Components and Levels of Abstraction in Nursing Knowledge

Janie B. Butts

Introduction

This chapter is a to-the-point summary for graduate students and advanced practice nurses. It is not a comprehensive review of nursing knowledge development, conceptual models, theory, or empirical indicators. Rather it is an overview of the components and levels of abstraction in nursing knowledge. The backdrop is the structural holarchy of contemporary nursing knowledge described by Jacqueline Fawcett. Her internationally recognized expertise on theory, her duration and experience in studying theory, and, especially, the significance and value of her work on theory and knowledge development continue to attract many advanced practice nurses and scholars to her work.

Graduate nursing students, who are at the stage of relearning components of nursing knowledge and theory in more detail, often become confused as they attempt to interpret different authors’ terminology, especially when trying to distinguish uses for different aspects of nursing knowledge and the levels of abstractness involved in thinking. Graduate nursing students, who are earning degrees in a Doctor of Nursing Practice program or Master of Science in Nursing program, focus on theory, at varying levels of specificity and detail, and the translation of theory to practice; likewise, so do advanced practice nurses. The American Association of Colleges of Nursing (2006) specified in *Essential I, Scientific Underpinnings for Practice in Essentials of Doctoral Education for Advanced Nursing Practice* that scientific-based theories and concepts will be used for nursing practice and the evaluation of outcomes. *Essential I* is relevant to the content in the holarchy of contemporary nursing knowledge.
Components of Nursing Knowledge

Nurses and others often pose the question “What do nurses do?” in an attempt to understand the nature of nursing and nursing practice. In reality, another question, “What do nurses know?”, is more critical to the development of knowledge for the discipline of nursing (Rodgers, 2005, pp. 1–2). The development of nursing as a discipline and a profession in the past century has been extraordinary. It is beyond the scope of this chapter to explore the historical development of nursing knowledge, but Rodgers’ discussion of the history of nursing knowledge development is an excellent source. Knowledge today is “the culmination of the integration of what is known and understood through learning and experience. Knowledge is dependent on theory and research to provide a cumulative, organized, and dynamic body of current information that can be used to answer questions, solve problems, explore phenomena, and generate new theory” (Johnson & Webber, 2005, pp. 11–12). Nursing knowledge development and practice must be in a constant state of evolution so that nurses will be equipped to fulfill the ever-changing societal needs.

Fawcett (2005a, 2005b) recognized nursing as a distinct discipline with a structural holarchy of contemporary nursing knowledge in which all components are functionally integrated into an order of wholeness or unity, where the largest whole makes up the scheme of nursing knowledge. Nursing knowledge is acquired by levels of abstraction, from the most abstract to the most concrete thinking, and vice versa. The holarchy described by Fawcett consists of five components that make up nursing knowledge, each of which is both a whole in itself and also one part of a larger whole (see Figure 5–1): (1) metaparadigm (most abstract); (2) philosophy; (3) conceptual model; (4) theory; and (5) empirical indicator (most concrete).

The Knowledge Holarchy

In formulating his own beliefs about the predicament of the human condition, Arthur Koestler (1975/1967) coined the term holarchy as an intended substitution for the word hierarchy. A holarchy is a type of fractal that consists of conceptual arrangements such as the one presented in Figure 5–1. Numerous depictions of other holarchies can be found in the literature. Additionally, several creative representations of holarchies based on others’ perceptions of how entities work in the world can be located on the Internet. Koestler (1975/1967) used the ancient term holon (originating from the pre-Socratic Greek word bolas) in his book The Ghost in the Machine as a way to explain humans’ predicament of having to live divided between emotion and reason and to point out how that predicament affects humans’ personal and larger involvement in social and political processes and in war. As a side note, Ken Wilber (1996) later adapted Koestler’s concept of holarchy and integrated his own view of it in his “chain of being” philosophy.

One can think of a holon as a node that functions independently but also interacts with other holons or nodes (wholes, or wholes within wholes) in an
holarchical structure. Through their own cognitive processes, holons coordinate and include holons of a subordinate level and transmit the information necessary “to conform the superordinate level, thereby producing an evolutionary dynamic process” (Mella, 2009, p. 27). In other words, a holarchy is not just a two-directional vertical interactive connection (top-down, bottom-up) made up of successive holons that transcend and include all holons to the point of succession from the direction of the interactions. Koestler (1975/1967) and Mesarovic, Macko, and Takahara (1970) suggested that some holons also interact with other holons in their environment (how the philosophy component interacts within the holarchy is discussed later in this chapter). If individuals were viewing these interactions, they would see how holons relate to one another as the point of focus moves up, down, or across the nodes (holons) of the holarchy; these interactions change with individual eye movement and interpretation.

