SOJNR
Southern Online Journal of Nursing Research

Volume 9 – Number 1 www.snrs.org

Postmodern Philosophies of Science: Pathways to Nursing Reality

Tom Rodriguez, PhD, RN, ANP-C, PMHCNS-BC
Nurse Practitioner and Clinical Nurse Specialist
Avanta Health Professionals
and
Former Assistant Professor
Nelda C. Stark College of Nursing
Houston Institute of Health Sciences
Texas Woman's University
Houston, Texas

Joseph A. Kotarba, PhD
Professor and Chair
Department of Sociology
University of Houston
Houston, Texas

Corresponding Author: Dr. Tom Rodriguez
TomInTheCity@hotmail.com

Acknowledgements: The first author wishes to thank Patricia Liehr, PhD, RN for encouraging him to write this paper, Joan Engebretson, DrPH, RN and Marlene Cohen, PhD, RN for their scholarly critique of prior versions, and Janet Meininger, PhD, RN for her encouragement and steadfast support.

ABSTRACT

Philosophical orientations in science are important in shaping research agendas. The purpose of this paper is to review major positivistic and postmodern philosophies of science in terms of the research questions they suggest and their applicable methodologies. It is proposed that the postmodern philosophies of science are pathways to the whole of nursing reality; and through an appeal to pragmatism, it is claimed that they must continue to be espoused in nursing to ensure the development of a complete and adequate science for the discipline.

Postmodern Philosophies of Science: Pathways to Nursing Reality

In the ivory towers of nursing, modern empirical and postmodern philosophies of science currently co-exist. This is due to the visionary work and philosophical discourse of nursing leaders during the latter half of the 20th century. Peaceful co-existence, however, is not always the case. Sometimes there is intra-disciplinary tension. At other times there is inter-disciplinary tension with scholars from disciplines where an empiricist worldview predominates. One way to portray this tension is to say that some scholars place complete trust only in empiricism, whereas others maintain a broader faith. Obviously, those in the latter camp have developed a capacity to subscribe to different, often conflicting philosophies, without a need to invalidate one or the other. This paper offers an overarching perspective for those in the former camp in hope that they too may perceive the value of different philosophies of science and rise above the conflicts inherent in these differing worldviews for the sake of nursing pragmatics. Specifically, this paper argues that the postmodern philosophies of science are pathways to the whole of nursing reality and as such, *must* continue to be espoused in nursing to ensure the development of a complete and adequate science for the discipline.

The Qualitative-Quantitative Difference

One way to distinguish qualitative from quantitative methods is to consider the type of data used and the type of outcomes produced. In qualitative methods, the data are words, paragraphs, and stories regarding the subject of research. Many qualitative methods produce themes and rich descriptions in narrative format. Sometimes photographs, audiotapes, or motion pictures serve as data or are produced as outcomes. In contrast, quantitative methods use measurements as data and produce computations as outcomes. Proportions, means, correlations, and t-values are all examples of such computations. Clearly, the subject of quantitative methods must be amenable to being measured, and the research questions amenable to being answered via measurement.

The philosophical underpinnings of both qualitative and quantitative methods differ from one another and are directly responsible for the type of knowledge produced. They do this primarily by posing different questions and then by making different epistemological, and sometimes metaphysical or ontological assumptions. Epistemology is the branch of philosophy concerned with issues like what is knowledge and how it is acquired. Metaphysics or ontology, on the other hand, is concerned with the nature of reality.

Modern Empiricism and Postmodern Philosophies of Science

Philosophies of science can be understood by comparing and contrasting them. While a comprehensive review of the philosophies of science presented here is beyond the scope and space limitations of this paper, a brief review with some simplification is necessary to facilitate discussion of the paper's thesis. For

example, the authors simply posit realism instead of the finer distinctions of Naïve or Critical Realism. Tables 1 and 2 are provided to facilitate comparisons and contrasts of different philosophical systems along the following lines: the goal of science, the process of science, ontology, epistemology, breadth of focus, and compatible methodologies.

