

Postpositivist critical multiplism: Its value for nursing research

Eric F. Tanlaka  | Carol Ewashen | Kathryn King-Shier

Faculty of Nursing, University of Calgary,
Calgary, Alberta, Canada

Correspondence

Eric F. Tanlaka, Faculty of Nursing,
University of Calgary, 2500 University Drive
NW, Calgary, AB T2N 1N4, Canada.
Email: tanlaka.ericfover@ucalgary.ca

Abstract

Aim: Following persistent criticisms of logical positivism, postpositivism emerged as a philosophy of science for developing nursing knowledge. Here, we offer a discussion of postpositivist critical multiplism and its value to nursing research.

Design: Discussion paper.

Methods: We searched relevant literature published between 1978–2018, indexed in CINAHL, MEDLINE, PubMed or PsychINFO. Findings are discussed in the context of stroke nursing research.

Results: Postpositivist critical multiplism acknowledges the importance of human influence on knowledge development and enables nurse researchers to use multiple approaches to address complex human phenomena. In doing so, the unique perspectives of stakeholder groups including patients, family members, knowledge users can be respected. There are certain steps that can be used by critical multiplist investigators to approach stroke nursing research. Using these steps and the critical multiplist approach may minimize preconceptions or biases associated with using one research method over another and maximize confidence in resultant research knowledge.

KEYWORDS

critical multiplism, methodology, nursing, paradigms, philosophy, postpositivism, research, science

1 | INTRODUCTION

Over the decades, scholars have expressed a variety of perspectives about the contribution of science to knowledge development. Some scholars (positivists) have emphasized that empirically derived data through application of rigorous scientific methods are legitimate scientific knowledge (Rutherford & Ahlgren, 1991). Others have argued that certain phenomena are unobservable and cannot be empirically tested (Gratton & Jones, 2010). Over time, positivism's characteristic confidence in the possibility of certain knowledge has yielded to a different approach to science. Postpositivist perspectives have arisen as an acknowledgement that human limitations interfere with the enactment of empirical observation, the application of reason and logic and, thus, in the pursuit of truth as certainty.

While positivism situates truth as being embedded in an objective reality somewhere *out there*, postpositivism positions truth as being bound by context (Panhwar, Ansari, & Shah, 2017), human action and interaction (Heisenberg, 1930). Postpositivism is a contemporary philosophy of science that emerged from various critiques of logical positivism. Whereas traditional or logical positivist thinking infers detached observation and experimentation as a route to certainty, postpositivist thinking views truth as that which is left when alternative propositions cannot be shown to hold up in the face of the possibilities of an unpredictable world (Popper, 1963).

Nursing occupies a privileged position amid, even caught between, the worlds of so-called objective science and the flux of human experience. The practice of nursing cannot therefore, be fully realized solely by relying on singular epistemological positions.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2019 The Authors. *Nursing Open* published by John Wiley & Sons Ltd.

Answers to questions of “how many?” and “how much?” offer only a partial answer to complex nursing practice problems. Understanding experiences of health and illness seems meaningless without the knowledge that helps nurses to respond effectively to disease and suffering (e.g. acting with moral agency). To make sense of and engage in moral practice, nurses need access to complex knowledge for practice, derived from a multitude of perspectives and sources. In this article, we argue in support of the value of critical multiplism for nursing research. We briefly review how reality and truth are situated in postpositivism; the value of critical multiplism as an approach to nursing research; and posit what stroke nursing research based on critical multiplism might entail.

1.1 | Data sources

Relevant articles were identified by searching CINAHL, MEDLINE, PubMed and PsychINFO databases published from 1978–2018. Keywords used in the search were postpositivism, philosophy, methodology, paradigms, research, critical multiplism, nursing and science. Fundamental textbooks were also used to help develop arguments in this paper.

1.2 | Ethics

Ethics approval was not required for this manuscript.

