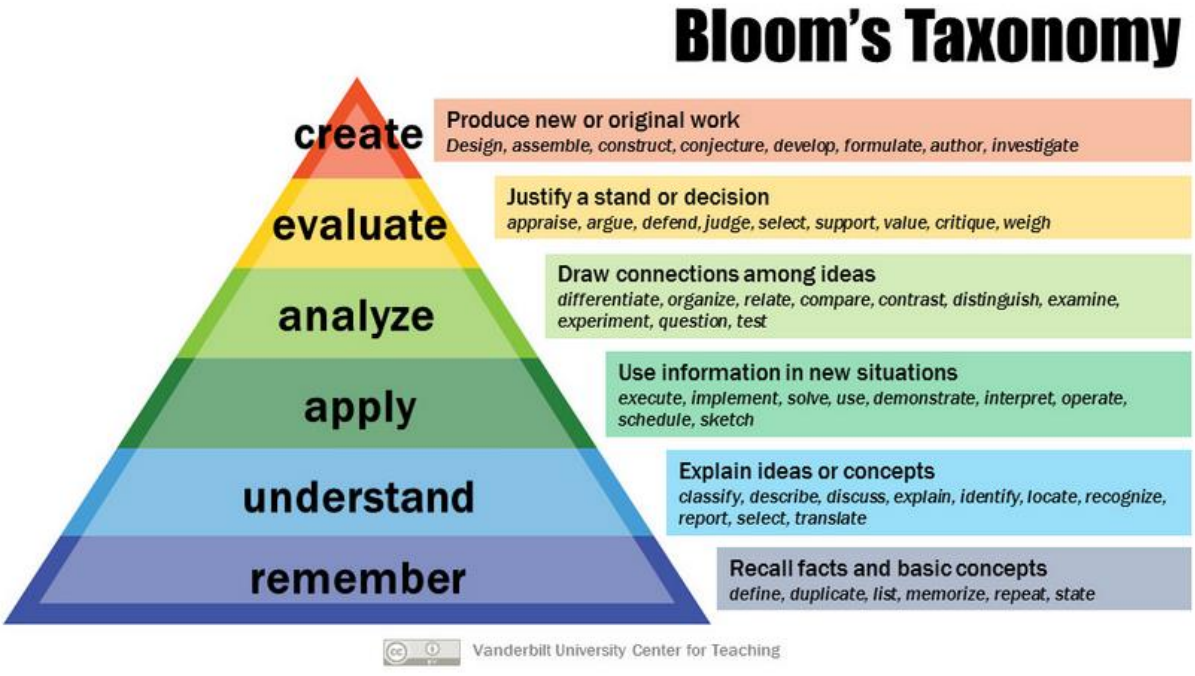

Image 4.3: Bloom's Taxonomy. Vanderbilt University Center for Teaching, CC BY

Accessibility Note and explanation of image: The lower level of the pyramid is remembering. **Remember** is to recall facts and basic concepts. Other verbs in this level are define, duplicate, list, memorize, repeat, state

The next level up of the pyramid is understand. **Understand** is to explain ideas or concepts. Other verbs in this level are classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

The next level up of the pyramid is apply. **Apply** is to use information in new situations. Other verbs in this level are execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

The next level up of the pyramid is analyze. **Analysis** is a thorough examination of anything complex to gain a comprehensive understanding (Merriam-Webster, 2018). Analysis draws connections among ideas. Other verbs in this level are differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

The next level up of the pyramid is evaluate. **Evaluate** is to justify a stand or decision. Other verbs in this level are appraise, argue, defend, judge, select, support, value, critique, weigh

The top level of the pyramid is creating. To **create** is to make or produce something original (Merriam-Webster, 2018). Other verbs in this level are design, assemble, construct, conjecture, develop, formulate, author, investigate

Writing and Critical Thinking

A strong connection between writing and critical thinking exists. Yensen describes a technique for having students analyze their own writings, based on the Blooms Taxonomy. This analysis involves synthesis and evaluation cognitive skills in addition to analysis, and the activity is designed to improve writing skills and critical thinking (2016). Chen (2017) studied the relationship between critical thinking and writing in English courses in community college students and found that coursework with writing did improve student critical thinking skills. Critical thinking and writing abilities have strong correlations (Soodmand Afshar, Movassagh, & Radi Arbabi, 2017). Writing is an important aspect of higher levels of critical thinking.

Questions for thinking: Why do you think there is a connection between writing and critical thinking?

Summary

Communication and how it relates to critical thinking were the overall focus in this chapter. This very complex topic is a lifelong learning area and one that needs continuous quality improvement. Due to the strong connection between communication and critical thinking, this is a key area to improve patient outcomes and safety. Most medical errors are related to communications errors with patient handoffs. Progress in this area related to improving and standardizing communication during handoffs has been made. Yet, further work in this area is needed.

Brain Workout

Questions for Thinking

1. What are common ways that you communicate with others of the health care team? Which of these methods are the most effective?
2. What is a new communication strategy that you could add to your toolbox?
3. Why is (or is not) writing a type of critical thinking? Does writing foster critical thinking? How about the papers you write for courses—do you use critical thinking skills to compose these papers?

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Answers: no one set answer; multiple answers are expected

Application Activities

Improve your Communication

1. Think about your communication skills. What is one area of communication that you could improve?
2. Explain why you choose this area of communication.
3. What is the outcome you want to achieve with improving this communication area?
4. What is one intervention could you take to improve this communication area?
5. If metacognition is thinking about thinking, while you are thinking—then what is the use of critical thinking about communication called?

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Answers to Application Activities: multiple answer are expected, since many questions/answers are individualized. For number five, there may be several answers, but metacommunication is one option!

Quote Example Communication Analysis

Read this quote:

> I know you believe you understand what I said, but I am not sure you realize that what you heard is not what I meant!
> **- Robert McCloskey**

Think about this quote and describe what you think it means. Do you find it clear or confusing? Why?

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Answer to Quote Example Communication Analysis: This quote has different interpretations from different people. This quote is confusing to many people. Unclear communications may lead to various interpretations. There could be several answers to the meaning of this quote. This is an example of how important it is to use clear communication.

Discussion Questions

1. Is reading a form of communication? Why or why not? Explain your reasons.
2. Estimate how much of your day is spent communicating? What are some commons ways you communicate?
3. How important is communication for you in reaching your life dreams and goals? Explain your answer.

Answers: no one set answer; multiple answers are expected

Evaluation

Complete this sentence: “I am best at communicating when . . .”

Complete this sentence: “I need to improve my communication skills with . . .”

Answers: no one set answer; multiple answers are expected

Evaluate Your Listening Skills

Evaluate the following listening skills you would like to improve:

Interrupting others

Looking at your cell phone while the other person is talking

Change the focus of the conversation to yourself

Finishing sentences for others

Correcting what the other person said

Being silent and not responding

Being impatient

Jumping to conclusions before you hear the what is being said

Making assumptions about what the other person feels

Interrupting and debating

Judging the other person

Answers: no one set answer; multiple answers are expected

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Chapter 5: Exploring Alternatives (Keep an Open Mind)

Nancyruth Leibold

Image 5.1. Marigolds, lilies, and rock; photo by Nancyruth Leibold

Accessibility note: picture of marigolds in bloom, next to lilies and rocks

Quote

"The eye sees only what the mind is prepared to comprehend."

- Henri Bergson, French Philosopher and Educator

Learning Outcomes

After active engagement, the learner will

1. Describe how exploring alternatives relate to critical thinking skills.
2. Explain how exploring alternatives is an important aspect of critical thinking.
3. Apply the skills of exploring alternatives to real world situations.
4. Evaluate oneself for improvement in exploring alternatives.

Definitions/Terms

Brainstorming: listing ideas with initial judgment

Exploring alternatives involves making a list of the most viable alternatives and then using a systematic method of assigning value to the alternatives to select the best choice.

Hypothetical thinking: is used to explore the alternatives to consider the consequences of the possible alternatives in a situation (Leibold, 1993).

Logical Thinking: the action of considering premises and a true or consistent conclusion (Bornstein, 2018).

Open mind: being open to consider a variety of options and perspectives

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Included Essentials and QSEN:

Essentials

These Quoted Essentials are included in this chapter:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

> Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care (AACN, 2008, p. 3).

Essential III- Scholarship for Evidence Based Practice

> Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

Essential VIII-Professionalism and Professional Values

> Professionalism and the inherent values of altruism, autonomy, human dignity, integrity, and social justice are fundamental to the discipline of nursing.

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care

Quality Improvement

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.

Safety

Definition: Minimizes risk of harm to patients and providers through both system effectiveness and individual performance.

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Exploring Alternatives (Keep an Open Mind)

In this chapter, the spotlight is on exploring alternatives. Our past experiences and culture may impact our ability to explore alternatives with an open mind. It is not always clear that other factors (past experiences, culture, emotions) are influencing thinking. Critical thinkers are able to explore many alternatives to a problem, situation, issue, or dilemma. Tactics for exploring alternatives in nursing are explored.

Exploring Alternatives

A critical thinker explores alternatives when decision making, problem solving, or using higher order thinking. An open mind is necessary for exploring alternatives. This helps to prevent the critical thinker from making a thinking error by jumping to a conclusion. **Exploring alternatives** involves making a list of the most viable alternatives and then using a systematic method of assigning value to the alternatives to select the best choice. Critical thinkers use the exploring of alternatives to determine the best choice in the situation.

Before exploring alternatives, a critical thinker considers the definition, issue, or situation at hand. This is important because a mis-defined issue or situation could flaw the subsequent thinking. Sometimes, the definition, issue, or situation is not completely clear. The critical thinker keeps an open mind so as not to lock into a belief that is not changeable should new information become available. Nurses do this all the time. Nurses have a few considerations when a patient presents with a problem, but do not lock in until we know more information, such as laboratory results or radiology reports. This information provides valuable insight to thinking. Caution against exploring alternatives without a clear and thorough assessment. Sometimes assessment or further assessment to define the problem is necessary. The critical thinker also considers assumptions. Since taking something for granted is a reality of an assumption, the critical thinker must check assumptions.

Caution against exploring alternatives without a clear and thorough assessment.

A thorough assessment is required before exploring alternatives. For example, Steve, the Quality Improvement nurse monitors central-line associated bloodstream infections (CLABSIs) at Unicorn Hospital. Steve notices there has been an increase in CLABSIs over the past two months and has made this a priority area to address. But

how should Steve proceed? Unicorn Hospital has mandatory CLABSI prevention didactic training annually for staff. Sometimes, it is something basic that is being missed. Steve wonders if a skill check off training would be of help. He pilots this idea with a few nurse volunteers and realizes that there is a wide variation in sterile technique being used. Steve has learned that sterile technique may be an issue related to CLABSI. This is helpful information for him to use as he moves forward to address the increase in CLABSI infections.

Strategies to Develop Exploring Alternatives

There are several strategies recommended to develop exploring alternatives:

- Assessment
- Brainstorm
- Literature Searches
- Communication
- Check the Policy and Procedure Manual
- Consider Ethics
- Hypothetical Thought
- Consider the intended Outcome

Next, a description of the strategies related to exploring alternatives is given. Examples of the strategies are shared. Think about what you are reading and how you may use the strategies or already are using some of the strategies.

Assessment

The critical thinker performs a thorough and systematic assessment to gather information. This action provides valuable insight and information related to the situation. Depending on the area that a nurse works in will dictate a systematic assessment. The nurse who is a critical thinker will keep an open mind and use inquiry to make thorough assessments.

Brainstorm

Brainstorming is a method in which as many ideas as possible are thought of without judgment in the initial phase. Brainstorming can be used to generate solution paths for problems. In the first step of brainstorming, as many ideas as possible are listed and judgement is withheld. Step two is the qualitative step in which the ideas are

critiqued and judged for feasibility and worth. Sometimes a few of the ideas are merged to find the best one to use. Brainstorming can be done as an individual, but a team can also use brainstorming to explore alternatives.

Literature Searches

Performing a literature search to find evidence and ideas that are evidence based. This can help to discover alternatives that are evidence-based to produce the best outcomes. The use of search words and phrases is key to finding evidence in a database. Use brainstorming to make a list of possible search words and phrases to use. Another strategy is to find one article that is helpful and look at the search words at the end of the abstract. Then use these search words to find evidence. Literature searches to find evidence require skill and practice, but result in locating valuable information.