Two other ways of mentally viewing the nursing knowledge holarchy provided in Figure 5–1 are possible. To create these mental images, think about theory development, for instance. There are two ways that knowledge development takes place in theory: testing theory (top-down) and generating theory (bottom-up). Both of these processes are accomplished by research.

The first mental image of the holarchy focuses on testing theory. Testing theory is accomplished by research through deductive reasoning and thinking, from a broad generalization to a specific entity. To think deductively about the holonic interaction, imagine being on top of the holarchy, above the metaparadigm component, and looking downward. Looking at the holarchy as a whole, you would see each of the components as one unit (wholes within the whole). Then you would see the metaparadigm as the inner “ring” or core, which is the most abstract component. As your eye moved outward, the rings would progress from the most abstract, general ring (metaparadigm) to the ring with the most concrete, specific entities (empirical indicators).
Generating theory is a second mental image of the holarchy. Generating theory is accomplished by research through inductive reasoning and thinking, from a concrete specific entity to an abstract broad generalization. To think inductively about the holonic interaction, imagine being on top of the holarchy and looking straight down. Inductively, you would first see the most concrete specific entities of the outer ring (empirical indicators) of the holarchy, and moving inward you would see the most abstract inner ring (metaparadigm).

Imagining these rings by levels of abstractness clarifies one’s perspective on the knowledge components of the holarchy. Any of the ways of viewing the holarchy, whether seeing it in Figure 5–1 or imagining it deductively or inductively, provides some degree of reference to help facilitate understanding of the levels of abstractness in thinking about nursing knowledge development and the ways in which to acquire and process that knowledge.

In several publications (e.g., 2005a, 2005b), Fawcett framed the components of nursing knowledge (metaparadigm, philosophy, conceptual model, theory, and empirical indicator) around the notion of the holarchy. In some of her earlier work (e.g., 1999 and previously), she used the term hierarchy; in later publications, she adopted the term holarchy as part of her framework. In many of her publications (e.g., Fawcett, 1999, 2005a, 2005b; Fawcett & Garity, 2009), Fawcett discussed the components in the holarchy of nursing knowledge in relation to how the C-T-E (conceptual–theoretical–empirical) structures are linked by means of research analysis of data (discussed briefly in the section on functions of theory in this chapter).

**Metaparadigm**

A metaparadigm is the world view of a discipline—the view that distinguishes the focus of a discipline. A metaparadigm, which is thought to be the most abstract viewpoint of a discipline, is made up of concepts that define the discipline. The most accepted nursing metaparadigm concepts are human beings (also known as persons), environment, health, and nursing, initially identified by Fawcett (1978a, 1978b, 2005b) as essential units of nursing. Several theorists have presented variations of the terms and concepts for the metaparadigm. Kim (1997), for example, defined the typology of the four domains as client, client–nurse, practice, and environment. King (1984) identified the primary concepts as man, health, role, and social systems. Other theorists, such as Morse (1996), recommended that nurses concentrate on formulating and using theories that they can directly link to practice instead of using an overarching metaparadigm that is possibly too abstract to be applied to practice.

To be a discipline obliges us to have a metaparadigm, and to have a metaparadigm obliges us to call nursing a discipline. The general consensus in nursing is that nursing is a discipline with a metaparadigm. Donaldson and Crowley (1978) defined a discipline as “a distinct way of viewing all phenomena, which ultimately defines the limits and nature of its inquiry” (p. 113). In terms of the overall function of a metaparadigm, Fawcett said, “Articulation of the metaparadigm brings
a certain unity to a discipline” (2005b, p. 4). Being able to articulate the central focus of the nursing discipline means that nurses can communicate who they are and who they are not, what they do and what they do not do, and what they are about and what they are not about.

**Philosophies**

Philosophers question and search for explanations and analyze common reason in an effort to enrich our lives and to increase our understanding about the very existence and experiences of human beings. Scholars in the discipline of philosophy ask many questions, such as “Who are we?,” “Where do we come from?,” “Why do we exist?,” and “What is the nature of our existence?” The same or similar questions are asked by nursing scholars and philosophers as they seek understanding not just of human beings from a global perspective, but also of the substance revealing the nature of our existence as a discipline. For years, nursing scholars have searched for and documented the existence and nature of phenomena that identify nursing as a discipline.

Although slight language variations can be discerned in the definitions of philosophy, all in all philosophy is the searching for and communicating of a viewpoint. Fawcett (2005b) defined philosophy as “a statement encompassing ontological claims about the phenomena of central interest to a discipline, epistemic claims about how those phenomena come to be known, and ethical claims about what the members of a discipline value” and noted that the function of a philosophy is “to communicate what the members of a discipline believe to be true in relation to the phenomena of interest to that discipline” (pp. 11–12).