The goals of science have not remained static over time. Take for example the now defunct ideas of Logical Positivism.[1] The Positivists had the very broad goal of understanding the absolute truth about everything – provided it could be experienced through the senses. They believed that truth could be ascertained if researchers maintained objectivity and controlled confounding variables. Their process of science highly valued the testing of hypotheses and predicting of results which could then lead to control over the subject matter. However in doing so, they devalued the exploratory and discovery phases of science.

Now, let's compare the goals of Logical Positivism with Feminism, a postmodern philosophy. The goal here is to rid science of its sexist, androcentric, and cultural bias.[2] A classic exemplar of a Feminist study from the field of developmental psychology is Gilligan's[3] work on moral development in women. Her study elucidated how moral development differs between women and men. She showed how the lives of men have often, and erroneously, been used to understand women's lives. The goals of Positivism and Feminism are different; and it is precisely because of this difference that each system can be said to *guide* the researcher to investigate different issues or questions. Their epistemologies also differ as does the breadth of their focus. Positivism concerned itself only with sensory phenomena. Feminism, on the other hand, allows study of subjective or objective phenomena and qualitative or quantitative methods. The Positivist's scope consisted of all phenomena available to the senses, while the scope of Feminism is much narrower and only concerns phenomena that display androcentric bias.

Today's leading philosophy of science is a modified version of Positivism known as Modern Empiricism or Postpositivism. This modification began in the latter half of the 20th century due to increasing discontent with some of Positivism's tenets. For example, Popper,[4] the self-described rationalist, voiced problems with the Positivist's claim to infallible sensory observation. He countered that perceptions are *interpreted* by the mind based on knowledge held *a priori*. He called this the theory-ladenness of observation. Thereby, Popper called into question not only the thesis of infallibility but the whole notion of objectivity. After Popper's philosophy, the goal of empirical science was scaled down from truth to probable-truth. Today, although researchers continue to use the word – objective, the notion of objectivity in science has been replaced by intersubjectivity. Intersubjectivity assumes that people cannot be objective. Intersubjectivity refers to the perceptions which can be agreed upon by the perceiving parties as representing the object of their perceptions. Popper also

showed that theories are never confirmed or verified and thus, can only be falsified.

One of the most telling arguments against Positivism, however, was delivered by Kuhn[5] with his publication of *The Structure of Scientific Revolutions*. Kuhn's work started as a history of science and therefore came to be known as the historical school of philosophy of science. Kuhn maintained that theories should be rationally appraised and understood within their historical context. Additionally, with his description of periods of normal versus extraordinary science, he presented a picture of scientific progress that departed radically from any hitherto. Further, he disagreed with the Positivist's belief in a cumulative growth of knowledge and proposed that as new knowledge was developed, older paradigms were actually overthrown. This was the hallmark of what he called scientific revolutions.

Laudan[6] built on the work of Kuhn and others and espoused an evolutionary view of historicism and in so doing was successful in handling some of the problems that plagued Kuhn's philosophy. An example of one problem is Kuhn's idea of overthrowing paradigms. Laudan stated that it was misleading to speak of overthrowing paradigms and supplanting them with newly created ones. He stated that to do so was to ignore conceptual ancestry, the continuity of assumptions, and the continuity of other similarities between new theories and their predecessors. He stated that one should speak instead of "a natural evolution in the research tradition" (p. 98). Although Laudan developed a theory to guide rational appraisal, he steered the goal of science in a more practical direction. For example, he stated that "in appraising the merits of theories, it is more important to ask whether they constitute adequate solutions to significant problems than it is to ask whether they are 'true,' 'corroborated,' 'well-confirmed' or otherwise justifiable within the framework of contemporary epistemology" (p. 14). In Laudan's view, truth was not the most important issue; problem-solving was.