Communication

In chapter 4, the entire focus was on the magnitude of communication to critical thinking. By communicating with others, one can discover more information, as well as share knowledge. Listening to ideas and perceptions that others have is a valuable manner for exploring alternatives. The more diverse the individuals are that one listens to, the more ideas are heard because different backgrounds bring creativity and unique perspectives. Reading, asking questions, and listening all gain beneficial knowledge.

Check the Policy and Procedure Manual

Policy and procedure manuals often have a wealth of information. Remember to check the policy and procedure manual for any helpful information. Consulting with another person may be helpful as they may know the name of the procedure or policy you are looking for. If one does not exist, it might be an idea to present to your supervisor for consideration.

Consider Ethics

Ethical practice is certainly an area of utmost worth in nursing. The ethics that relate to the case should be considered when exploring alternatives. The American Nurses Association (ANA) (2015) is a tool for nurses that includes statements about ethical values and practices in nursing. The guidance from the code of ethics can help

nurses know what is acceptable and provide direction in situations. When considering a specific case, nurses can review the code of ethics for assistance in exploring what to do in a certain situation.

Hypothetical Thought

Hypothetical thought is the use of considering what could happen in a certain circumstance or situation. It is a high level of critical thinking that should be rational and logical. Hypothetical thinking is used to explore the alternatives to consider the consequences of the possible alternatives in a situation (Leibold, 1993).

The five senses are vision(sight), auditory, taste, smell, and touch. The five senses are used with hypothetical thought through the thinking medium. Not every sense is used in every case. And the sense may be in one's mind, not necessarily in the real world. For example, Merry is the unit nurse who creates the nursing staffing schedule. Susie has requested Tuesday off. Dawn cannot work on Tuesday, but has Thursday off. Laurel cannot work Thursday but has Tuesday off. Merry uses hypothetical thought to picture in her mind if a three-way switch could work in this circumstance before making the changes on the schedule.

Consider another example of using the five senses for critical thinking. Cheryl and Abby oversee designing a remodeling project of a nursing unit. The nursing unit is a post-surgery unit where patients recover prior to be discharged from the surgical hospital. Cheryl and Abby know that many surgical patients are challenged with pain, nausea/vomiting, and dizziness. As they select the new carpets, wall colors, draperies, privacy curtains, and flooring for the unit, they keep these surgical challenges in mind. They select hallway carpet that will be easy for the eyes to look at without resulting in nausea or dizziness. They choose colors and designs for furnishings that are relaxing and peaceful.

Hypothetical thought may be used in several ways when critical thinking. In addition to use for exploring alternatives, it may be used in other thinking operations, such as playing games. For example, word games often required a great deal of knowledge and thinking skill. The most obvious thing is that a robust vocabulary is helpful. Think about the games you enjoy playing. How are some of the attributes you have been studying in critical thinking present in strategies for playing games? This is a possible area of skill practice when exploring alternatives.

Consider the Intended Outcome

Think about the intended outcome. What is the outcome that is desired? Sometimes thinking about the outcome helps with staying on track and making sure the actions line up with the intended outcome(s). Some people use a graph and list the possible alternatives on the left side of the graph and the intended outcome on the right side of the graph. This helps keep the intended outcome in mind.

Nurses Help Others

One admirable trait that nurses have is the desire to help others and "fix things." This is a common urge to want to solve problems. This is a commendable trait. However, as with most things, the admirable trait of helping others comes with a downside: jumping to intervene quickly. Nurses should be aware of this trait or desire as it may interfere with their ability to think thoroughly about the problem, issue or situation at hand. Resist any urge to intervene and conclude before adequate thinking.

Independent Analysis

Independent analysis of the problem, situation, issue, or dilemma is an attribute of critical thinking. The critical thinker engaged in independent analysis examines a whole, broken into parts to discover a deeper understanding (Leibold, 1993). Independent analysis is the opposite of being told what to think. For example, instead of the memorization of facts communicated in a lection without question, the self-directed, critical thinker analyzes pieces of information and judge the logic, precision, and accuracy of the data.

Patient Safety and Quality Outcomes

Exploring alternatives in nursing is often related to patient safety and quality outcomes. Considering many alternatives before choosing the best action by critical thinkers helps to select the best course of action to promote patient safety and quality outcomes. The ability to explore alternatives in the planning and implementation of a quality improvement action plan is necessary. Further, in the evaluation of a patient safety topic or quality improvement plan, exploring alternatives may be used to consider other ideas. For these reasons, the cognate skill of exploring alternatives is essential for patient safety and quality outcomes.

Summary

This chapter explained how exploring alternatives is related to critical thinking. The thinking attribute of exploring alternatives is essential to safe, quality nursing practice. Strategies for exploring alternatives were explicated. The next part of this chapter is the Brain Workout. There are questions for thinking, application activities, case studies, discussion questions, and evaluation exercises.

Brain Workout

Questions for Thinking

1. Why is exploring alternatives an essential aspect of critical thinking?
2. Why is (or is not) creating a care plan use of critical thinking?
3. When you encounter a problem or situation, do you check the procedure and policy manual? There may be a procedure or policy related to the case that can be helpful to you. How could you remember to incorporate this action in the future?

(Answer: no one set answer; multiple answers and ideas are expected)

Application Activities

The Nurse Manager and Incivility

Ben is a Nurse Manager at Royal Care Center. Ben has become aware of incivility and bullying in the unit since taking over as nurse manager six months ago. He has observed the behaviors and gathered an assessment. Ben learned about incivility and bullying in his BSN program. He remembers a research study about interventions to take related to incivility and bullying in the workplace. The study was about interventions to take related to addressing incivility and bullying in the workplace.

1. What should Ben do first?

2. Imagine you are Ben. What do you want for the intended outcome(s)?

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Answer to Ben the Nurse Manager:

Ben should do a literature search to find evidence to help him find alternatives. Sources in the literature can help him find alternatives that worked or did not work for others.

Ben should determine the intended outcome to be a reduction in incivility and bullying. This should include the correct identification of incivility and bullying as well as interventions to decrease incivility and bullying. Small continuous steps might be the best approach, so that the intervention lasts several years. The intended outcome should be measurable and specific. The specific details of the outcomes should match the intervention and overall goals that Ben selects after reviewing the literature. Several answers are correct. Two or three outcomes are reasonable for this project. For example: All staff attend the mandatory workshop on incivility and bullying. Another example might be: 90% of staff are able to correctly identify incivility and bullying.

Caution again putting the cart before the horse. Staff may need help with correctly identifying what incivility and bullying mean. A thorough assessment should be completed before starting an intervention.

Play Thinking Games

Try some of the word games at Merriam-Webster Dictionary Website. As you complete the games, be aware of your thinking. What options do you try? What do you assume?

Merriam-Webster Dictionary Games: https://www.merriam-webster.com/word-games

Brainstorming

Brainstorming is generating solution paths for problems. In this activity, there are two main steps. The first step requires problem solvers to think up wild, imaginative solutions. Step two is the qualitative step, thus each idea is critiqued and judged for feasibility and worth. Sometimes the actual best solution ends up being a combination of some of the brainstorming ideas!

Practice Brainstorming with these scenarios.

1. Think of a nursing problem that you have recently encountered or are in the process of experiencing. Brainstorm as many solutions as possible to solving this problem. In the first step, be as wild as possible in your ideas. In the

second step, determine what might be the most feasible and worthy. Remember, sometimes the best solution ends up being a few of the brainstorming ideas put together and tweaked!

2. While at work, you are walking down the hallway and find a plain manila envelope with no markings laying on the floor. You pick up the envelope and look inside. You find $5000 in small bills inside. Brainstorm as many explanations for the money-filled envelope as possible. (How? Why? Who? When?) In the second step, determine what might be the most logical and feasible reason.

(Answer: no one set answer; multiple answers and ideas are expected)

Case Study Application

Instructions:

Hanna is the Quality Improvement Nurse at Washington Medical Center. After reviewing the quality outcomes data for the past month, she notes there has been an increase in patient falls. Hanna sees this as a priority concern, because of the safety implications for patients. Hanna is exploring alternatives as she considers what intervention to take. Washington Medical Center already has a Fall Prevention Program. Hanna considers several options to address the situation.

- One option is to visit with the staff nurses and staff and review the specific patient cases to see if there are any common denominators present in the falls.
- Another alternative is to schedule mandatory fall prevention inservices for all staff.
- Hanna also explored waiting another month to see if there continues to be an increase in falls.

1. Which of these alternatives is the best one for Hanna to take?
2. As you considered this case study, did you picture any images in your mind? Or use any other of your five senses?
3. What measure would you use to evaluate if the option you choose to implement was successful?

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Answer to Case Study Application**:**

1.Hanna should visit with staff and gather data specific to the cases of patient falls to better understand the problem. This will help Hanna explore the alternatives presented and decide which is the best choice.

Hanna should not jump to the conclusion that inservices are needed nor ignore the rise in falls and wait another month to see if the increase in falls continue. Preventing even one fall may be worth the time and resources to investigate more data about the rise in falls and determine an intervention.

Hanna should evaluate the information she received from visiting with staff and gathering data to determine if the option chosen was successful.

Open Mind Application Case Study

Dahlia is a RN that works in the Emergency Department. Today, she is on duty. One of her patients is a 6-year-old boy, Pedro, who was brought to the Emergency Department by his Mother with complaints of cough and fever. During the health assessment, Dahlia noticed extreme bruises on Pedro's chest and back. What should Dahlia do?

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Answer: Dahlia should ask the boy how he got the bruises. She should not jump to conclusions about how he received the bruises. As it turned out, Pedro's family practices coining and he was coined earlier.

Quality Project

Specific to the quality project you are doing this semester, explore the alternatives for recommendations, based on the literature search you did for this project. Which interventions seem the best fit for your project? Use if then thinking to explore the alternatives. For example, if _____ is implemented, the patient outcome will likely be_____.

(Answer: no one set answer; multiple answers and ideas are expected)

Discussion Questions

1. Describe a clinical situation you have experienced (without telling anyone's identity) and tell how you used the cognitive skill of exploring alternatives to work through the situation.
2. Games and puzzles are a great way to practice many cognate functions used in critical thinking. Select a word search, crossword puzzle or board game that you enjoy playing. Complete the puzzle or game and practice developing exploring alternatives with each move you make. Be aware of the cognitive functions you use as you complete the puzzle or game. Did you use hypothetical thought? Did you use a system of possible alternatives?

(Answer: no one set answer; multiple answers and ideas are expected)

Evaluation

1. Complete this sentence: "I can improve at exploring alternatives by . . ."
2. You are doing a quality improvement project at work. Why would you do a literature search for research on the topic?
3. Explain one skill in exploring alternatives that you would like to improve. How will you act to improve this item?

(Answer: no one set answer; multiple answers and ideas are expected)

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Chapter 6: Rationales and Evidence

Nancyruth Leibold

Image 6.1. Tulips in the Spring, Ankeny, Iowa; Photo by Nancyruth Leibold

Accessibility note: picture of lavender, purple, and cream-colored tulips in bloom in Ankeny, Iowa

Quote

"The one real goal of education is to leave a person asking questions."

- Max Beerhohm, British Critic, Essayist, and Caricaturist

Learning Outcomes

After active engagement, the learner will

1. Define reasoning and rationales.
2. Describe inductive and deductive reasoning.
3. Explain the importance of using credible evidence and sources in nursing practice to guide critical thinking.
4. Apply reasoning in the chapter activities.

Chapter 6: Rationales and Evidence

Definitions/Terms

Arguments *take a position about a claim or case* that is presented as the truth (Foresman, Fosl, & Watson, 2016).

Explanations tell *how or why* the claim is the truth (Foresman, Fosl, & Watson, 2016).

Evidence: objective data with rationale methodologies

Evidence based practice: Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

Inferences are conclusions based on premises and reasoning

Logical Thinking: the action of considering premises and a true or consistent conclusion (Bornstein, 2018).

Premises are the basis for an argument and are consistent with the conclusion.

Rationales: the reason to account for something (Merriam-Webster, 2018).

Reasoning: the use of values, facts, evidence, and experiences to reach a conclusion (Merriam-Webster, 2018).

Thinking Fallacy: A thinking fallacy is an error in reasoning (Foresman, Fosl, & Watson, 2016).