Answers to empirical questions cannot explain any discipline’s ontological, epistemic, and ethical philosophical questions that serve as a discipline’s foundation for science, mainly because philosophy is concerned with questions of a second-order nature. Second-order questions are asked by philosophers as part of their search for the meaning and nature of the first-order acquired knowledge (Edwards, 2001). Examples of inquiry by way of second-order knowledge include “What is meant by sexual abstinence?”, “What is the nature of sickness?”, “What is meant by health?”, and other “What is meant by . . . ?” and “What is the nature of . . . ?” questions.

The four philosophical areas of inquiry are ontological, epistemology, ethics, and logic. The ontological area (study of reality or the metaphysical) is inquiry along the lines of “What is said to exist or be?” and “If it exists, what is there to it?” In nursing, ontology is what we believe to be “true” in terms of the central interest to the discipline; it answers the question, “What is it that we believe exists?” The epistemology area (study of knowledge) is inquiry into the creation, dissemination, and categorization of knowledge. In nursing, this area includes questions such as “What can we know?”, “How do we know what we know about the phenomena of interest?”, and “In which category does the knowledge belong?” The ethics area (moral philosophy) is normative inquiry about what is valued by a discipline.
in terms of actions and practices. In nursing, we ask normative moral questions such as “What ought I do as a nurse”, “How ought I act to be ethical in practice?”, and “What ought we do as a profession?” The logic area is a method of inquiry or logical reasoning through which arguments are presented and evaluated.

Nursing scholars communicate and disseminate their ontological, epistemological, and ethical assertions about the discipline of nursing by developing a philosophical view about the world and human beings. Fawcett (2005a, 2005b) identified three world views that have materialized from the work of nursing scholars: (1) reaction world view, (2) reciprocal interaction world view, and (3) simultaneous action world view. These world views are further explained in Table 5–1.

The Philosophy Connection to the Holarchy
At first glance, the philosophy component appears to fall in line (in Figure 5–1) directly under the metaparadigm and directly before the conceptual model component. However, this is not the case. Remember that a holon, such as philosophy, can interact up and down or all around its own environment with other holons. Fawcett (2005b) made the following statement about the philosophy component:

[T]he metaparadigm of a discipline identifies the phenomena about which ontological, epistemic, and ethical claims are made. The unique focus and content of each conceptual model then reflect certain philosophical claims. The philosophies therefore are the foundation for other formulations, including conceptual models, grand theories, and middle-range theories. (p. 22)

Conceptual Models
The terms conceptual framework, conceptual system, paradigm, and disciplinary matrix often are used interchangeably with the term conceptual model. Fawcett (2005b) defined a conceptual model as follows:

[A] set of relatively abstract and general concepts that address the phenomena of central interest to a discipline, the propositions that broadly describe those concepts, and the propositions that state relatively abstract and general relations between two or more of the concepts. (p. 16)

The overall function of a conceptual model is to characterize relationships of phenomena in a coherent format in order to shape a distinctive frame of reference. Specifically, conceptual models assist us in communicating concept links that we believe exist and then in communicating those concepts with some degree of assurance that we understand what we are conveying to one another (Shoemaker, Tankard, & Lasorsa, 2004).

Conceptual models have practical value because they guide research and practice. A “reciprocal relationship” exists between conceptual models and nursing practice in that conceptual models provide the characterization and structure for nursing practice. In turn, the outcomes of nursing practice supply evidence
<table>
<thead>
<tr>
<th>World View</th>
<th>Foundation</th>
<th>Perspectives</th>
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<tbody>
<tr>
<td>Reaction</td>
<td>Mechanistic</td>
<td>Human beings react to external environmental stimuli in a linear, causal manner.</td>
</tr>
<tr>
<td>Persistence</td>
<td></td>
<td>Change occurs only for survival and as a consequence of predictable and controllable antecedent conditions.</td>
</tr>
<tr>
<td>Totality</td>
<td></td>
<td>Change is a function of multiple antecedent factors, is probabilistic, and may be continuous or may be only for survival.</td>
</tr>
<tr>
<td>Particulate-deterministic</td>
<td></td>
<td>Only objective phenomena that can be isolated, observed, defined, and measured are studied.</td>
</tr>
<tr>
<td>Reciprocal interaction</td>
<td>Organismic</td>
<td>Human beings are holistic and parts are viewed only in the context of the whole.</td>
</tr>
<tr>
<td>Simultaneity</td>
<td></td>
<td>Human beings are active, and interactions between human beings and their environments are reciprocal.</td>
</tr>
<tr>
<td>Totality</td>
<td></td>
<td>Reality is multidimensional, content dependent, and relative.</td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td>Unitary human beings are unified by pattern.</td>
</tr>
<tr>
<td>Persistance</td>
<td></td>
<td>Human beings are in mutual rhythmical interchange with their environments.</td>
</tr>
<tr>
<td>Simultaneous interaction</td>
<td>Organismic</td>
<td>Human beings change continuously, unpredictably, and in the direction of more complex self-organization.</td>
</tr>
<tr>
<td>Action</td>
<td></td>
<td>The phenomena of interest are personal knowledge and pattern recognition.</td>
</tr>
</tbody>
</table>

for theorists to determine the degree to which a conceptual model has credence (Fawcett, 1992; Kahn & Fawcett, 1995).

