PREFACING KNOWLEDGE DEVELOPMENT IN NURSING: TELLING STORIES

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In the preceding article, *Approaches to Knowledge Development in Nursing*, Jacqueline Fawcett addressed relationships among conceptual models, theories and empirical indicators, with regard to three approaches to nursing knowledge development. The three approaches--generation and testing of theories from explicit conceptual models; generation and testing of theories from implicit conceptual models; and induction of conceptual models from existing theories--all are evident in the nursing literature. The approaches are intended to build conceptual-theoretical-empirical structures (CTE structures) to guide nursing knowledge development.

As Fawcett attests, separately and in conjunction, these three approaches to knowledge development, along with others, have contributed to the evolution of nursing knowledge. The approaches have made available to the nursing community, middle-range theories and general conceptual models. Through these theories and models, outcomes relevant to nursing can be described or predicted. Conceptual models and theoretical frameworks are the stuff of generalizable nursing knowledge.

In the context of a given CTE structure, when empirical research findings provide limited support for proposed theories and conceptual models, serious questions are raised about the credibility of those theories and models, regardless of the approach used in their development.

Fawcett encourages nursing scholars, cognizant of the advantages and disadvantages inherent in each approach to nursing knowledge development, to select approaches to further the development of nursing knowledge. Through this process, she argued, nurse scholars will advance nursing science and yield a systematic body of nursing knowledge. However, as she discussed the advantages and disadvantages of each approach to knowledge development, Fawcett implicitly encouraged nurse scholars to examine the complexity of the language they use to develop CTE structures. Such examination renders CTE structures valid. It is the validity--not the choice--of CTE structures that will increase nursing's body of knowledge.

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The Issue

As Fawcett noted, the three levels of abstraction in CTE structures are to be linked. The concepts and propositions of conceptual models are highly abstract and general, not amenable to direct empirical observation or test. These concepts and propositions are tied to the lived world by means of middle-range theories.

Middle-range theories are relatively more specific, referring to particular circumstances, "individuals, groups, situations or events" (Fawcett, 1991, p. xx). The propositions involving the concepts in middle-range theories are empirically observable and testable. They are reflective of the methodological rules and speculative assumptions of the conceptual model. Yet, middle-range theories are best tested by means of specific indicators.

The specific indicators of middle-range theories are empirical data - the concrete representations of the conceptual model and middle-range theory offered in a given CTE structure. These data (indicators) are identified by operational definitions in some research traditions (for example, empiricism), and in terms of emergent themes in other research traditions (for example, phenomenology).

Optimal knowledge is based in CTE structures that demonstrate logical correspondence across these levels of abstraction. CTE structures demonstrating logical correspondence are said to be valid - to represent what they say they represent. When correspondence is good, the theoretical and methodological correlation among specific, empirical data; intermediate, testable middle-range theories; and abstract, general, conceptual models is strong. What can be observed empirically makes sense in terms of what would be predicted theoretically or in terms of what would be expected conceptually. Valid CTE structures look to be worthy of testing through research.

Problems arise when there is limited correspondence across the levels of abstraction in a CTE structure, that is, when the CTE structure appears invalid. Fawcett identified two invalidating problems as: the occurrence of conflicting evidence in support of the inherent theories and conceptual model; and, the absence of support for the inherent theories and conceptual model. The outcome of either of these problems, or of any problems reflecting absent correspondence, is rejection of the proposed conceptual models or middle-range theories. Rejected, theories and conceptual models offer nothing to the body of nursing knowledge.

Thus, the development of CTE structures is heavily dependent on correspondence across levels of abstraction. Such correspondence manifests itself as validity; it is a function of the articulation of selected empirical

indicators and of the concepts and propositions in the inherent and developed middle-range theories and conceptual models. The proposed articulation is a function of language.

At this juncture, ensuring correspondence across levels of abstraction in a CTE structure, a seemingly logical process, becomes irrational and complex. Correspondence, expression of logical links, is accomplished through language, an irrational and complex mechanism.

Problems of Conveying Knowledge through Language

That language is composed of words is probably its most obvious characteristic. The nature of those words, however, is more obscure. The words that constitute language reflect not only obvious facts, but also values, beliefs and assumptions (Wilson, 1988). Words, in and of themselves, are emotion-laden. When they are combined through language to constitute ideas, for example, when they are used to compose CTE structures, their emotion-ladenness increases.

Ideas are synergistic in nature: they do not represent the sum of the emotion-ladenness of their constitutive words. Instead, they represent an exponential increase in the emotion-ladenness of their inherent words. Using language, one is making reference not to reality, as it exists, but to an agreed-upon, emotional, value-laden interpretation of that reality; to a shared, but not universal, conception.