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Included Essentials and QSEN:

Essentials

These Quoted Essentials are included in this chapter:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

> Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care (AACN, 2008, p. 3).

Essential III- Scholarship for Evidence Based Practice

> Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

QSEN

Evidence-based Practice

Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.

Quality Improvement

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.

Safety

Definition: Minimizes risk of harm to patients and providers through both system effectiveness and individual performance.

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Rationales and Evidence

Perhaps by now you have noticed how some of the defining attributes of critical thinking overlap. This is true! Many skilled critical thinkers will often perform more than one critical thinking attribute simultaneously. For example, Joe is a patient with congestive heart failure who is having an acute flare up and having trouble breathing. Mary is the nurse admitting Joe to the emergency room. She notices he is having trouble breathing (assessment) and elevates the head of the stretcher Joe is on to use gravity. She puts oxygen on Joe, checks his vital signs, including oxygen saturation. Mary keeps a close eye on his skin color and breathing rate and pattern as she is admitting him. She thinks of ineffective breathing pattern and impaired gas exchange. She reasons by his skin color and breathing that his arterial oxygen levels are low. Joe seems to be leaning to the side and Mary helps him reposition and uses a few pillows to help elevate his head and to provide comfort (explores alternatives to ease breathing). She puts a pillow under each arm to hold his arms up. She starts a saline lock access in his arm and administers the diuretic the physician has ordered. In such an urgent situation, Mary can use her expertise to act swiftly and use multiple attributes of critical thinking simultaneously.

In this chapter the focus is on the use of evidence and reasoning to support the thinking process and outcomes. **Evidence** means objective data with rationale methodologies. Evidence is a critical element of critical thinking—a person cannot think about something they do not know!! Evidence also serves to provide reasoning and rationales to the argument. **Rationales** are the reason to account for something (Merriam-Webster, 2018). **Reasoning** is the use of values, facts, evidence, and experiences to reach a conclusion (Merriam-Webster, 2018). An **explanation** tells *how or why* the claim is the truth (Foresman, Fosl, & Watson, 2016). An important fact to remember is that not all claims may be the truth. For example, when receiving an email about some inherited money, the reader should wonder if the email is the truth. Just because it was said, read, or heard, does not make it true! Next, evidence, rationales, and types of reasoning are explained.

The Importance of Credible Evidence and Sources

Using no evidence or non-credible evidence spoils critical thinking, because the inferences are not based on credible data. For valid critical thinking, it is important to use trustworthy, reliable evidence and sources. In this day of social media and internet information technology, there are many inaccurate sources. Peer reviewed journal

articles are the highest type of sources, because they have been checked by several experts on the topic for accuracy. Peer-reviewed articles are

- Reviewed by experts on the topic before published (Boswell & Cannon, 2020; Brown, 2018; Schmidt & Brown, 2019)
- Revised and edited extensively and this can take a long time (Brown, 2018)
- Lists the author's title and credentials
- There is a reference page
- Research data is reported
- Also known as juried, referred, or scholarly articles
- Thought to be of a higher quality, although each reader should be their own judge!

Editorials and book reviews are **not** peer-reviewed, even when found in a peer-reviewed scholarly journal.

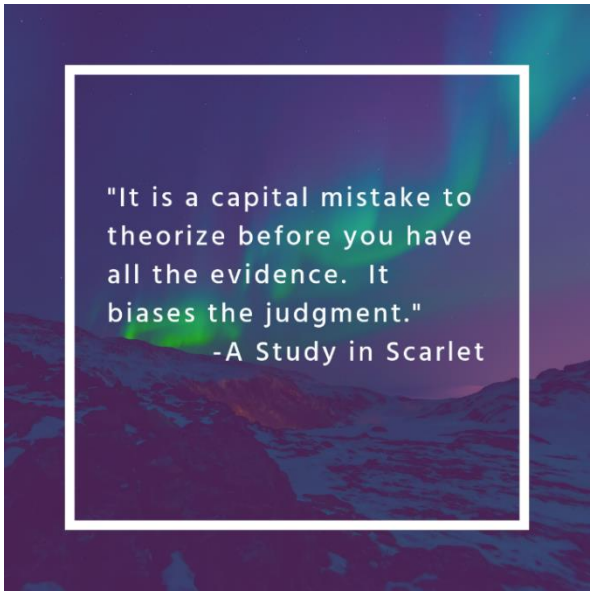

Image 6.2 Wait for the Evidence Quote; Banner by Nancyruth in Canva

Accessibility Note: "It is a capital mistake to theorize before you have all the evidence. It biases the judgement." A Study in Scarlet

What Improves Critical Thinking?

Staying with the chapter theme of rationales and evidence, it seems appropriate to share some evidence about critical thinking. Educators have long asked what educational strategies improve critical thinking? Next is a review some of the research evidence about what improves critical thinking.

A cross-sectional study to examine critical thinking and caring in a convenience sample of 167 undergraduate nursing students was completed by Arli, Bakan, Ozturk, Erisik, and Yildirim (2017). The measures used were the Caring Nurse–Patient Interaction Scale (CNPI-Long Scale) and the California Critical Thinking Disposition Inventory (CCTDI). A positive relationship was found between caring and critical thinking measures. Those with high caring scores, also had high critical thinking scores (Arli et al., 2017). This supports instruction to develop critical thinking skills in nursing students. Although, additional study is warranted to examine the relationship between caring and critical thinking. Further, the results of this study are interesting, because Ennis (2011) has written about the disposition of caring as an important aspect of critical thinking!

A number of nurse educators advocate the use of concept mapping to promote critical thinking in students. Concept maps help learners to make new connections of knowledge. Concept mapping with care plans was examined by Atay and Karabacak (2012) and found to increase the critical thinking scores by nursing students. A meta-analysis is the highest level of research evidence because it analyzes many research articles to evaluate common trends in the research (Boswell & Cannon, 2020; Brown, 2018). A review of the literature about concept mapping and nursing concluded that concept maps have a positive impact on critical thinking in nursing education (Yue, Zhang, M., Zhang, C., & Jin, 2017). Concept mapping is an intervention supported by the evidence to develop critical thinking skills.

Research on the intervention of teaching about the content of critical thinking is reported in the literature. An experimental study by Bessick (2008) examined the intervention of teaching/learning content about critical thinking on critical thinking ability. College students who received direct instruction about the concept of critical thinking had the effect studied by multiple measures. The Category Test: Computer Version – Research Edition (CAT:CV) was used to measure abstract reasoning and problem solving. The California Critical Thinking Skills Test – Form 2000 was used to measure critical thinking skills before and after the intervention. Bessick (2008) found that the critical thinking measures did not increase after the intervention. However, the grades of students who received the intervention were significantly higher that the grades of students who did not receive the critical thinking content instruction. Saiz and Rivas (2016) also report significant improvement in critical thinking when studying the effect of instructional methods of critical thinking content. A strong theme of research that supports learning about critical thinking content and the improvement of critical thinking skills is present in the literature.

In a similar study by McGuire (2010) but using a non-experimental study design with 15 participants the effects of direct teaching/learning critical thinking content on critical thinking abilities in college students was examined. The measure was pre and

post California Critical Thinking Skills Test 2000 scores. No significant differences were found pre and post intervention for the induction, analysis, and evaluation items. However, a slightly significant change between pre and post intervention scores for inference and deduction was found. A gain in critical thinking content knowledge and critical thinking dispositions were also found. This evidence supports the instruction of critical thinking content in students. Further study is warranted to examine the effects of teaching/learning critical thinking content and critical thinking abilities. The measures of critical thinking may account for some differences in the data. Additionally, the teaching/learning methodologies may be another variable related to the data. Hopefully, this summary of literature about learning critical thinking skills provided some additional insight!

Premises

Premises are the basis for an argument and are consistent with the conclusion. An argument counts on a premise serving as the reason for a conclusion. **Logical thinking** is the action of considering premises and a true or consistent conclusion (Bornstein, 2018). Kallet (2014) tells us it is all about the premise! Please note the word argument is being used here as the meaning position. That is, it does not mean a noxious disagreement, but the position or stance one takes. The difference between a premise is that premise is the basis for an argument, whereas **inferences** are conclusions based on premises and reasoning.

Every argument has at least one premise (Foresman, Fosl, & Watson, 2016). One way to identify a premise(s) of an argument is to first identify the conclusion. This is often referred to as backward thinking (find the conclusion and then check the premise). Once the conclusion is identified, ask what is the reason (or reasons) for this conclusion? Beware of fluff in the argument. That is information that really does not matter and is not relevant to the argument. Sometimes nurses experience this when taking a health history from a patient. The patient may share information that is irrelevant (although sometimes interesting) to the conclusion. Of course, the patient does not always know what is relevant and what is not relevant. Still, it can be daunting for the nurse to sort through relevant and irrelevant information to determine the premise. Foresman, Fosl, and Watson (2016) tell us that sometimes the identification of premise indicators can help identify premises. For example, the words “since,” “insofar as,” “as,” “given that,” “given,” or “in that” are often premise indicators that provide clues to the premise(s).

Inductive Reasoning and Deductive Reasoning

The ability to reason logically includes inductive and deductive reasoning. Inductive Reasoning is an argument in which the propositions lend support to the conclusion. Inductive reasoning is the act of reaching a generalized conclusion from specific information. Inductive reasoning infers more to reach the conclusion and usually has the word *probably* in the conclusion (Bandman & Bandman, 1995). In inductive reasoning, a generalization and often a prediction is made based on specific patterns that are identified in the premises. For example:

Inductive Reasoning (Leibold, 1993):

> Premise 1: Bill George had a myocardial infarction and experienced denial as a coping mechanism.
>
> Premise 2: The physician told him he had a heart attack and as soon as the physician walked out of the room, Bill George stated he did not have a heart attack.
>
> Conclusion: Therefore, most patients probably experience denial.

Premise 1 is specific information about Bill George, a patient in a particular coronary care unit. The conclusion statement includes the word **probably,** which is often a sign of inductive reasoning. The conclusion also makes a generalization. Inductive reasoning uses specific information to reach a generalization.

Deductive reasoning is the act of reaching a conclusion by the basis of its premises (Bandman & Bandman, 1995). Deductive reasoning is much more solid and convincing than inductive reasoning. Deductive reasoning moves from general to specific in the reasoning process. It may also include a rule or principle in the premise. For example:

Deductive Reasoning (Leibold, 1993):

> Premise 1: All clients that have had a myocardial infarction prior to accessing the healthcare system have permanent myocardial cell damage.
>
> Premise 2: Bill George had a myocardial infarction prior to accessing the healthcare system.
>
> Conclusion: Therefore, Bill George has permanent myocardial cell damage.

Note that the would most and probably are not used in this example of deductive reasoning. Premise 1 is general, whereas the conclusion is specific. Deductive reasoning is a stronger form of reasoning.

Next, a few examples of reasoning are presented. Read the examples and determine if this is inductive or deductive reasoning.

Example A: Premise 1: I have seen 4 of my 6 hospitalized patients today, and so far, the four patients are very anxious.

Premise 2: I still have two more patients to see.

Conclusion: Therefore, all the patients will probably be anxious.

Example B: Premise 1: The needle on the syringe was dull.

Premise 2: The second needle on the syringe was also dull.

Conclusion: Therefore, all needles on syringes are probably dull.

Example C: Premise 1: Elevating the head of bed helps a patient breathe easier due to the law of gravity.

Premise 2: Nurses use elevating the head of bed often to help patients with breathing difficulties.

Conclusion: Patient, Ian Cane was short of breath with an asthma attack, so his head of bed was elevated to help him breathe.

Did you identify example A as inductive reasoning? Example A is an example of inductive reasoning because the process moves from specific to general. Note the word “probably” in the conclusion.

Example B is inductive reasoning because premise 1 is a specific case. Premise 2 is a specific case. The conclusion is a generalization that all needles on syringes are dull. The conclusion also includes the word *probably*.

Example C is deductive reasoning because it moves from general to specific. The law of gravity is a general law. In the conclusion, the nurse uses the law of gravity as the reasoning for elevating the head of bed.

Fallacies in Critical Thinking

A **thinking fallacy** is an error in reasoning (Foresman, Fosl, & Watson, 2016). In this section of the chapter, a focus on the concept of a thinking fallacy, critical deceiving, and how to check for thinking fallacies. Thinking fallacies may be intentional or unintentional. **Critical deceiving** is the intentional act of misleading others with deceptive reason (Foresman, Fosl, & Watson, 2016). An appeal to emotions is used by some in the act of critical deceiving. **Critical deceiving is unethical practice** as it is dishonest.