A unique facet of each conceptual model is that it provides an individual with the ability to interpret and characterize reality from that particular model (Fawcett, 2005b). Each discipline does not have just one reality, but rather multiple realities. The seven conceptual models of nursing recognized by Fawcett enable nurses to view the world and its functions in different ways (see Table 5–2). Each conceptual model of nursing gives the discipline a unique perspective of the metaparadigm concepts and provides a path for concrete theories (specifically, middle-range theories) to be generated and tested for practice.

Fawcett (2003) was resolute in her statement on the essentialness of conceptual models to the discipline of nursing: “Conceptual models . . . are the foundation on which claims of disciplinary status for nursing rests” (p. 229). For several years, Fawcett has communicated her concern about whether the discipline of nursing will survive given that many nursing researchers no longer use, support, or value conceptual models as integral to the viability of the discipline (Fawcett, 2003, 2008; Fawcett & Alligood, 2005; Fawcett, Newman, & McAllister, 2004). Without specific nursing conceptual models for guiding research and nursing practice, Fawcett (2003) has expressed her worry that the discipline will become extinct and nurses will regress to no more than “skilled tradespeople” (p. 229).

### Table 5–2 Conceptual Models of Nursing

<table>
<thead>
<tr>
<th>Conceptual Model</th>
<th>Publication Dates and Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>King’s conceptual system</td>
<td>1968, 1971, 1981</td>
</tr>
<tr>
<td>Roy’s adaptation model</td>
<td>1971, 1976, 1999</td>
</tr>
</tbody>
</table>

Nursing must have its own identity with its own conceptual models, and not borrow from other disciplines. As a discipline, it has reached a bifurcation point where a decision must be made. Without using our own conceptual models of nursing, we stand to lose nursing's identity.

**Conceptual Models Versus Theories.** More than 30 years ago Fawcett (1978b) distinguished conceptual models and theories by the level of abstraction. Since then she has built on this distinction as part of her work. Along the way, she devised a rule for making this distinction, based on a determination of the purpose of the work being examined (Fawcett, 2005b). This can be referred to as *if–then determinations* (Box 5–1). Such determinations are useful for advanced practice nurses and students as they attempt to decipher the level of abstractness required for each work being examined. To answer the questions related to Determinations 1 to 3 in Box 5–1, the advanced practice nurse would examine the purpose

**Box 5–1 If–Then Determinations: Is It a Conceptual Model or a Theory?**

<table>
<thead>
<tr>
<th>Determination</th>
<th>If</th>
<th>Then</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determination 1</td>
<td>If the purpose of the work is to articulate a body of distinctive knowledge for the whole of the discipline of nursing</td>
<td>Then the work is probably a conceptual model</td>
</tr>
<tr>
<td>Determination 2</td>
<td>If the purpose of the work is to further develop one aspect of a conceptual model</td>
<td>Then the work is probably a grand theory</td>
</tr>
<tr>
<td>Determination 3</td>
<td>If the purpose of the work is to describe, explain, or predict concrete and specific phenomena</td>
<td>Then the work is probably a middle-range theory</td>
</tr>
<tr>
<td>Determination 4</td>
<td>If the work requires that one must work through four steps to directly link the concepts to empirically testable hypotheses</td>
<td>Then the work is probably a conceptual model</td>
</tr>
</tbody>
</table>

(Continues)
**Box 5–1 If–Then Determinations: Is It a Conceptual Model or a Theory? (Continued)**

<table>
<thead>
<tr>
<th>Determination</th>
<th>If</th>
<th>Then</th>
</tr>
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<tbody>
<tr>
<td>Process Steps</td>
<td>If three steps are required</td>
<td>the work is probably a middle-range theory</td>
</tr>
<tr>
<td>to Linking</td>
<td></td>
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</table>

### Determination 1: Linking to Process Steps
- **Step 1:** Create the conceptual model.
- **Step 2:** Derive the middle-range theory.
- **Step 3:** Identify empirical indicators.
- **Step 4:** Identify empirically testable hypotheses.


### Distinction Between Conceptual Models and Other Models for Middle-Range Theories

Fawcett and Garity (2009) found that nursing scholars from time to time incorrectly refer to a conceptual model as a grand theory or theoretical framework, and vice versa, or refer to a schematic diagram for middle-range theories as a conceptual model. An important point to consider is that Fawcett’s description of a conceptual model is not the same as a model for middle-range theories. The concepts are too abstract and general for direct observation of phenomena to occur. The concepts are not restricted by anyone—individuals, groups, situations, or events. The propositions are too abstract and general for direct empirical observation to occur. The related concepts are stated in an abstract and general manner.