The words that compose a CTE structure, optimally, will fit together well, if the structure is to suggest a useful theory or conceptual model. Yet, this discussion begs the question: who is in control of CTE structure development? Do the words themselves as they are combined in language, dictate the correspondence across levels of abstraction in CTE structures? Or are the people selecting and using the words, the language, in control?

Human Control Despite Language Complexity

Using language to create or test components of CTE structures, astute nurse scholars will recognize that they must say what they mean; that they are in control of orchestrating the correspondence among the levels of abstraction. The CTE structure is an interpretation of reality, not an identity with reality. A valid CTE structure expresses the meaning of its author(s) consistently across its levels of abstraction, as it describes reality.

Proponents of different schools of philosophy would assign different degrees of importance to CTE structures. The diversity of views is demonstrated by two opposing schools of thought. Structuralist philosophers

would hold that truth, meaning and understanding are functions of the rules governing language usage (Saussure, 1974), and hence, CTE structure usage. Thus, CTE structures would take on important proportions in describing reality and creating reality. Post-structuralist philosophers, on the other hand, would hold that truth, meaning and understanding, are ultimately, impossible (Derrida, 1982; Foucault, 1986). Hence, truth, language and meaning, are uninterpretable as phenomena in and of themselves, regardless of their expression through CTE structures. Thus, for post-structuralists, CTE structures would represent nothing more than expressions of the political stance of the scholars who wrote them.

The rich and diverse work of many philosophers--structuralists, post-structuralists and others--notwithstanding, what seems apparent is this: with regard to developing CTE structures, human beings are "language using" and "message producing" (Ellis, 1991, p. 221). Regardless of the philosophical stance through which one attributes meaning or significance to CTE structures, these structures are human creations, human translations, human renderings. Humans compose the rules by which these structures are made and by which they are used to generate further knowledge and further structures. Humans, therefore, ultimately have responsibility for creating and interpreting valid CTE structures and for their use in the service of further knowledge development. This responsibility entails careful analysis of the complex words: that is, the language, used in the construction of CTE structures. In the absence of such responsible development, CTE structures are useless, empty fabrications, reflecting nothing.

Orchestrating Correspondence Across Levels of Abstraction

Ironically, it is the plaguing complexity of language that is the basis for orchestrating correspondence across the levels of abstraction of CTE structures. Theoretical and conceptual structures are grounded in multiple, complex ideas, themselves composed of facts, values and attitudes intended to describe reality. If the language used to describe reality were simple, composed only of objective facts, there would be no reason to develop CTE structures, at all. Every facet of reality would be objectively, factually accessible. Language is not simple; as such, the scholar is empowered to create conceptual-theoretical structures. Concomitantly, the scholar is constrained by the multivocity, that is, potential for multiple interpretations, of the language used to fabricate those structures. By virtue of the multivocity of the words and ideas in a CTE structure, these structures require careful conceptual analysis prior to formal testing of their inherent theories or conceptual models.

The conduct of a conceptual analysis of a CTE structure is a hermeneutic endeavor. Through that endeavor, scholars clarify the meanings they inter-

pret (in the case of testing established conceptual models or theories) or impose (in the case of generating conceptual models or theories) in the context of the CTE structure, at *each level of abstraction*. The more grounded in broadly shared "reality" are the scholar's interpreted or intended meanings, and the more apparent the legitimacy of the CTE structure to others, the more valid the CTE structure appears.

When valid CTE structures are developed by generating middle-range theories from explicit conceptual models, or when conceptual models are induced from existing theories, the scholar will understand and closely replicate the intended meaning of the explicit models and theories. The scholar will then convey the intention of the models to the nursing community.

Alternatively, in the context of an implicit conceptual model, a scholar is relatively less constrained by the need to describe existing structure adequately, in a way both comprehensible to the general public and consistent with the original author's intent. However, the implicit nature of the conceptual model demands that the scholar tell the inherent story clearly, in his or her own terms. Again, credibility of the theory generated is a function of the story offered by the theoretical-empirical framework. As Fawcett noted, the conceptual model is, indeed, already in the CTE structure, even though implicit; as such, the astute scholar will endeavor to make the conceptual model understood. Otherwise, the story is incomplete.

Meanings--intended or interpreted--are inherent in CTE structures. Yet, within the linguistic, political, clinical and logical norms surrounding the reality described by the CTE structure, the scholar has some liberty to define terms as he or she sees fit, providing that those definitions are clearly conveyed to readers. The readers, themselves, then, can decide whether the CTE structure--valid and meaningfully conveyed--is worthy of investigation in support of its credibility. The scholar is, therefore, at liberty to orchestrate correspondence across the levels of the CTE structure. Careful analysis of the ideas expressed in a CTE structure, with the resultant establishment of its validity, yields a CTE structure that is amenable to test. An example will demonstrate.