Foresman, Fosl, and Watson (2016) advocate the use of the critical thinking two step method to check for a thinking fallacy. First, does the conclusion follow the premises by being consistent? And second, are the premises true? When considering if a premise is true—one tip is to consider the words being used to describe the case (Hunter, 2014). Are the words specific or vague? For example, when the word considerable is used in the premise of an argument—just what exactly does the word considerable mean? How clear is the meaning of the premise? Modus ponens means if the premises are true, then the conclusion is true. For example, say the conclusion is the patient has a fever and the premise is the patient's body temperature was checked and is 102.8. Is the conclusion and premise consistent? The answer is yes. In review, to check for critical deceiving, consider if the conclusion and premises are consistent, and are the premises true.

Evidence-based Practice

Evidence-based practice (EBP) is a scholarly and systematic problem-solving model that results in the delivery of quality patient/family/community care (American Nurses Association, 2017). The EBP process requires the use of critical thinking. Evidence-based practice is not just a buzz word or fad. It is the science of what nurses do to advance the discipline of nursing. The story of flowers/plants helps to explain this point. While orienting at a facility once on the evening shift, the preceptor told the orienting nurse that at 9 pm the practice is to remove all the flowers/plants from the patient's rooms and place them in the flower/plant storage room for the night. The orientating nurse questioned why the flowers/plants were removed from the patient's room for the night. The preceptor responds that it is to prevent the flowers/plants from robbing the nighttime oxygen from the air. The orienting nurse was shocked to hear this as she knew from biology that this was not true. It seemed like a lot of work to collect all the flowers/plants, place them in a storage room, and then re-deliver the flowers/plants out to patients in the morning. The preceptor explained that it was the policy and has been for a long time. The story of the flower/plant collections at night is clearly an

example of what critical thinking is not and why doing things without checking the evidence is not a good practice.

Further analysis of this story reveals it is an example of a thinking fallacy. A clear error in reasoning is present. The premise that flowers/plants rob the nighttime air of oxygen is false. Therefore, the conclusion that it is appropriate to remove all flowers/plants from patient's rooms at night is also false. Yet this was done for years without question or a check of the evidence. This story supports the belief that credible and accurate evidence is important to critical thinking.

Evidence about Critical Thinking, Clinical Reasoning, Clinical Judgements, and Evidence-based Practice

Reference

Simpson, V., McComb, S. A., & Kirkpatrick, J. M. (2017). Enhancing critical thinking via a clinical scholar approach. *The Journal of Nursing Education, 56*(11), 679-682. doi:10.3928/01484834-20171020-08

Summary of Research Evidence:

The Clinical Scholar Model uses an evidence-based practice approach. Nursing students used the Clinical Scholar Model and Systems Engineering in clinical experiences. The study method included a two-group, repeated-measures control design. Significant increases in critical thinking and clinical reasoning were found after the Clinical Scholar Model and Systems Engineering intervention.

Nursing Practice Application

Clinical reasoning, clinical judgments, and critical thinking were enhanced when combined with evidence-based practice in nursing, using the Clinical Scholar Model and systems engineering.

Patient Safety and Quality Improvement

Reasoning, rationales, and evidence are used in many nursing practice situations. From ethical dilemmas to improving patient safety, and continuous quality improvement, there are many implications for reasoning and evidence. Specific to

patient safety and quality improvements, the critical thinker can evaluate the credibility of evidence, and think through evidence and reasoning related to the intended outcome. This valuable cognitive skill is vital to enhancing patient safety and quality care.

Thinking aloud is one area in which nurses of a variety of expertise levels have been studied to examine reasoning related to nursing activities. Nursing surveillance is one intervention that has been identified as key to patient safety because of the prevention of errors. A nursing intervention that has been identified as key to patient safety is nursing surveillance due to preventing errors (Pfrimmer et al., 2017) or injuries. Critical care registered nurses participated in a study to examine surveillance and improving patient safety in critical care units. Pfrimmer et al., (2017) found that the thinking aloud served to store the information in memory, give meaning, and support collaboration. At one facility, nurses use thinking out loud as patient safety checks when identifying patients prior to administering blood (Leibold, 1993). Thinking aloud is one tool nurses can use for patient safety and quality improvement.

Summary

In this chapter about rationales and evidence, the importance of using credible evidence was stressed. Reasoning, specifically inductive and deductive reasoning was included. Deductive reasoning moves from generalized to specific, whereas inductive reasoning moves from specific to general. Premises and inferences were explained and are the foundation for the next chapter about conclusions! Hypothetical thinking was explained as helpful for thinking through if…then… statements. Fallacies in critical thinking and critical deception were introduced. Finally, how rationales and evidence relate to evidence-based practice, patient safety, and quality improvement was elucidated. Evidence on the topic of learning about critical thinking content to improve critical thinking was also reviewed. The overall purpose of the chapter was to relate and apply information about rationales and evidence. Continue to the Brain Workout for more application, analysis, and evaluation!

Brain Workout

Questions for Thinking

1. Explain the differences between inductive reasoning and deductive reasoning.
2. Why is (or is not) synthesis a use of critical thinking?
3. Describe a time you used hypothetical thinking. Was it helpful? Why or why not?

Current Event Application Activity

1. Watch or read a news story. Identify any thinking fallacies. Practice keeping an open mind.

(answer: multiple variations are expected)

Thinking Evaluation

Read the following case and then answer the questions.

June Smith is a charge nurse in the medical/surgical unit. It is holiday. There are always 8 nurses on duty for her team. Today, there are 6 stable patients. June insists that all 8 nurses should be on duty as that is the standard.

Is June using inductive or deductive reasoning in her argument?

Is June's reasoning logical or illogical?

The case of June Smith is a

A. Thinking fallacy
B. Critical deceiving
C. Hypothetical thinking
D. Critical thinking

What would you recommend June do in this situation?

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(answer for June Smith is deductive reasoning because June is operating on a principle for staffing; the reasoning is not logical as the premise of having 8 nurses to care for 6 patients is not consistent with the conclusion; this is an example of a thinking fallacy as there is no evidence of deception, hypothetical thinking, or critical thinking; June should first check the handout for any rules or policies about downsizing and holiday coverage)

Hypothetical Thinking

In this activity, start by thinking of a current problem you have that you want to solve. Then, complete the following prompts by filling in the blanks.

If _____, then _____.

If _____, then _____.

(answer: multiple variations are expected)

Case Study Application Logic Check

LaTonya is All Heart

As you have read in the chapter, one way to check the accuracy of your logic is to see if the same logic makes sense in another similar situation. For example, LaTonya is a 78-year-old woman with heart failure. She takes a diuretic everyday and has responded well to 40 mg of diuretic daily. Therefore, 40 mg of diuretic is the best dose for all persons.

Is this reasoning logical or faulty? Why or why not?

Is this inductive or deductive reasoning?

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Answer: This reasoning is faulty because a similar case is not used. Comparing the effects of one individual to the whole population is not logical. Patients have

individualized results of most medications. The logic is faulty as the does varies for persons based on age, health status, weight, etc. It is an example of inductive reasoning because it moves from specific to a generalization.

Thinking in Action

Pretend you are talking to a new nurse and the nurse asks you to explain the differences between inductive reasoning and deductive reasoning and give an example.

You have just watched this video about Critical Thinking Skills

By 100th Monkey News at

https://www.youtube.com/watch?v=09krCGboqzw

How will you explain inductive and deductive reasoning to the new nurse and what example would you give?

(answer: multiple variations are expected)

Evaluation

Complete this sentence: "I understand inductive reasoning as . . ., and deductive reasoning as . . ."

Knowledge Self-Check Questions

1. Teaching/learning of critical thinking content increases some critical thinking skills and academic performance in college students. True or False?

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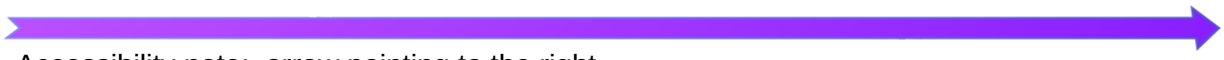
Answer: True. Evidence supports an increase in critical thinking skills and/or academic performance in college students. Since different research designs, measures, and interventions were taken in the studies, continued study is merited.



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Chapter 7: Conclusions

Nancyruth Leibold

Image 7.1. Autumn leaf before lightning strikes; Photo by Nancyruth Leibold

Accessibility note: picture of autumn leaf on green grass

Quote

“Truth has nothing to do with the conclusion, and everything to do with the methodology.”

— Stefan Molyneux

Learning Outcomes

After active engagement, the learner will

1. Define conclusion.
2. Explain the connection of premises to the conclusion.
3. Explain what a fair and reasonable conclusion means.
4. Analyze a conclusion and premise for consistency.

Chapter 7: Conclusions

Definitions/Terms

Conclusion: the result of two or more premises (Merriam-Webster, 2018)

Inferences are conclusions based on premises and reasoning

Premises are the basis for an argument and are consistent with the conclusion

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Included Essentials and QSEN:

Essentials

These Quoted Essentials are included in this chapter:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

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Conclusions

This chapter is not the conclusion of the book, but instead focuses on reaching conclusions with critical thinking. **Inferences** are conclusions based on premises and reasoning. A **conclusion** is the result of two or more premises (Merriam-Webster, 2018). Perhaps you have heard the expression, 'jump to conclusions.' Jumping to conclusions is not a part of critical thinking. Critical thinkers consider the accurate situation, assessment, assumptions, alternatives, and reasoning before reaching a conclusion.

In Chapter 6, you learned about reasoning, rationales, and logic. Reaching an accurate conclusion with critical thinking requires logical reasoning. Rationales and reasons support conclusions. A conclusion is a claim supported by evidence (Bandman & Bandman, 1995). A conclusion is the final step in critical thinking (Paul, 1992). The reason it is last is the other attributes of critical thinking must occur first to produce a logical, fair, and reasonable conclusion. In this chapter, the focus is on the conclusion.

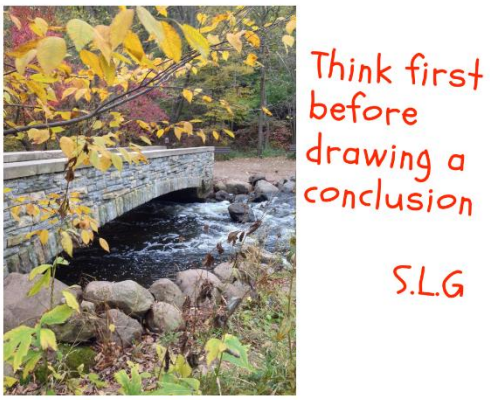

Image 7.3. Mini Banner by Nanza

Accessibility note: Think first before drawing a conclusion. S.L.G.

First is storytelling time! One September, the picture of the leaf that starts this chapter was taken in my backyard. Perhaps you are wondering what this has to do with conclusions?! The leaf is a beautiful maple leaf from a tall maple tree that was in my

backyard. Less than a week later, a thunderstorm with severe lightning passed through our town. Lightning struck the maple tree. It was damaged severely and had to be removed. The maple tree was a major source of shade in my yard and a home for many squirrels. However, when the tree fell, it missed all major structures by less than an inch. This was no less than a miracle and we were thankful for how the tree fell. It was the end of the tree. A conclusion to the home for squirrels and much appreciated shade. I am glad that I took the beautiful autumn leaf picture.

When an author writes a paper, they place the conclusion at the end. A common error in critical thinking is to jump to a conclusion before knowing all the facts and aspects to consider. Explicit awareness of one's own thinking is required to prevent jumping to conclusions! Jumping to conclusions occurs when all critical thinking attributes are not used. Or perhaps all the facts are not gathered and analyzed, or faculty thinking is used. Not checking assumptions may result in faulty thinking that leads to errors. One strategy for evaluating thinking is to be aware of the premises and reasoning in relation to the conclusion. Next, information about premises and inferences are illuminated.

Image 7.2. Caution by Nancyruth Leibold in Canva

Accessibility note: Caution: Avoid jumping to conclusions!