Fawcett and Garity (2009) mentioned an additional condition for a conceptual model to be designated as such: A conceptual model must be complete in terms of the four concepts of the metaparadigm. The three theories they listed as “grand” contain only three of four metaparadigm concepts that designate a conceptual model (see Table 5–3).
Theorists and metatheorists define, classify, and stack theories in different ways. These differences are evident in nursing, for example. Some theorists do not try to place conceptual models and theories in echelons, whereas others do place them in echelons but in differing ways. Graduate nursing students who are at the stage of relearning theory in more detail could become confused as they try to interpret different authors’ terminology, especially when trying to sort out the answers to questions such as “What is the difference between a conceptual model and a theory?”, “Should theories be categorized?”, “How are theories sorted?”, “Which way is right?”, and “Who is right?” Much of this chapter has followed Fawcett’s way of distinguishing theory; refer to Box 5–1 for the if–then determinations that allow for differentiating a conceptual model from a theory.

Fawcett (2005b) defined a theory as “one or more relatively concrete and specific concepts that are derived from a conceptual model, the propositions that...
narrowly describe those concepts, and the propositions that state relatively concrete and specific relations between two or more concepts” (p. 34).

Meleis (2007, pp. 38–39) found six different ways that theory is defined, where each type is based on how it is defined:

1. Based on structure (McKay, 1969)
2. Based on practice goals (Dickoff & James, 1968)
3. Based on tentativeness (Barnum, 1998)
4. Based on research (Ellis, 1968)
6. Based on progression from conceptual models to theory (Fawcett, 2005b)

Functions of Theory: Theory to Practice. The function of theory is closely connected to “how good” the theory is. According to Jaccard and Jacoby (2010), a good theory is one that helps us better understand the world. Fawcett and Garity (2009) note that each theory is evaluated in terms of how good it is for guiding research and practice; thus, if we are to judge whether a theory is good, we must evaluate its utility. Shoemaker and colleagues (2004) stated the function of theory in a concise way: Its major purpose, they say, is to “condense and store knowledge . . . and put our discoveries of the nature of the world into statements” (p. 169). To accomplish this goal, the information within the theory must be good.

Fawcett (2005b) detailed the functions of theory development as twofold: (1) research inquiry based on theory-testing or theory-generating research and (2) research-supported theory translated into practice. In an article published in 1992, she emphasized that a reciprocal relationship exists between conceptual models and nursing practice (see the section on conceptual models in this chapter). The conceptual–theoretical–empirical (C-T-E) formalization for theory development has been presented by her in many publications. The C-T-E formalization is a way to analyze research by systematically testing or generating theory; it is sometimes called theoretical substruction, a term still used today by a few scholars and educators (Fawcett, 1999). Within the C-T-E formalization, there are two major C-T-E structures: (1) one C-T-E formalization for theory-testing research (top-down) and (2) one C-T-E formalization for theory-generating research (bottom-up). These functions of theory are noted throughout Fawcett’s discussion of the C-T-E structures.

Conceptual models inform and transform practice by systematically providing evidence; in turn, the systematic use of the conceptual model provides information that is used for modifications of the conceptual model and documentation of outcomes (Fawcett, 1992, 2005b). Fawcett (1992) summed it up by saying, “Indeed, the reciprocal relationship between a conceptual model and nursing practice progresses from the abstract content of the conceptual model to the real world of clinical practice back to the conceptual model” (p. 226).

Theory by Levels of Abstractions. Fawcett (2005a, 2005b) categorized theories based on their levels of abstraction and scope, with grand theory being more
abstract with a broad scope, but less abstract than a conceptual model, and middle-range theory being more concrete and narrower in scope. It is important to note that Fawcett only mentioned grand theory and middle-range theory as the two categories in the theory component of the holarchy of nursing knowledge. Metatheory and practice theory were not named components of Fawcett’s holarchy of nursing knowledge, but they are briefly defined in this section to familiarize advanced practice nurses with these terms and the way in which some theorists view them.

**Metatheory** is not a named level of abstraction of Fawcett’s theory component in the holarchy of nursing knowledge, possibly because metatheory is philosophical study about theory and is not itself theory content. As described by Meleis (1997), metatheory is a theory of theories. Metatheory encompasses a philosophical stance, debate, or evaluation about theory and its methods and processes for generating knowledge (Chinn & Kramer, 2008). Metatheory involves scholars debating theory in an effort to move the discipline toward a coherent body of knowledge. A metatheorist “talks” theory, analyzes theory, and develops processes for theory development, whereas a theorist develops the actual theory and its content (Meleis, 1997). Some scholars refer to metatheory as being the highest level of abstraction of theory.