For Post-Structuralists, the goal of science is to bring into awareness the political sources of knowledge and their positive and negative consequences. Post-Structuralism originated with Foucault[7] and his interest in the plight of the disenfranchised. Foucault showed that knowledge is often nothing more than a consequence of society's ethical and political commitments. For him, the goals of knowledge were the same as those of power – control and domination. According to Dzurec,[8] what is perceived as knowledge is "…more appropriately, intended to maintain established power relations, sustaining fixed social, economic, and political hierarchies" (p. 235). An exemplar of this approach is Dzurec's[9] study of knowledge claims surrounding mental disability. Among other themes, she described the paradox that the very legislation intended to protect the mentally ill from inappropriate institutionalization or banishment made it difficult for them to get treatment when most desperately needed. As is the case with all other postmodern philosophies to be discussed from this point onward,

Post-Structuralism poses questions which cannot be answered or reduced to measurement. Its method is purely qualitative.

The goal of Husserl's phenomenology is the objective description of the subjective Life-World (Lebenswelt) through the process of phenomenological reduction.[10] Husserl[11] envisioned phenomenology as the "science" of philosophy. He stated that psychic phenomena have no nature, but they do have essence or meaning. This essence can be grasped. He warned however, that essence was not to be confused with introspection or interior experience (Being-There). Further, essence transcends the context of time and space. Cohen[12] used this method to understand the essence or meaning of the surgical experience. She found that the need for information, the fear of death, and the need for caring were three themes that transcended the individual context of clients' surgical experiences. Husserl's phenomenological philosophy translates into a descriptive method. It subscribes to metaphysical idealism and epistemological realism.[10] This position was described by Trigg[13] as the idea that reality is ultimately mental but not dependent on one's knowing it. While this is not an example of pure realism, it is rooted in epistemological realism as Husserl acknowledged the existence of other egos.[10]

In contrast, Heidegger's phenomenology avoids metaphysical dualism.[10] It is essentially a realist philosophy.[14] Its goal is subjective interpretation of the subjective phenomenon which Heidegger[15] called Being-in-the-World (i.e., Dasein). Dasein refers to human experience. Due to its focus on experience (as compared to meaning in Husserl's phenomenology), Heideggerian hermeneutics, as it is often called, is an existentialist-phenomenologist philosophy. In this philosophy, objectivity is incompatible,[14] not because of any metaphysical claim, but because Dasein connotes that human experience cannot be separate from its environment. Unlike Husserlian phenomenology where the principle of incorrigibility applies, Heidegger never maintained that people's interpretations of their experiences were correct and therefore could not be challenged.[14]

Pathways as Metaphor

Metaphorically speaking, postmodern philosophies are pathways to the whole of nursing reality. In one sense, a pathway *guides* a traveler in the direction of the pathway. It was seen above that the goals of different philosophies of science differ. Because of this, each philosophy can be construed as *guiding* the focus of inquiry in the direction of its unique goal. For example, from a Feministic worldview, one is *guided* to look for and investigate instances of androcentric bias because after all, that is the goal of Feministic philosophy. It is in this way that postmodern philosophies can be construed as pathways which guide knowledge development.

The Whole of Nursing Reality

Nursing reality is contextually different from that of other disciplines. Perhaps most importantly, this is due to the different goals of nursing as compared to those of other disciplines. According to the American Nurses Association,[16] "[n]ursing is the protection, promotion, and optimization of health and abilities, [the] prevention of illness and injury, [the] alleviation of suffering through the diagnosis and treatment of human responses, and advocacy in the care of individuals, families, communities, and populations." Thus, nurses play many roles such as care provider, communicator, teacher, counselor, client advocate, change agent, leader, manager, researcher, and advanced practitioner.[17]

In the above discussion, three studies were utilized to illustrate the areas of knowledge which different postmodern philosophies encourage and engender. Gilligan's work traced the development of morality in women noting it was different than that in men. She also pointed out that Kohlberg's theory of moral development was exclusively based on studies with boys and men. Despite this, one may ask "How were her findings important to the nursing discipline?" Among other things, her findings made clear the consequences of excluding women from research. This knowledge has direct utility for nurses as researchers and producers of knowledge in nursing just as it did in other disciplines. One should also note that the study of psychological development does not readily lend itself to measurement due to its subjective nature and that in this classic exemplar, qualitative methods appear to be the only way to acquire such knowledge.