A valid conclusion that is logical is true when the premises are true. One important step when considering a conclusion is if it is necessarily true or possibly true (Bornstein, 2018). If-then reasoning is used to determine if a conclusion is necessarily true or possibly true. A widely used premise, "if P then Q. P is true, So, to conclude

that Q is true is necessarily true. Simply put, it is all about the premise when evaluating the conclusion.

Premise	Conclusion	Evaluation	Logic
"if P then Q" P is true	So, Q is true	Necessarily true	Logically valid; termed modus ponens
"if P then Q. Q is true,"	"P is true"	Possibly true	Not logically valid

Table 7.1. Premise, Conclusion, Evaluation, Logic Table

Premises

In a previous chapter, premises were explained to be the basis for an argument. Premises should be logically consistent with the conclusion (Kallet, 2014). In this chapter, the focus is on looking at the conclusion and then backing up to analyze the premise to see if the two are consistent. This is a backwards check that critical thinkers can use to check the logic in thinking.

In chapter 6, the two-step method was introduced as a method for check for a thinking fallacy (Foresman, Fosl, & Watson, 2016). Now, it is time to build on the two-step method and do some further application practice. For a review of the two-step method, first check that the conclusion and premises are consistent. Second, question if the premises are true.

Application Example 1:

Premise 1: Ruth felt a lump in her right breast.

Premise 2: Ruth went to her physician who did not feel a lump.

Conclusion: The physician concluded she did not have a lump and was having anxiety and prescribed an antianxiety medication for Ruth.

Next is the analysis of Application Example 1. Are the premises and conclusion consistent? No. They are not consistent. Just because the physician did not feel a lump is not a logical, fair, and reasonable conclusion. Even if Ruth was anxious, a lump should not be so easily discarded as anxiety. Are the premises true? Yes, the premises are true. The conclusion is false. This is a true story. Stay tuned.

Application Example 2:

Premise 1: Three months later, Ruth continued to feel the lump in her right breast.

Premise 2: Ruth went back to the physician with complaints of the continuing breast lump.

Premise 3: The physician did not feel a lump when examining her, but ordered a mammogram.

Premise 4. The mammogram results stated no lump or abnormalities were found.

Conclusion: The physician concluded Ruth did not have a lump breast and told her to continue taking her antianxiety medications.

The analysis of Application Example 2 begins with a check of consistency between the premises and conclusion. Are the premises and conclusion consistent? No, they are not logical, fair, or reasonable. Diagnostic tests are not 100% perfect. The only conclusion that can be reached from the 4 premises is that the mammogram results stated no lump or abnormalities were found. This is a serious thinking error that was made in this case. Oh, but there is more to this case…

Application Example 3:

Premise 1: Three more months went by and Ruth continued to feel the lump in her breast.

Premise 2: Ruth went to a surgeon she knew for a second opinion.

Premise 3: The surgeon felt the lump.

Premise 4: The surgeon ordered a repeat mammogram.

Premise 5: The mammogram showed an abnormal lump.

Premise 6: The surgeon performed a mastectomy and sent the tissue for biopsy. The biopsy revealed cancer with malignancy to two lymph nodes.

Conclusion: Ruth was diagnosed with cancer.

The analysis of Application Example 3 starts with a check of the consistency of the premises and conclusion. Yes. The premises and conclusion are consistent. The reasoning is fair and logical. Step two is asking if the premises are true. Yes, the premises are true. This is a case of modus ponens because the premises are true and

the conclusion is true. The conclusion is necessarily true. Ruth did undergo chemotherapy and lived for twenty more years.

Application Example 4:

Premise 1: A surgical patient, Zane Zoom, complains of severe pain.

Premise 2: Nurse Tom check's Zane's record and he has not had pain medication for 4 hours and has injectable intravenous PRN pain medication ordered.

Premise 3: Nurse Tom administers the injectable intravenous PRN pain medication as ordered to Zane Zoom.

Premise 4: Zane Zoom reports no relief from the pain medication.

Premise 5: Nurse Tom notices that Zane has an order to repeat the pain medication. Nurse Tom repeats the pain medication, but again, Zane reports no relief from the pain.

Conclusion: Nurse Tom concludes Zane is probably taking drugs at home, so is not obtaining relief because he is accustomed to opiates.

After you have your answer, please see the answer to Application Example 4 with the Summary of the chapter.

Quote

"Truth has nothing to do with the conclusion, and everything to do with the methodology."

— Stefan Molyneux

Summary

The quote at the beginning of this chapter (and repeated here) refers to the quality of thinking that leads to a conclusion. Jumping to conclusions, bias, and inadequate assessment are a sure method to result in faulty thinking.

This chapter explains the importance of conclusions in critical thinking, with a focus on the methods and dispositions related to reaching a conclusion. Using a backward check, one can evaluate premises and conclusions for truth. Necessarily true, also known as modus podens, means when the premises are true, so is the conclusion. Probably true means the premises are true, but the logic or consistency with the conclusion is not present. The two step method helps to clarify the consistency or logic by also checking if the premises and conclusion match. It takes practice to develop skills in appraising the premises and conclusion. Keep practicing this skill!

Answer to *Application Example 4:* This is a complex case. Remember to use the skills of checking assumptions and exploring alternatives with critical thinking. Step one: are the premises and conclusion consistent? Not really. This is a jumping to a conclusion example! Are the premises true? Yes. The conclusion does not match the premises. This is a true case. Another nurse, who had an opiate addiction problem had taken the pain medication out of the prepared syringes and replaced them with saline. That is why Zane felt no pain relief. To conclude he is using drugs at home and is use to opiates, is faulty thinking.

Brain Workout

Questions for Thinking

1. Review Leibold's definition of critical thinking. This definition of critical thinking has defining attributes. Think about the defining attributes. Which two defining attributes are your strengths? Which two defining attributes are opportunities for you to improve? What connections do you make between the defining attributes and reaching a necessarily true conclusion?
2. Explain the difference between being critical and critical thinking.
3. A colleague asks you the difference between a necessarily true conclusion and a probably true conclusion. How would you answer?

Answer: no one set answer; multiple answers and reflections are expected

Application Activities

Critical Thinking in the Workplace

Directions: Complete the open-ended questions to think through the processes that you have read about in this book.

1. Describe a problem, situation, issue, or dilemma that you are aware of in your workplace:

2. Perform a systematic search (assessment). What information do you know about the problem, situation, issue, or dilemma?

3. Inquire: What other information do you want to know? Are there people you should interview? Are there statistics you should search?

4. Plan: What plan do you have for dealing with the problem, situation, issue, or dilemma?

5. Determine assumptions. Write of list of what you are taking for granted. What do you assume? List as many assumptions as you can!!

6. List as many possible alternatives as you can (no matter how wild they may seem).

7. Create if…then…statements for each alternative that you have listed. You may have more than one statement for each alternative.

8. Describe the alternative that you have chosen as the best in response to the problem, situation, issue, or dilemma.

9. Using independent analysis, explain the reasons/rationales for the alternative you selected. Do you have a back-up plan?

10. What is your conclusion? Do your reasons/rationales support your conclusion? Is your conclusion consistent with your assumptions?

Answer: no one set answer; multiple answers and reflections are expected

Sally Case Study Application

Sally is a nurse in the Emergency Room (ER). A 43-year old man presents to the ER with complaints of chest pain. The man is well known to Sally as a frequent patient to the ER. His history of drug addiction is known to Sally. While admitting him to ER, in the first minute Sally says to herself (not aloud) that he is faking the pain to get drugs. Is Sally making a thinking error? If so, what thinking error is Sally making?

Accessibility note: decorative scroll

Answer to Sally Case Study Application: Sally is jumping to conclusions.

This happened in real life and Sally (not her real name) jumped to the conclusion that the man was faking his chest pain to get drugs. He had done so many times previously. Sally was busy with another patient and meanwhile, the man she thought was faking his chest pain cardiac arrested and died. He was 32 years old. His autopsy showed he died of a cardiac arrythmia while having a myocardial infarction.

Discussion Questions

1. How do you know when the conclusion you have reached is correct? Describe your thinking process and how you arrive at a conclusion. Give an example.
2. Describe a time you have conclude that you thought was correct, but it turned out it was not correct. What thinking errors did you identify, if any? What could you do differently in the future to prevent a thinking error in a similar situation?

Answer: no one set answer; multiple answers and reflections are expected

Evaluation

Complete this sentence: “As a critical thinker, I do . . . before reaching a conclusion.”

Answer: no one set answer; multiple answers and reflections are expected

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Chapter 8: Application of Critical Thinking to Safety and Quality Improvement in Nursing

Nancyruth Leibold

Image 8.1. A Salmon Zinnia; Photograph by Nancyruth Leibold

Accessibility note: picture of a salmon colored zinnia

Quote

"Invest a few moments in thinking. It will pay good interest."

- Author Unknown

Learning Outcomes

After active engagement, the learner will

1. Define safety and quality improvement in nursing.
2. Describe how critical thinking is used to promote safety and quality improvements in nursing.
3. Explain models of quality improvement in nursing.
4. Apply a step by step approach to quality improvement.
5. Evaluate evidence related to a quality improvement topic.
6. Create a quality improvement plan based on priority needs and evidence.

Chapter 8: Application of Critical Thinking to Safety and Quality Improvement in Nursing

Definitions/Terms

Evidence based practice: Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

Safety — Injury to patients while delivering care should be avoided.

Quality Improvement: Uses data to monitor the outcomes of care processes and improvement methods to design and test changes to continuously improve the quality and safety of health care systems (QSEN, n.d.).

Continuous Quality Improvement: The continuous use of data to monitor the outcomes of care processes and improvement methods to design and test changes for quality and safety improvement of health care systems (QSEN, n.d.)

Change: transforming to a different or new state

Leadership: steering, coaching, and role modeling for others toward a collective purpose

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Included Essentials and QSEN:

Essentials

These Quoted Essentials are included in this chapter

Essential II- Basic Organizational and Systems Leadership for Quality Care and Patient Safety

> Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care (AACN, 2008, p. 3).

Essential III- Scholarship for Evidence Based Practice

> Professional nursing practice is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3).

Essential IX- Baccalaureate Generalist Nursing Practice

> The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients (AACN, 2008, p. 4).

QSEN

These QSEN Concepts are included in this chapter

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

Evidence-based Practice

Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care (QSEN, n.d.).

Quality Improvement

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems (QSEN, n.d.).

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Application of Critical Thinking to Safety and Quality Improvement in Nursing

The Importance of Critical Thinking to Safety and Quality Improvement

Providing safe and quality care are two of the critical elements of nursing practice (Hunt, 2012). Safety is a top priority. Nurses can use critical thinking skills to develop and execute interventions for safety and quality. Therefore, developing and applying critical thinking to safety and quality improvement is an important aspect of the professional nurse. There are six aims for improving healthcare quality according to the Institute of Medicine (2001) are safe, patient-centered, timely, effective, efficient, and equitable.

1. Safety — Injury to patients while delivering care should be avoided.

2. **Patient-centered** — The care provided to patients and families should be respectful of individual preferences, values, and needs.

3. Timely — Reducing wait times and delays that could be harmful

4. Effective — Patient and family care is based on evidence to promote quality services

5. Efficient — Prompt delivery of quality care, and avoiding waste (equipment, supplies, ideas, and energy).

6. Equitable — Patient and family care should not vary in quality for people of all ethnicity, geographical locations, and socioeconomic status.

Some commonly used Quality Models are described next. A good overview of the commonly used models is helpful. Nurses should be familiar with the model used at their facility.