**Grand theory** is a named level of abstraction of Fawcett’s theory component in the holarchy of nursing knowledge. This kind of abstract, broad theory consists of concepts and propositions that are less broad and abstract than a conceptual model but not as specific and concrete as middle-range theory (Fawcett, 2005b). Grand theory is sometimes referred to as macro theory, meaning that the theory is far too abstract to state relationships or hypotheses in empirical terms or to specify actions and processes for nursing practice (McKenna & Slevin, 2008). Fawcett recognized three theories in nursing as grand theories (see Table 5–3). Grand theories are derived from conceptual models and often become “the starting points for middle-range theory development” (Fawcett, 2005b, p. 19). A grand theory sometimes can be used as the “C” (conceptual) of the C-T-E structure, replacing the conceptual model in this structure (Fawcett & Garity, 2009). It should be noted here that middle-range theories also frequently originate directly from conceptual models (discussed in the next section).

**Middle-range theory** is a named level of abstraction of Fawcett’s theory component in the holarchy of nursing knowledge. It is less abstract, narrower in scope, and has fewer concepts and propositions than grand theory. Numerous middle-range theories have been formulated in the past 15 years because they provide elements that especially align with practice in nursing (Peterson, 2009). Robert Merton (1957/1949), a sociologist who is known for his position on middle-range theory, stated that theories of this level guide research and have specificity for practice; according to Merton, theories of the middle range are strongly supported by empirical data (indicators).

Fawcett’s long-term aims have been to express (1) the importance of middle-range theories to practice; (2) how middle-range theories fit in the holarchy, specifically with the conceptual model component; (3) how middle-range theories...
can be tested, evaluated, and translated into practice; and (4) how they signal the onset of a maturing discipline. In her book of contemporary nursing knowledge, Fawcett (2005b) highlighted three middle-range theories that were derived from conceptual models but noted that many middle-range theories have been derived from conceptual models of nursing (see Table 5–4). Two other examples are King’s theory of goal attainment (1981, 1995), which is derived from King’s conceptual system (1981), and Tulman and Fawcett’s (2003) theory of adaptation during childbirth, which is derived from Roy’s adaptation model (Roy & Andrews, 1999; Roy & Roberts, 1981).

Conceptual models guide the direction of the propositions and empirically testable hypotheses used to create or refine middle-range theories. As stated previously in this chapter, every person views the world and how it works from a frame of reference (i.e., a conceptual model). Popper (1959) maintained that everything a person observes is screened and interpreted through that person’s conceptual backdrop. The implicit understanding of this view is that nurses have assumptions about the world and the way the world functions based on their historical and cultural underpinnings. Those assumptions guide nurses toward their choice of a credible conceptual model of nursing for use in practice.

When theorists develop middle-range theories, they do so from a chosen conceptual model that aligns with their own assumptions about the world. Many middle-range theories come from the same conceptual model. As Fawcett (2005a) noted, “Many middle-range theories are needed to deal with all of the phenomena encompassed by any one conceptual model because each theory deals with only a limited aspect of the total reality encompassed by a conceptual model” (p. 36). Thus, when many middle-range theories have emerged from a conceptual model, there

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<th>TABLE 5–4 Middle-Range Theories of Nursing</th>
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<tbody>
<tr>
<td>Middle-Range Theory</td>
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<tr>
<td>Theory of deliberative nursing process</td>
</tr>
<tr>
<td>Theory of interpersonal relations</td>
</tr>
<tr>
<td>Theory of goal attainment</td>
</tr>
</tbody>
</table>

is more detail and specificity to that particular model. Because grand theories are also derived from conceptual models, many grand theories are also needed to detail and specify any one conceptual model (Fawcett, 2005b).

Middle-range theory is categorized in similar but slightly different ways. Fawcett (2005a) specified three types of middle-range theories: (1) descriptive, (2) explanatory, and (3) predictive. McKenna and Slevin (2008) defined four types of scientific theories: (1) descriptive, (2) explanatory, (3) predictive, and (4) prescriptive, and concisely designated them as “information presenting,” “knowledge building,” “knowledge confirming,” and “knowledge utilization,” respectively (p. 30). Descriptive theory, the most basic type of theory usually involving one concept, is “information presenting” in the sense that phenomena are classified and described. For descriptive theory, “an explanation is called for but not yet available” (McKenna & Slevin, 2008, p. 30). Explanatory theory, or “knowledge building,” attempts to explain how two or more concepts relate to each other. Predictive theory, or “knowledge confirming,” predicts cause and effect relationships between two or more concepts. Prescriptive theory is “knowledge utilization” that goes beyond the predictive cause and effect relationships. This type of theory builds on descriptive, explanatory, and predictive theory. McKenna and Slevin emphasized the strength of prescriptive theory:

We must have considered the evidence for the cause–effect relationship. We must have considered the “expected utility” of one or some actions as opposed to others. And, we will have taken account of the context.