Dzurec's critical study of knowledge claims surrounding mental disability described the paradox that the very legislation intended to protect the mentally ill from inappropriate institutionalization or banishment made it difficult for them to obtain treatment. Among other things, this knowledge has implications for the nurse as care provider, teacher, counselor of families, and patient advocate. As care providers, psychiatric nurses should be diligent in teaching clients who are susceptible to psychosis the necessity of medication adherence. These nurses also need to understand the trials faced by family members of clients with severe psychiatric illnesses and thus be ready to offer support and referral resources. Moreover, this knowledge is important to nurses in advocating for clients to public-health policy makers.

Finally, Cohen's study of the surgical experience, led her to recognize three themes: the need for information, the fear of death, and the need for caring. Among other things, this knowledge has implications for the nurse as care provider, teacher, counselor, advocate, and manager. It is now standard to provide pre-operative education to clients. However, in today's ever-changing, complex, and busy hospitals, it is all too easy to omit. This study helps nurses and nurse managers understand the necessity of pre-operative education, not just as a matter of quality but for the delivery of patient-centered care. Nurses should also be attuned to, and perhaps ask about, fear of death in order to ensure adequate support and counseling. If death anxiety is significant, the nurse should advocate for the patient to receive appropriate mental-health care. Thus,

from this discussion, it is clear that nursing has a unique reality and that postmodern philosophies steer nurses to ask questions unique to that reality which are beyond the scope of traditional quantitative methods and yet engender valuable and useful knowledge for the nursing discipline.

The Pragmatist Maxim

The metaphor, postmodern philosophies are pathways to understanding the whole of nursing reality can serve as the basis of an overarching perspective concerning what are otherwise disparate worldviews. The overarching perspective suggested here is that postmodern philosophies must continue to be espoused in nursing for the sake of developing a complete and adequate science for the discipline. This perspective becomes possible through an appeal to pragmatism. It should be noted however, that the aim here is not to synthesize conflicting viewpoints (as through a metaphilosophy such as Critical theory)[18] but rather to rise above them. The pragmatist maxim[19] holds that one can clarify the validity of a claim by identifying its practical consequences. If one reflects on the types of knowledge which postmodern philosophies encourage and engender, as was done in this paper, and how such knowledge is useful to the discipline, one can see, from a practical standpoint, that the continued acceptance and use of postmodern philosophies in nursing holds the promise of a more complete and adequate science. It is hoped that this overarching perspective allows people to rise above contradictions and instead focus on the future promise for the discipline.

References

1. Uebel, T. (2008). Vienna Circle. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy, (Fall 2008 Edition). Retrieved August 23, 2008 from http://plato.stanford.edu/archives/fall2008/entries/vienna-circle/.
2. Harding, S. (1998). *Is science multicultural? Postcolonialisms, feminisms, and epistemologies.* Indianapolis, IN: Indiana University Press.
3. Gilligan, C. (1979). Woman's place in a man's life cycle. *Harvard Educational Review, 49* (4), 431-446.
4. Thornton, S. (2008). Karl Popper. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy , (Fall 2008 Edition). Retrieved August 23, 2008 from http://plato.stanford.edu/archives/fall2008/entries/popper/.
5. Kuhn, T. S. (1962). *Structure of scientific revolutions.* Chicago: University of Chicago Press.
6. Laudan, L. (1977). *Progress and its problems: Towards a theory of scientific growth.* Berkeley, CA: University of California Press.
7. Gutting, G. (2003). Michel Foucault. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy, (Fall 2003 Edition). Retrieved August 24, 2008 from http://plato.stanford.edu/archives/fall2003/entries/foucault/.