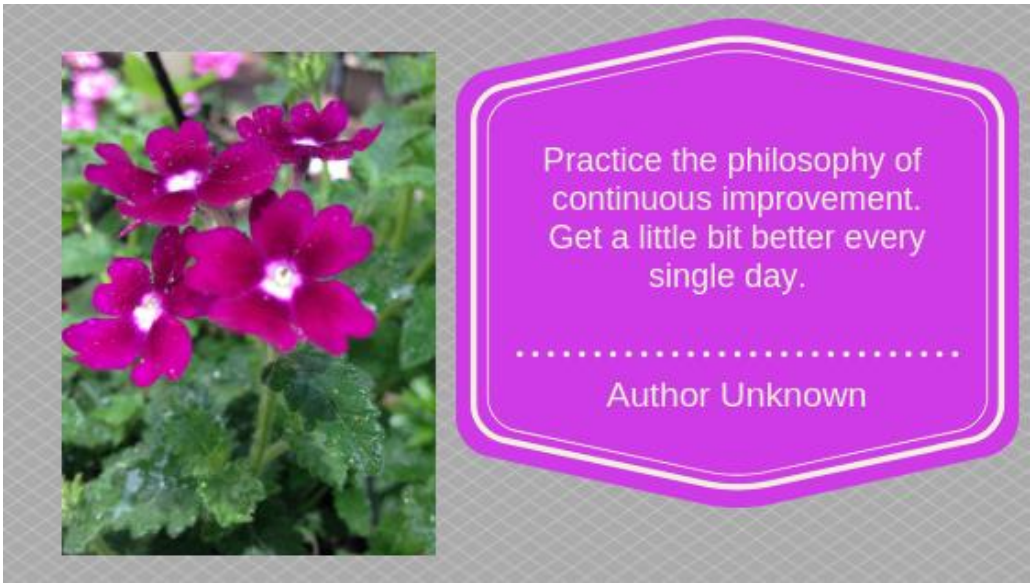

Image 8.2. Verbena Beauty; Photo by Nancyruth Leibold; Banner by Nanza

Accessibility Note: Practice the philosophy of continuous improvement. Get a little bit better every single day.

Plan Do Study Act (PDSA)

The Plan Do Study Act (PDSA) module includes four phases: plan, do, study, and act (Laverentz & Kumm, 2017; Sipes, 2016). The plan phase considers the change to be made and how the change will occur. The do phase is the implementation of the change. Data about feasibility and effectiveness is collecting during the do phase. The study phase includes writing a summary of the data, and describing what was learned. During the act phase, revisions in the change is considered. The cycle is repeated (Sipes, 2016). **Continuous Quality Improvement** is the continuous use of data to monitor the outcomes of care processes and improvement methods to design and test changes for quality and safety improvement of health care systems (QSEN, n.d.). PDSA is an example of continuous quality improvement because the cycle is repeated.

Root Cause Analysis

The root cause analysis is a method for discovering any causes relating to problems or events (Beauvais, 2019) with the intent to address and improve the problem. The root cause analysis may be incorporated in the “do” phase of PDSA (Sipes, 2016). There are five whys of a root cause analysis. In Chapter 2 of this textbook, a “Because Game” was one of the application activities. This activity is very similar to the “5 Whys” used in a root cause analysis. The why question is repeatedly asked to dig away at the reasons to reveal the root cause. A fishbone diagram may be

used to as a visual representation of the repeated “why” question asking (Sipes, 2016). Watch this video about Root Cause Analysis Training from the Minnesota Department of Health with Rosemary Emmons, RN, BSN at https://www.youtube.com/watch?v=4bldoFN5a1g&feature=youtu.be

LEAN

Lean is a philosophical framework that originated at Toyota and focuses on value to the customer with fewer resources (Liker, 2004). The Model is also known as the Toyota Production System (TPS). In healthcare, the LEAN framework is adjusted to improve value and quality to the patient/client with fewer resources and less waste (van Rossum, Aij, Simons, van der Eng, & ten Have, 2016). One advantage of the LEAN Model is that the frontline employees are empowered to identify and make improvements (Murray, 2017).

The Lean philosophy includes five principles as described in the hallmark book on LEAN by Womack and Jones (1998). First is identifying and describing the value sought by the patient/family/community. Next is to identify the value stream. The value stream is the products and services provided by nurses throughout the health care process. Each step is analyzed and evaluated for quality, safety, and resources. Third, is the principle of flow, in which products and services are provided without delay. Nurses should work to make the product or service flow smoothly and uninterruptedly. Fourth, is to introduce pull between any steps where flow is not present. For example, when there is a long wait for another department to complete a diagnostic test, the nurses and the other department should work together to pull this together and eliminate the excess wait time. The fifth principle is to manage toward perfection by continuous quality improvement. The use of technology is always something to consider as it may benefit the continuous quality improvement process. Nurses should constantly analyze and evaluate value, quality, and resources as part of the continuous quality improvement process.

Bruno (2017) explained the use of the lean philosophy in the emergency department. The lean approach focuses on eliminating waste and increasing value to the patient. Specific to the emergency department, critical thinking is used to apply nursing care processes to minimize redundancy and expenses. Nurse managers and leaders recognize the staff nurses as critical to lean thinking (Bruno, 2017) and the leader works side by side with the employees. Staff nurses, as the front-line workers are empowered to think through processes to eliminate waste and costs. Wastes may be equipment, defects, supplies, inventory, waiting, or human resources (Bruno, 2017). Value stream maps (VSPs) are a strategy that nurses may use to map the work flow of a particular item (Bruno, 2017). A VSM is a visual representation of the steps to

complete a specific process. For example, an emergency department patient, name Fred Smith needs to have a right hip x-ray. The VSM would include every aspect (the more detailed the better!) of the hip x-ray from the assessment to the ordering to the results process. The lean model is best applied in a culture of motivation and empowerment (Bruno, 2017). Although this example is specific to the emergency department, the Lean model is applicable in all areas of nursing.

In another project relating the LEAN philosophy to the nursing process, a clinical process redesign project to improve patient access and safety was used (O'Neill, Jones, Bennett, & Lewis, 2011). One major finding was that the patient journey was closely linked to nursing. This prompted a need to analyze and improve the process of nursing care provided to patients. Nurses implemented lean thinking to reduce waste and improve quality and safety. Increased time at the bedside by nurses was realized by implementing the LEAN philosophy in this project.

Lean Six Sigma Evidence for Practice

Reference

Creed, M., McGuirk, M., Buckley, R., De Brún, A., & Kilduff, M. (2018). Using lean six sigma to improve controlled drug processes and release nursing time. *Journal of Nursing Care Quality,33*(3), 1-6. doi:10.1097/NCQ.0000000000000364

Summary of Research Evidence:

Researchers examined the processes related to nurse time spent transporting medications from pharmacy to the unit of care using a pre/postintervention design. The work processes were analyzed and redesigned using the learn six sigmas. After the work process redesign, a 44% reduction in time nurses spent delivering medications from the pharmacy to the unit of care was found.

Nursing Practice Application

Nurses can apply the lean six sigma principles in collaboration with other stakeholders to reduce time waste and improve work processes.

Six Sigma Model

The Six Sigma Methodology is model that is commonly used in quality improvement practices (Myszewski, 2017) with a focus on lean approaches. The key difference from the LEAN philosophy is the process that is used. The voice of the patient/family is the driving force (Thomsett, 2018). One example of an application project of the Lean Six Sigma by Godley and Jenkins (2019) was to decrease wait times for patients. In a vascular interventional radiology department, the patient satisfaction scores were low. The intervention used the Lean Six Sigma model to redesign the work processes. A pre/postintervention design was used to study the intervention. A dramatic improvement in patient satisfaction scores was reported after the intervention. Godley and Jenkins (2019) report pre and post registration wait times from 17 to 99 percent satisfaction; test and treatment from 19 to 60 percent satisfaction; and likelihood to recommend to others from 6 to 99 percent satisfaction. These findings support that a collaborative team redesign of work processes using the Lean Six Sigma improves quality for patients.

Evidence-based Practice

Evidence-based practice is an integral part of quality care and patient safety. **Evidence based practice is** professional nursing practice that is grounded in the translation of current evidence into one's practice (AACN, 2008, p. 3). Patient care practices and quality improvement programs should be based on the most current evidence available. Other aspects of evidence-based practice should include values and expertise. When providing quality patient care, evidence-based practice is teamed with systems theory, safety, and quality improvement (Simpson, McComb, & Kirkpatrick, 2017). The use of evidence-based practices creates an environment of frequent changes as new evidence is being implemented. Therefore, leaders should use change theory application and communication to promote the adaptation of evidence-based practice.

Leadership, Change Theory, and Communication!

Leadership is steering, coaching, and role modeling for others toward a collective purpose.

Change is the transformation to a different or new state. Most people resist change. Yet change is a requirement to improve patient safety and for continuous quality improvement in the workplace. Change theories help nurse leaders with a recipe for promoting change related with quality improvement and safety in clinical nursing.

Having knowledge of change theories and leadership theories is important to be able to utilize in the workplace. The ability of the change agent (person implementing the planned change) is often what makes a workplace change successful or not (Marquis & Huston, 2015). This is the case with the implementation of EBP in an organization. The application of a change theory framework is one way to guide the plan of implementing EBP. By including the stakeholders in communications, they have an opportunity to develop an understanding of the need for the change. This is applicable to all stakeholders in a project, whether they are employees or community members. Involving staff is a great step in the process! There are several change theories for use, but Kurt Lewin's Change Theory is described next. When applying evidence-based practice to improve patient safety and quality, it is important to recognize this is a change and there may be resistance.

Kurt Lewin's Change Theory. Kurt Lewin's Change Theory includes three separate stages of change (Roussel, Harris, & Thomas, 2018). The three stages are: unfreezing, moving, and refreezing. In the unfreezing stage, the idea of change is presented in a way in which the stakeholders see the benefit of change. Best practices include involvement of the stakeholders in the planned change. During the moving stage, the change is implemented and the stakeholders experience the emotions involved with a change. Support should be provided for the persons undergoing the change. During refreezing, the new change has become established and the new routine in the workplace. It is important for leaders to reinforce the change so it sticks as the new practice. Additionally, an evaluation of the process and new change should be completed. Kurt Lewin's Change Theory is applicable to implementing evidence-based practice to ensure patient safety and quality practice.

The praxis of storytelling (same thing as narrative) is a powerful aspect of applying change theory. In his classic pieces of work, Fisher (1985a, 1985b) explains that humans are storytellers. Decision-making using narrative paradigm is based on good reasons that are communicated in narratives. The Institute for Healthcare Improvement (2017) advocates the use of narratives as a significant part of the change process. There are many types of narratives, but the IHI advocates for a public narrative that calls others to join us in action. Through creating a narrative of self, us, and now, leaders motivate others to engage in the change. Basically, when a leader implements something in the workplace or community, gathering a team that writes a narrative is an approach to engage the team in the change process. Bess (2015) studied the use of narratives in the change process and found that people use stories to make meaning of life and engage in the change process. Telling narratives is a strategy that healthcare leaders use in the decision-making and change process.

Safety Evidence for Practice

Reference

Brooks Carthon, J. M., Hatfield, L., Plover, C., Dierkes, A., Davis, L., Hedgeland, T., Sanders, A. M., Visco, F., Holland, S., Ballinghoff, J., Del Guidice, M., & Aiken, L. H. (2019). Association of nurse engagement and nurse staffing on patient safety. *Journal of Nursing Care Quality,34*(1), 40-46. doi: 10.1097/NCQ.0000000000000334

Summary of Research Evidence:

In this study, researchers examined the relationship between nurse engagement, staffing, and patient safety. Cross sectional data of 26,960 nurses in 599 hospitals across 4 states was analyzed. A poor or failing patient safety rating was given by 32% of the nurses. Nurses reported low levels of engagement with patients in 25% of the hospitals. Previous studies have found that nurse engagement and staffing are linked to patient safety.

Nursing Practice Application

There is still much work to be done with improving patient safety. Improving nurse engagement with patients and staffing are two areas to improve patient safety.

Teamwork and Communication

A necessary aspect of improving safety and patient outcomes are teamwork and communication. Teamwork and communication promote patient safety. As discussed in Chapter 4, 80 % of medical errors are related to miscommunication in the healthcare team (The Joint Commission, 2012). This is a major theme in improving patient safety! Team member relationships play a role in the quality of collaboration that occurs and impacts patient safety (Lee & Doran, 2017). Leaders in healthcare should provide ongoing team relationship building activities to promote interpersonal relationships on teams. In a mixed methods study by Stelson, Hille, Eseonu, and Doolen (2017) management and employee factors were found to impact success of quality improvement projects. Management decisions and communications to employees had a major impact on the project success (Stelson et al., 2017). Communication was a key

factor in how employees perceived the quality improvement changes. There are several team building activities for use virtually, at staff meetings, or in the workplace through interactions. An ongoing series of communication topics is one strategy for providing this staff development. A few examples include conflict resolution education, communication skills, assertiveness training, and use of communication tools. Next, a few more ideas to address teamwork and collaboration are presented.