(p. 31)

Some theorists label prescriptive theory as practice theory, which has a narrower scope than what is often labeled as middle-range theory (practice theory is discussed later in this section).

Other slight variations on types of theory exist as well. For example, Meleis (2007) defined theory by goal orientation and divided it into two major categories—descriptive and predictive. Within descriptive theory, she delineated two classifications: (1) “factor-isolating, category-formulating, or labeling theory” and (2) “explanatory” (p. 44). McEwen (2011) specified four types of theories: (1) descriptive theory as factor-isolating theory, (2) explanatory theory as factor-relating theory, (3) predictive theories or promoting or inhibiting theory as situation-relating theory, and (4) prescriptive theory as situation-producing theory.

A derivative of middle-range theory is practice theory, which is a very narrow theory resulting from empirical testing (Peterson, 2009). Practice theory is also known as prescriptive theory. Fawcett (2005b) does not compartmentalize practice theory or prescriptive theory apart from her middle-range theory category, but she does refer to descriptive, explanatory, and predictive theories as types of middle-range theories. Specifically, Fawcett and Garity (2009) refer to predictive theory as empirical, experimental theory for practice based on the effects of actions and processes on people and situations. This definition encompasses prescriptive theory.
As Peterson (2009) has explained, labeling any theory that is very concrete and narrow in scope can present challenges. Synonyms for practice theory include *situation-specific theory* and *micro theory* (Peterson, 2009). Dickoff and James (1968), who were noted for their stance that theory exists only for the sake of practice, categorized practice theory as goal-incorporating, prescriptive, and situation-producing theory.

The concepts of practice theory (or micro theory) are precisely defined for specific populations, desired situations, or fields of practice. Numerous practice theories exist, including these five theories:

1. The praxis theory of suffering (Morse, 2001, 2005)
2. The theory of postpartum depression (Beck, 1993)
4. The theory of health promotion for preterm infants (Mefford, 2004)
5. The theory of dependent care in research with parents of toddlers (Arndt & Horodynski, 2004)

**Empirical Indicators**

Fawcett (2005b) defined an empirical indicator as “a very concrete and specific real world proxy for a middle-range theory concept; an actual instrument, experimental condition, or procedure that is used to observe or measure a middle-range theory concept. The information obtained from empirical indicators is typically called data” (p. 21).

Empirical indicators provide a way for middle-range theories to be tested or generated, but there is no direct link between empirical indicators and conceptual models, philosophies, or the metaparadigm. The only way that empirical indicators are connected to theory is by way of an operational definition for each concept in the middle-range theory. Research instruments with data about concepts, nursing protocols, nursing practice quality indicators, and other outcome data used by nurses, among many other methods, can be used as empirical indicators. In turn, those empirical indicators can be used to test or generate middle-range theories.

**Using the Components in Practice**

The C-T-E system is a whole system of nursing knowledge that is implemented for conceptual model-based or theory-based scientific practice. A conceptual model, a theory (or more than one), and empirical indicators are strongly linked to form a C-T-E system for application of a conceptual model or theory to nursing practice, research, and education. Fawcett (2005b) defined the C-T-E system as “service to the society guided by knowledge that is specific to the discipline of nursing, as articulated in conceptual models of nursing and nursing theories” (p. 32). Fawcett described two functions of the C-T-E system: (1) “to provide an intellectual lens” for human beings participating in nursing, their health, and
their environment, and (2) “to provide a purposeful and systematic process for practice, that is, a practice methodology” (p. 33). The C-T-E system can be implemented by nursing departments within healthcare institutions, advanced practice nurses and other nurses working in private practice, and nursing educators to guide curriculum development or to teach students this system for practice. This section provides a brief synopsis of the substantive elements of the C-T-E system for practice.

Three substantive elements must be considered if the C-T-E system is adopted and used. Referring back to the discussion of the components of nursing knowledge will help clarify this section’s meaning. Figure 5–2 provides an overview of the holarchy translated into practice.

<table>
<thead>
<tr>
<th>Components Translated to Nursing Practice</th>
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<tr>
<td>Nursing Participant Environment</td>
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<td>Health Condition</td>
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<tr>
<td>Nursing Process or Practice Methodology</td>
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<tr>
<td>Philosophy of Nursing Department</td>
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<tr>
<td>Code of Ethics</td>
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<tr>
<td>Patient’s Bill of Rights</td>
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<td>Classification Taxonomies</td>
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<td>Evaluation Criteria</td>
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**FIGURE 5–2 Holarchy of nursing knowledge.**

The first element is translation of the metaparadigm of nursing into practice. The metaparadigm includes the human beings requiring nursing care, meaning the participant, family, or community; the environment of the human beings requiring care and the nursing practice environment; the health status of the participant; and the nursing practice methodology. In healthcare institutions, the mission statement sets the tone of the institution, the scope of nursing practice and its methodology, and types of service.