8. Dzurec, L. C. (1995). Poststructuralist science: An historical account of profound visibility. In Omery, A., Kasper, C. E. & Page, G. G. (Ed.s), *In search of nursing science* (pp. 245-260). Thousand Oaks, CA: Sage.
9. Dzurec, L. C. (1995). Severe mental disability? Or a play of wills? In Omery, A., Kasper, C. E., & Page, G. G. (Ed.s), *In search of nursing science* (pp. 245-260). Thousand Oaks, CA: Sage.
10. Sahakian, W. S. (1968). *History of philosophy*. New York: Harper & Row.
11. Husserl, E. (1965). *Phenomenology and the crisis of philosophy.* (Translation and introduction by Q. Lauer.) New York, NY: Harper & Row.
12. Cohen, M. Z. (1995). Experience of surgery: Phenomenological clinical nursing research. In Omery, A., Kasper, C. E., & Page, G. G. (Ed.s), *In search of nursing science*(pp. 159-174). Thousand Oaks, CA: Sage.
13. Trigg, R. (1989). *Reality at risk: Defense of realism in philosophy and the sciences* (2nd ed.). New York: Harvester Wheatsheaf.
14. Payle, J. (1998). Misinterpretive phenomenology: Heidegger, ontology, and nursing research. *Journal of Advanced Nursing,* 27, 817-824.
15. Heidegger, M. (1962). *Being and time.* (Translation by J. Macquarrie and E. Robinson.) New York , NY : Harper & Row.
16. American Nurses Association. (2003). What is nursing? *Nursing's social policy statement, (2nd ed.).* Silver Spring, MD: Author.
17. Kozier, B., Erb, G., Blais, K., Wilkinson, J. M., & Van Leuven, K. (1998). *Fundamentals of nursing: Concepts, process, and practice (5th ed.).* Menlo Park, CA: Addison Wesley.
18. Habermas, J. (1971). *Knowledge and human interests.* (Translation by J. J. Shapiro.) Boston: Beacon Press.
19. Hookway, C. (2008). Pragmatism. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy, (Fall 2008 Edition). Retrieved August 23, 2008 from http://plato.stanford.edu/archives/fall2008/entries/pragmatism/.

Table 1

Comparison of Logical Positivism and Modern Empiricist Philosophies

	Logical Positivism	**Kuhn's Historicism**	**Laudan's Evolutionary Historicism**
Goal of Science	Truth	Probable-Truth	Solve World Problems
Process of Science	Explanation Prediction Control Rational Verification	Exploration Description Explanation Prediction Control Rational Justification	Exploration Description Explanation Prediction Control Practical Justification
Ontology	Realism	Realism	Realism
Epistemology	Theory-Neutral	Theory-Laden	Theory-Laden

	Observation Objectivity	Observation Intersubjectivity	Observation Intersubjectivity
Breadth of Focus	Objective Phenomena	Objective/Subjective Phenomena	Objective/Subjective Phenomena
Compatible Methods	Quantitative	Quantitative Qualitative	Quantitative Qualitative

Table 2

Comparison of Postmodern Philosophies

	Feminism	**Post-structuralism**	**Husserl**	**Heidegger**
Goal of Science	Remove Androcentric Bias	Elucidate Political Power Bias	Describe the Life-World	Interpret Being-in-the-World
Process of Science	Exploration Description Explanation Prediction Control Justification	Description	Objective Description	Interpreted Description
Ontology	Realism	Realism	Idealism	Realism
Epistemology	Lives of Women	Analysis of Political Power Influences	Description via Phen-omenologic Reduction	Interpretation of Existence
Breadth of Focus	Androcentric Bias	Domination by Power Holders	Meaning of the Lived Experience	Meaning in Being
Compatible Methods	Qualitative Quantitative	Qualitative	Qualitative	Qualitative