TeamSTEPPS® is a tool to promote performance and patient safety (Agency for Healthcare Research and Quality, 2018). It is based on evidence about teamwork and improving team communication. At the TeamSTEPPS® website a plethora of resources are found! The TeamSTEPPS® curriculum materials, online training, and even a pocket guide application is available for free. The address to the TeamSTEPPS® website is https://www.ahrq.gov/teamstepps/index.html These materials are aimed at improving communication and teamwork.

A collaborative project in a rural setting sought to implement nursing practice peer review in small and rural hospitals for the purpose of quality improvement (Drobny et al., 2019). A rural collaborative council from 6 rural and critical access hospitals was formed. Just Culture principles were used in the project. The council developed processes for case referral, reviewer assignments, investigation, and scoring. Drobny et al. (2019) report high satisfaction among staff nurses, reviewers, and Chief Nursing Officers. Collaborating with colleagues for the purposes of quality improvement is a strategy for nurses to use.

Summary

The practice of continuous quality improvement, improving patient safety, and leadership are complex abilities. The knowledge and ability to apply a variety of models and theories in given situations are necessary. The nurse who leads or participates in continuous quality improvement and patient safety uses leadership theories, change theories, and quality improvement theories. Since most medical errors are related to miscommunication among the healthcare team, addressing team communication is of upmost priority. The use of change theories and quality improvement theories include collaboration with the team and stakeholders as part of the process. This collaboration is key in the success of improvement projects. Further, the use of these theories is combined with evidence-based practice related to the areas of focus.

Brain Workout

Questions for Thinking

1. Describe a time you witnessed teamwork and collaboration that was successful to improve patient safety and quality.
2. Why is (or is not) analysis a type of critical thinking?
3. How does critical thinking relate to quality improvement?
4. What quality improvement theory/framework does the facility where you are employed utilize? Describe a step by step process of the theory/framework.
5. How would you integrate change theory with evidence-based practice and quality improvement? That is, describe a few ways you could impact the change of a project.
6. Explain the importance of improving communication and teamwork to improve patient outcomes.
7. What are some techniques for developing communication and teamwork in the healthcare workplace?

(answer: no one set answer; multiple answers and reflections are expected)

Application Activities: Quality Improvement Steps

For your project, you will complete the following steps. See the course syllabus for more details.

A. Learn about your facility QI program and policies: Describe the Quality Improvement program at your workplace. If you are not currently employed, you could reach out to inquire about a facility QI program. Or you could use a place where you were previously to discover their QI program. What are the policies, timelines, and roles of persons involved?

B. Identify three priority needs

C. Select the top priority need

D. Find five research articles on the priority need topic

E. Compare and contrast how the practice is at your workplace and what the evidence recommends. What are some recommendations you would make based on this analysis? What change theory would you use to implement and how?

F. Putting it all together. What are some benefits you see to making the recommendations? How will you measure the results of the recommendations you make?

(answer: no one set answer; multiple answers and reflections are expected)

Let's Get Creative! Leadership and Building Teams to Promote Patient Safety

The building of teams and team collaboration relationships are crucial to promoting patient safety. Pretend you are a leader and are planning a team building activity to impact relationships and communication among team members. What is one activity you might use for this purpose? Be creative!

(answer: no one set answer; multiple answers expected)

Critical Thinking LEAN Exercise

Pick one area that you would like to see improved in your workplace. It is best to narrow your choice. For example, selecting patient satisfaction is too broad. Narrow the topic to an area that is more manageable, such as patient satisfaction in patients receiving a mammogram.

Invent a fictitious patient and have them move through the entire process of patient care. With the mammogram example, draft out a process chart from the time the patient makes the appointment until they receive their test results. Include every step along the way. Identify products (gown worn, machines, antiperspirants available in the dressing room, etc.) of use and services provided. Next, state the value of the overall products/services for the patient. Identify the quality levels you want to achieve. What are any products or services that are wasteful?

Do you see any areas that could be improved?

If you were doing this in the real workplace, who are the stakeholders you would collaborate with to improve this product/service?

(answer: no one set answer; multiple answers expected)

Discussion Questions

1. What is one patient safety topic that you think should be addressed where you work? Or at a clinical experience you have had?
2. Why did you select this patient safety topic? Explain your rationale.
3. What is the outcome you want to achieve related to this patient safety topic?
4. How may critical thinking and clinical reasoning be used by nurses throughout the quality improvement process?
5. Explain one leadership theory that helps promote quality improvement and safety in clinical nursing.

(answer: no one set answer; multiple answers expected)

Evaluation

Complete this sentence: “I practice the values of . . . when using critical thinking skills to improve patient safety and patient outcomes.”

(answer: no one set answer; multiple answers and reflections are expected)

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Chapter 9: Reflections and Critical Thinking

Nancyruth Leibold

Image 9.1. Autumn Reflection, Picture by Nancyruth Leibold

Accessibility note: picture of autumn scene of colored trees reflecting into the lake

Quote

"Without reflection, we go blindly on our way, creating more unintended consequences, and failing to achieve anything useful."

-Margaret J. Wheatley

Learning Outcomes

After active engagement, the learner will

1. Define reflection.
2. Describe how reflection relates to critical thinking.
3. Explain the three-step model of reflection in nursing.
4. Apply the concept of reflection to application exercises.
5. Evaluate a case study for reflection and rumination.
6. Create a self-plan to develop reflection.

Chapter 9: Reflections and Critical Thinking

Definitions/Terms

Reflection: Careful consideration of thoughts about something specific (dictionary.com)

Reflection in nursing: Thinking about past experiences including critical examination of self, motivated by improving the future

Rumination: Thinking back over something in a negative manner that is not focuses on moving forward or improving the future

Self-Assessment: The act of evaluating the quality of one's own work

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Included Essentials and QSEN:

Essentials

These Quoted Essentials are included in this chapter:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

> A solid base in liberal education provides the cornerstone for the practice and education of nurses (AACN, 2008, p. 3).

QSEN

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care (QSEN, n.d.).

Evidence-based Practice
Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care (QSEN, n.d.).

Quality Improvement
Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems (QSEN, n.d.).

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Reflections and Critical Thinking

No book by Nancyruth Leibold is complete without a chapter about reflections! The reason for this exclamation is that reflection is a high-level thinking activity that can improve oneself and future practices. Reflection is a stratagem for continuous quality improvement because one is able to reflect upon what went well and what to improve for the next time. Reflection is worthy of praxis in nursing!

Reflection

Reflection is a valuable skill in the lifelong process of developing critical thinking skills. Reflection is a core professional competency (Wald & Reis, 2010). It is a cognitive tool that involves retrospective examination and evaluation of experiences, beliefs, knowledge, oneself, and practices with the purpose of improving the future (Dewey, 1933; Kember, McKay, Sinclair, & Wong, 2008). White (2012) refers to reflection as "meaning making" (p. 143). Reflection provides a strategy for the association of theory and practice (O'Malley, 2009). Wald (2015) stressed the importance of reflection for "being" and well as "doing." Being reflective is a higher level of praxis than doing reflection.

In an outstanding 2007 publication of study findings, O'Donovan described reflection as intentional thinking of oneself and ways to improve practice in the future. Bulman, Lathlean, and Cobbi (2012) examined student and teacher perceptions of reflection using an interpretative ethnographic approach that resulted in describing reflection as determining the sense of practice. Reflection enables thinkers to connect experiences and identify to improve nursing practice and oneself. Perhaps these ideas about reflection application provide some ideas for use!

Reflection and Critical Thinking

Reflection is a high level of critical thinking as it encompasses a meaningful survey that includes emotions, thoughts, and creating new ideas for bettering the future. The skill of recognizing personal insight about oneself is an advanced level and valuable skill. When a thinker reflects and identifies personal insight, this enables the ability to positively change and adapt to progress the future. For example, Jenny is a new leader who was an excellent clinical nurse and was recently promoted to Nurse Manager. Jenny makes some newcomer mistakes as a Nurse Manager by not communicating and involving staff with change in the department. Jenny's first major change project did not go well and now she is dealing with upset staff. A more experienced Nurse Manager, Lesa, takes Jenny aside and coaches her to reflect upon

her leadership approaches. Lesa advises Jenny to begin journaling about her leadership approach, goals, and theories or models to help her reach the goals. Jenny is very committed to the department and heeds the coaching advise from Lesa. She journals about being a transformational leader and studies transformational theory. Then she identifies her leadership strengths and areas that she needs to improve. Jenny thinks back about actions she has taken or not taken since assuming the Nurse Manager role. She writes goals to improve communication, sharing a vision with staff, the use of storytelling and Lewin's Change Theory to help her implement changes to improve patient care outcomes. At the next staff meeting, Jenny tells the staff she has made some mistakes in her new management and leadership role, but has done some reflection and promises the staff she is committed to improving the department and developing her leadership skills. Over the next year, Jenny makes quite a transformation in her management and leadership skills. The staff are happy with the progress Jenny has made, patient satisfaction scores are increased, and an increase in collaboration in the department is present. Through the praxis of reflection, Jenny has improved her ability to manage and lead the department.

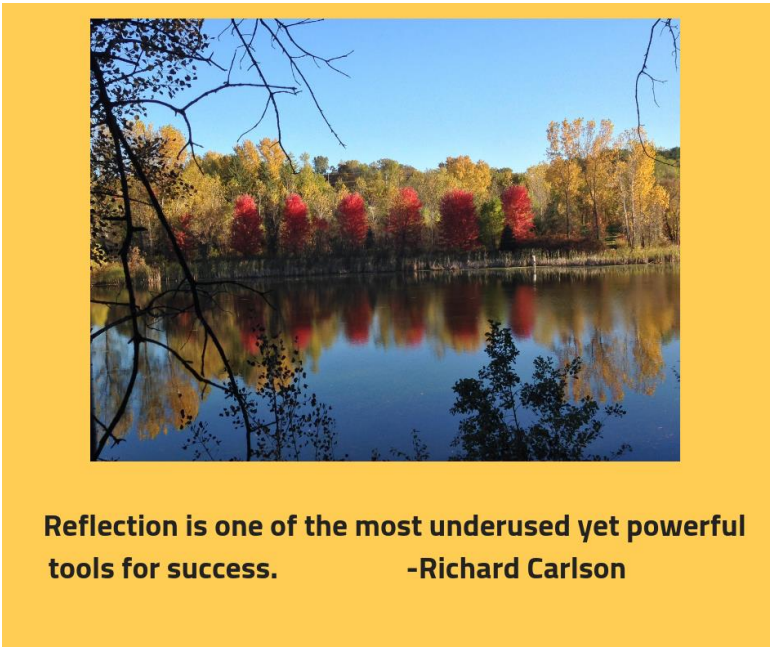

Image 9.2 Reflection Quote, Picture by Nancyruth Leibold

Accessibility Note: Reflection is one of the most underused yet powerful tools for success. Richard Carlson

Reflection in Nursing Praxis

Reflection in nursing is thinking about past experiences by serious examination of self, motivated by improving the future (Bulman et al., 2012). Reflection in nursing is a strategy for continuous quality self-improvement. Nurses think back about a situation

and analyze what went well and what could be progressed for the future. The regular use of reflection by nurses for self-examination is reflection in nursing praxis.

Although reflection in nursing praxis should be honest and sincere, it should focus on creating a positive impact in the future. Bulman and Schutz (2013) stress this as a key aspect of reflection and quite worthy. A contrasting concept is rumination. **Rumination** is a negative re-hashing or re-living of events that does not include moving forward or solutions. It is a negative behavior that adds to worry and anxiety (Kircanski, et al., 2015). Rumination is a regurgitation of the past events/happenings in an adversary way that is not conducive to moving forward. Brosschot, Gerin, and Thayer warn us that worry and anxiety is linked to cardiovascular, immunological, and endocrine health concerns (2006). Nurses should be aware of the differences between reflection and rumination, so they may consciously use reflection and avoid rumination.

Nurses and nursing students are not born with the skill of reflection. It requires conscious inclusion in nursing to help nurses accomplish the utmost gain by developing the skill of reflection. Merging a previous experience (Kolb, 2015) and new learning with the use of reflection (Maddison & Sharp, 2013) furthers critical thinking skills. The more reflection is used by nurses, the better nurses can inform quality nursing praxis.