Citing Germain's (1984) study of the residents of a shelter for abused women and children, Fawcett (1991) illustrated middle-range theory generation in the context of an explicit conceptual model of nursing. Empirical findings from Germain's work resulted in a descriptive theory of common health situations experienced by shelter residents. Germain carefully described and differentiated the terms "abused" and "battered" in her research report. She reported the history of battering across cultural groups, describing some of the assumptions surrounding the occurrence of these phenomena in lower socio-economic groups. In her research, Germain ana-

lyzed the words used at every level of the CTE structure--conceptual model, theory and empirical indicators. Then she presented an overview of what she saw in a shelter for battered women and children. Germain's testing supported the theory inherent in the CTE network.

As Fawcett noted, determining the credibility of a proposed theory is accomplished through comparison of empirical findings generated by theory testing with the propositions of the conceptual model. Such determination is at the hands of the scholar who has interpreted the conceptual and theoretical components of the CTE structure and then, in light of that interpretation, selected empirical components and a research approach to test it. In short, the test of a credible theory is a test of the scholar's story. The theory is credible if, in the presence of empirical data, the story it offers holds up. Clearly, the proposed theory in a CTE structure is nothing more than the story told by the scholar who wrote it.

How does one clearly present the story to be told by a CTE structure? Wilson (1988) offered suggestions. Wilson's techniques have been summarized by Muller and Dzurec (1991) under review) with regard to their relevance for naming nursing phenomena.

Optimally, in developing the CTE story, the scholar will recognize the seriousness of the endeavor, without taking it too seriously. Then, in a questioning frame of mind, the scholar will isolate questions of concept, as they are embedded in the language of the CTE structure, from questions of fact, value, politics, or attitude. Each of these aspects of the language used in the CTE structure should be carefully considered, and modifications in language made as necessary.

The scholar will describe the social contexts for which the concepts, and hence the entire CTE structure, are relevant. Establishing the practical significance of the major inherent concepts and of the CTE structure as a whole is essential. From this practical perspective, and recognizing the complexity of language, the scholar will identify psychological and political implications of the choice of terms and ideas used in the CTE structure. These implications will be considered with regard to the nursing community, the individuals described in the CTE structure and the community at large. From this perspective, the scholar is prepared to describe conditions under which concepts embedded in the CTE structure will occur and, thus, situations when the CTE structure might describe reality. Only at this point is a CTE structure reflective enough of a shared "reality"--that is, valid enough--to be tested.

Next, the scholar begins to test the CTE structure to see if the story it offers holds up. Beginning with informal testing, the scholar can identify cases that

provide instances of the CTE structure and publish the results of this effort. The sharing of informal information about the reality encompassed by the CTE structure and about the choice of language used to convey that reality grounds the CTE structure for formal testing.

Through the process of generating CTE structures and testing their inherent theories, the scholar will remember that, no matter how well the structure actually describes reality, the testing of that structure is just that--testing of the *Structure*. It has nothing to do with testing *Reality*. The composition of the CTE structure, itself--not the composition of reality--is at issue, as scholars consider the utility of CTE structures. If the generated theories and conceptual models serve the nursing community well, they can become the basis of nursing knowledge. If they do not serve the nursing community well, they can be discarded. Reality goes on with or without them.

As Fawcett noted, when empirical research findings provide limited support for proposed theories and conceptual models, serious questions are raised about the credibility of those theories and models. These questions arise, however, regardless of the approach used in their development; they are a function of the validity of the CTE structure across the inherent levels of abstraction. Questions of credibility are a function of the scholar's failure to identify the inherent values and attitudes, potential emotional responses and political interpretations of the words used in the CTE structure. Such questions signal a need for reworking of the theories or conceptual models.

Philosophically, we cannot know whether the science of nursing alters reality or even describes it. But continuing its development is nursing's best hope for having any bearing on the well-being of human kind. Telling valid stories supports the development of CTE structures that are the fabric of the science of nursing.

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RÉSUMÉ

Mise en contexte de l'avancement des connaissances en sciences infirmières

Étant donné l'importante fonction sociale des sciences infirmières et les bienfaits qu'elles apportent aux gens, il importe de pouvoir formuler des connaissances généralisables, c'est-à-dire des théories et des modèles conceptuels crédibles. La conception et la vérification de structures CTE valables contribuera à l'avancement des connaissances en sciences infirmières. L'examen de la complexité de la langue inhérente aux structures CTE est essentiel à la formulation et à la vérification exacte de ces structures. Comme Fawcett le fait implicitement remarquer dans Approaches to Nursing Knowledge Development, de tels efforts sont nécessaires à l'avancement des sciences infirmières.