The second element is translation of philosophies into nursing practice. As previously discussed, the philosophy is a world view about the beliefs and values of nursing as a discipline. The institution has a philosophy of its beliefs and values about human beings, the institution’s environment, health, and nursing methodology. Some of the ways in which philosophy is communicated include the American Nurses Association’s Code of Ethics for Nurses (2001) or other codes of conduct; the patient’s bill of rights for the particular institution—for hospitals, for example, the American Hospital Association has written and adopted The Patient Care Partnership (2008) document, which has replaced its universal Patient’s Bill of Rights; and the nursing department’s philosophy statement that is uniquely formulated by each institution.

The third element is translation of the conceptual model, theories, and empirical indicators into a comprehensive “formal nursing knowledge system,” the C-T-E system. This step “requires the linkage to a conceptual model, one or more theories, and one or more empirical indicators” (Fawcett, 2005b, p. 34). There are numerous ways that a C-T-E system becomes evident. The conceptual model can be the individual nurse’s professional perspective on nursing and/or the institution’s and nursing department’s adopted conceptual model or theory. The practicing nurse works within the institution’s or agency’s conceptual model or professional practice model. Theories that are adopted include nursing theories and theories of delivery of nursing care and services. All theories used must be consistent with the adopted philosophy and the conceptual model. Once the conceptual model and the theories are congruent and in place, empirical indicators are adopted. Numerous empirical indicators could be used, along with documents that include their own empirical indicators. Sources for empirical indicators include standards for practice, assessment designs, taxonomies, protocols for intervention, and an evaluation program.

It is not within the scope of this chapter to present an in-depth discussion of the substantive elements of the C-T-E system. To read more about the C-T-E system and guidelines using the C-T-E system for practice, research, education, or administration, refer to Chapter 2 of the contemporary nursing knowledge book by Fawcett (2005b). In that same chapter, Fawcett offers a perspective on the process elements of the C-T-E system; successful implementation of a C-T-E system; the phases of evolution during the implementation, which is called perspective transformation; strategies to facilitate perspective transformation; and levels of integration of the C-T-E system.
Summary

This chapter presents a review of the holarchy of nursing knowledge that was formulated by Fawcett. The components of nursing knowledge—that is, the metaparadigm, philosophy, conceptual model, theory, and empirical indicator—were discussed. According to Fawcett, middle-range theories must be strongly linked to nursing’s conceptual models if nursing is to remain a viable and bona fide discipline. As Fawcett pointed out, nursing stands to lose its identity if nursing researchers and scholars continue to abandon nursing’s own conceptual models in favor of models and theories of other disciplines. Linking conceptual models of nursing, theories, and empirical indicators to the C-T-E system is necessary for the application of a conceptual model of nursing and, therefore, for the translation of the components of nursing knowledge into real-world practice.

Discussion Questions

1. Examine each of the components in the holarchy of nursing knowledge. Identify one conceptual model of nursing, one grand theory of nursing, and one middle-range theory of nursing. Either search this text for the content of each one, or search in the CINAHL or Medline databases. Using the if–then determinations in Box 5–1 of this chapter, explain the distinguishable levels of abstraction characteristics of each one (conceptual model, grand theory, and middle-range theory).

2. Which one of the three philosophical world views from Table 5–1 reflects your philosophical world view? Explore how your philosophical world view (reaction, reciprocal interaction, or simultaneous action) interweaves with the philosophical world view adopted by your workplace.

3. Determine which conceptual model of nursing you prefer. Then, choose a middle-range nursing theory that has been formulated or derived from your preferred conceptual model of nursing. Analyze the parts of your chosen middle-range theory that reveal the derivation characteristics from your chosen conceptual model of nursing. An example includes (but is not necessarily the model and theory that you will choose) King’s theory of goal attainment (1995), which is a middle-range nursing theory derived in 1981 from King’s conceptual system (1971).

4. Explore specific strategies that you or other advanced practice nurses can implement to advance the discipline of nursing. What is the critical nature of the relationship between conceptual models of nursing and middle-range nursing theories?
5. Analyze how the C-T-E structures translate into nursing practice (see Figure 5–2). Use actual examples. You may use the middle-range nursing theory and the conceptual model of nursing that you chose in Discussion Question 3. In addition, choose two or more empirical indicators that are consistent with your middle-range nursing theory and that can be translated into a testable hypothesis. Give an overview of this C-T-E structure process.

References


Chapter 5 Components and Levels of Abstraction in Nursing Knowledge