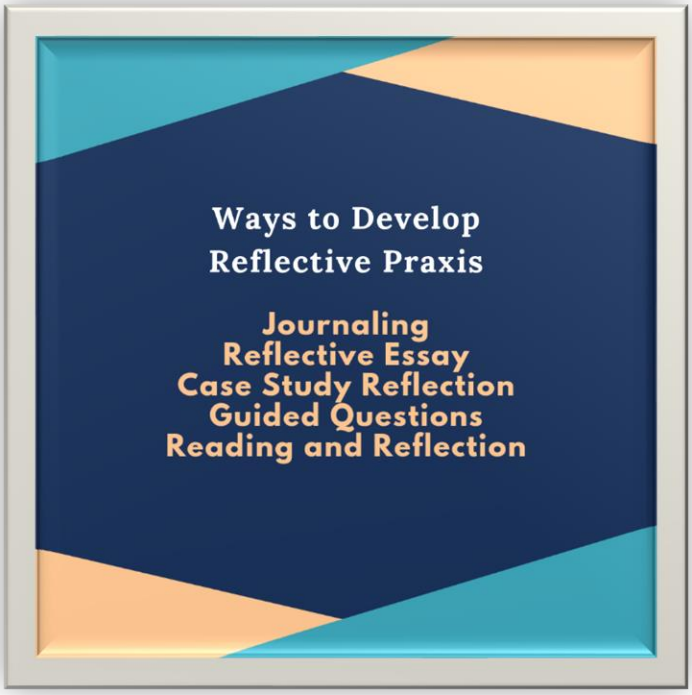

Image 9.3. Ways of Practicing Reflection graphic by Nancyruth Leibold in Canva

Accessibility Note: Ways to Develop Reflective Praxis

Journaling, Reflective Essay, Case Study Reflection, Guided Questions, Reading and Reflection

Writing or journaling are means for the practice of reflection. Writing in nursing may help one examine concepts and develop viewpoints about nursing topics (Ruland & Ahern, 2007). McMillian-Coddington (2013) advocate the use of journal writing by nursing students to reflect on their clinical experiences. Through guidance from feedback about their writing, nursing students develop habits of the mind, hand, and heart. Reflective writing also provides a vehicle for the use of ethical application to guide one's own direction in practice (McMillian-Coddington, 2013). Introspection, or the self-examination of one's thoughts and emotions; coupled with retrospection, or looking back at the past are two strategies to foster in reflective writing. Nurses can carry on this practice throughout their careers through journaling or other writing.

Evidence-based themes in the literature regarding strategies to promote reflection are journaling, reflective essay, case study reflection, guided questions, and reading/reflection. Case studies are one way to practice reflection. Students reported that using case studies allowed experiences to reflect and think about best practices for the future (Walker, Weidner, & Armstrong, 2015). The use of guided questions to prompt reflective thought is another way to promote reflection. Deeper thinking skills relate to guided reflective questions (Gravois, Burnthorne Lopez, & Budden, 2017; Sturgill & Motley, 2014). Another strategy to practice reflection skills is to read and then reflect on what was just read. Reading and reflection was found to be successful in leadership development (Jefferson, Martin, & Owens, 2014). Readers may reflect on any assumptions, bias, thoughts, feelings, and behaviors related to the content of the reading (Peterkin & Brett-MacLean, 2016). Nurses may use journaling, reflective essay, case study reflection, guided questions, and reading/reflection to advance their reflection and critical thinking abilities.

Previously, it was noted that a valuable use of reflection by nurses is thinking about past experiences to improve the future. Next, an easy to apply strategy in three steps is described for use to advance this practice. Jasper (2006) outlined three stages of reflective nursing practice.

1. Experience
2. Reflection
3. Action

As nurses and nursing students have clinical experiences, they should reflect on the experiences to determine what parts went well, and what parts could be improved in the future. The implementation of the ideas for improvement is the action stage.

Teamwork and Collaboration

Reflection is used in teamwork and collaboration. Teamwork and collaboration are essential to promote the workplace environment and patient outcomes. The use of reflection in teams to celebrate achievements and milestones is an example. Another use of reflection is to problem solve during team collaborations. Reflection may also be used to reflect on the challenges and progress of a functioning team (McNaughton, 2013). Qualitative reflections may be used to provide feedback on interprofessional team education programs (Pole, Breitbach, & Howell, 2016). The use of a reflective video or PowerPoint presentation about the employees in a unit is one option as a morale booster. For example, pictures or common phrases by employees on the slides set to an inspiring song and played at a team meeting. There are many purposes of reflection in teamwork and collaboration.

Patient Safety and Quality Improvement

Patient safety is a critical issue in healthcare. Reflection is a tactic to employ to improve patient safety and evaluate patient safety programs. Patient handoffs and patient safety were studied using reflections by hospital staff. It was concluded that employee training and monitoring of patient handoffs will improve patient safety (Lee et al., 2016). The use of reflection at the end of simulated patient learning experiences has potential to prevent patient safety concerns because nurses may review their experiences in the framework of how to improve a future real-life patient encounter (Lestander, Lehto, & Engstrom, 2016). Although reflection is not the entire answer, it is one approach to improve patient safety.

Reflection is a strategy that may be utilized to think about situations to improve them, as well as appraise the past. It is often used in a root cause analysis. Reflection may be employed to analyze large scale mass casualties (Jorm et al., 2016). With team reflection to improve quality, small amounts of reflection but at a deep level of thought produce better quality improvement than large amounts of reflection but at a superficial level (Otte, Konradt, & Oldewerne, 2018). This is important to note that deep reflection is more effective.

Summary

In this chapter, the concepts of reflection, reflection in nursing were defined and were the overall focus. Reflection is a high-level cognate function of critical thinking, in which the thinker looks back at experiences to analyze and evaluate the happenings with a future-focused objective of improving the future. Developing reflection skills in

nursing practice is an important critical thinking skill as it fosters quality improvement. Nurses should be clear about the difference between reflection and rumination. Rumination is a negative form of thinking that increases anxiety and stress, and prevents moving forward in healthy manner. Rumination should be avoided. There are many strategies for developing reflection skills, such as journaling, reflective essay, case study, guided questions, and reading and reflection. Reflection is a tool that is also relevant for teamwork, fine-tuning patient safety and quality improvement. Complete the following activities and exercises to practice reflection. Happy reflection!

Brain Workout

Questions for Thinking

1. When was the last time you used self-reflection to evaluate a work experience? What did you think about?
2. What would you like to see improved with patient safety outcomes?
3. What could you reflect on related to the improvement that you want to see? (answers: no one set answer; multiple answers and reflections are expected)

Application Activities

1. Make a praxis of asking yourself every day: What did I learn today?
2. Journal your reflections of a recent experience.
3. Read a section from: *Notes on Nursing*, and reflect on what Florence Nightingale meant or intended? You may find *Notes on Nursing* at https://digital.library.upenn.edu/women/nightingale/nursing/nursing.html
   Note: Copyright law expired for the Notes on Nursing and it is now in the public domain, so it is published and provided for free.
   What is the main takeaway from the reading?
   How might you apply this in a future nursing workplace experience?
4. Read one section of the ANA code of ethics. Think about a recent experience and reflect on how things went as paralleled to the code of ethics. Describe how you could apply this (or did) to a recent nursing workplace experience.
   (answers: no one set answer; multiple answers and reflections are expected)

Case Study Applications

Mark and XYZ Hospital

Mark had a bad experience in a position he had at XYZ Hospital. Years later, he still talks about the horrible things that he witnessed and endured at XYZ Hospital. What is Mark doing in this case?

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(answer: Mark is ruminating)

Rough Day!

You had a rough day at work today. It was super busy with many unplanned and unexpected things that happened. The staff you worked with all worked together to accomplish what needed to be done. It was great teamwork! How did this make you feel? What value of yours was realized by the way people worked together?

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(answer: no one set answer; multiple answers and reflections are expected)

Discussion Questions

1. Develop a self-plan to develop reflection. Start by writing two objectives that are measurable and specific that you will achieve. Then describe two strategies you will use to reach the objectives you listed. Explain how you know when you will achieve the objectives—that is how will you evaluate your performance?
2. Reflect on a recent book or written work that you have read. Briefly describe in two or three sentences the main points of the writing. What do you think or feel

about the work you read? What assumptions did you make will reading the work?

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(answer: no one set answer; multiple answers and reflections are expected)

Evaluation

Reflect on a time you have heard or read someone ruminate. What did they say that was so negative? What did you do? What might you do to re-direct or re-frame their thinking in the future?

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(answer: multiple answers are expected; dark or sad repetitive thoughts (rumination) may promote mental health concerns; ways to re-direct from rumination include: distraction [a joke, story, movie, taking a walk, etc.], meditation, therapy, etc.)

Knowledge Self-Check Questions

1. True or False — Reflection is a high level of critical thinking.
2. True or False — Reflection may be used to think about how to improve safety for patients.
3. True or False — Rumination may have harmful effects on health.
4. True or False — Reflection may help a nurse develop critical thinking skills.
5. True or False — Evaluating the work of others is self-assessment.

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(answers: 1. True, 2. True, 3. True, 4. True, 5. False)

Guided Reflection Questions

Practice your reflection skills with these questions. There is no right or wrong answers. These questions are to help you develop the skill of reflection. Remember to practice reflection and not engage in rumination.

What image comes to mind when you picture seeing your loved ones happy?

What is the most valuable thing in your workplace (or a previous workplace) that was free?

What are the happiest three moments of your life? Picture these moments in your mind. Savor the wonderful feeling of being happy.

Describe a time you felt deep gratitude. What/Who were you so thankful for in the situation? How could you carry on the spirit of the gratitude you felt?

Think of a person you work with that is not your favorite person to work with. What would happen if you began to think positive things about the person?

Describe a time someone at work said kind and meaningful words to you. What was it about? How did the kind words make you feel?

Describe the last time you laughed. What made you laugh? How did it feel to laugh?

Describe the last time you cried. What made you cry? How did it feel to cry?

Explain what you are the proudest of in your life. Tell why.

What is something about work that you would like to see change? Why is the change needed? What can you do to make the change happen? How will this improve the outcomes?

Describe a time you witnessed a person show empathy to another person. Remind yourself of the situation. How did you feel when you observed the empathy? Did you feel empathy as well? Did it change how you felt about the person you witnessed show empathy to another?

Do you listen well to others? Are you able to hear any “hidden” or “subtle” messages in what they say?

What experience in the workplace did you have that really moved you emotionally? What was so moving about the experience?

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Summary

Thank you for reading this book! Nurses who continue their education and professional development are quite admirable. Their quest for continued and lifelong improvement and growth inspires! In this textbook, the concept of critical thinking in nursing was explored. The meaning of the concept of critical thinking was discussed. Leibold's definition, as well as many other definitions of critical thinking were shared. Readers should use the definition they prefer to apply in their nursing practice.

Critical thinking is an active, internal process. Since critical thinking is an internal process, only the outcomes are measurable. Outcomes which may be recognized are defining the problem, situation, issue, or dilemma; performing a systematic search; planning; inquiring; determining assumptions; exploring alternatives; independently analyzing; logically reasoning; explicating rationales; and reaching a conclusion. These cognate functions are not required to occur in any certain order. However, the conclusion is most likely the final component. The components interact with each other (Leibold, 1993).

Leibold's definition of critical thinking was used as the framework for the book. Deeper examinations of each defining attribute was included in chapters 2, 3, 5, 6, and 7. The focus of micro-application of the cognate attribute skills was presented to help nurses continue their lifelong quest of developing critical thinking skills. Many application activities and exercises designed to use higher order thinking skills were included in this textbook. Chapters 4, 8, and 9 explained how critical thinking relates to communication, patient safety, continuous quality improvement, and reflective practice in nursing. Evidence-based practice was included in several chapters in relation to the relevant topics.

A variety of critical thinking practice exercises and applications were included throughout the book. Readers were also encouraged to practice critical thinking skills with an enjoyable game or puzzle activity. Additionally, nurses were encouraged to practice, develop, and use critical thinking skills to advance the practice of nursing.

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The Praxis of Critical Thinking in Nursing

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She teaches in the Department of Nursing at Southwest Minnesota State University. She has a special interest in narratives, narrative pedagogy, reflexology, mindfulness, meditation, reiki, engaging teaching/learning strategies, and instructional technology. Dr. Leibold has had a long-term interest in critical thinking. Nancyruth is a Reiki Master/Teacher and Energy Healing Practitioner. Nancyruth has numerous professional presentations, grant awards, awards, and publications in nursing in education.

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