2 | DISCUSSION

2.1 | Postpositivism, Reality and “Truth”

Postpositivism rejects the neutrality and human detachment that are characteristic of logical positivism. While truth may lie “out there,” for postpositivists the limitations of humans to be able to observe and apprehend phenomena must be accounted for when making truth claims (Letourneau & Allen, 1999). Postpositivists assume then that “reality” and “truth” are conditional and can be understood in different ways (Ryan, 2006). Unlike positivists who understand truth as *certainty*, postpositivists view certainty more cautiously, aware that aforementioned human limitations and characteristics interfere with the possibility of knowing things in the world as they are.

That is not to say that postpositivism arose as an outright rejection of scientific method. Postpositivist methods require accuracy, sound reasoning and production of evidence. However, postpositivists consider some of the instruments of science, such as self-reports, interviews and questionnaires as tools that increase researchers’ abilities to infer, but not to know with certainty. Postpositivism is a challenge to empiricism, in that it allows for the possibility of good knowledge for practice that arises from engaging with phenomena that cannot be perceived through human senses (Gratton & Jones, 2010).

The postpositivist position recognizes that people approach questions of truth from multiple perspectives. These perspectives are historically influenced; and comparatively, as well as philosophically

and experientially framed (Fischer, 1998). Researchers in the post-positivist tradition are critical realists in that they support the notion that objects exist, but this recognition is accompanied by an understanding that some cannot be observed by the senses or experimentally tested (Phillips, 1987). Knowledge is, then, always open to further investigation (Miller, 2000) and the truth of any matter is always forthcoming.

2.2 | Linking postpositivism and critical multiplism

Postpositivists reject the assumption of value-free inquiry, or that there is a distinction between *knower* and *known*. Postpositivists assume that human limitations, experiences and values make objective knowledge about reality—at least—a challenge. In fact, postpositivist truths are relative and provisional (Crotty, 1998). Postpositivist knowledge endeavours are therefore guided by principles intended to minimize preconceptions or biases associated with using one research method over another and to maximize confidence in resultant research knowledge (Miller, 2000).

If individual human beings and singular methods are unreliable sources of knowledge for practice, then postpositivist research requires more than one perspective and method. Simply, critical multiplism, a postpositive methodology (Guba, 1990), is the thoughtful use of multiple methods (Patry, 2013). Put another way, the researcher uses heterogeneous approaches to knowledge development, recognizing their strengths and weakness, to form a greater whole, often through triangulation (Shadish, 1993). While this is commonly read as a basis for mixed methods research, the concept of critical multiplism is, as Patry (2013) articulated, considerably more expansive, emphasizing multiple approaches (not necessarily used at the same time) to addressing questions about phenomena of interest.

A critical multiplist perspective necessitates that different theoretical perspectives are brought to bear on the research endeavour. For the critical multiplist, knowledge arises in the midst of diverse engagement and interpretation of data. Interpretations are assessed as more or less plausible based on holding them up to the scrutiny of other existing and available evidence. It is by examining data through a variety of (sometimes conflicting) frameworks that meaningful presuppositions can be uncovered (Fischer, 1998). Within a postpositivist, critical multiplist research practice, the process of deriving knowledge is focused and systematic. Critical multiplism is not a “do every thing every way” approach. Importantly, processes of inquiry are systematic and rational (Herrington, 1997).

Henderson (2011) argued that a major distinguishing attribute of critical multiplism is the ability to use (and possibly combine) both quantitative and qualitative methods when conducting research. Indeed, both objective and subjective observations and inferences are valued in the critical multiplist perspective. Playle (1995) acknowledged the importance of subjective experience (influence of human values on knowledge development) and rejected the notion of objective supremacy (claims that valid scientific knowledge can only be generated through scientific experiment), as contributing to modern scientific knowledge.

2.3 | Critical multiplism: benefits and limitations for nursing research

There are numerous benefits of taking a critical multiplist approach to nursing research. Seeking multiple perspectives, through stakeholder engagement (which may include other researchers, clinicians, patients) to pose and answer a research question is in keeping with contemporary thinking regarding patient-oriented research (Canadian Institutes of Health Research, 2019) and in nursing's moral imperative to respond effectively to persons in their care (LaSala, 2009). The most fundamental benefit is that it provides a solution to the problem that compels researchers to select either quantitative or qualitative methods when conducting research, by providing a methodology that accepts and values both quantitative and qualitative research methods. Further, using multiple research approaches enables researchers to examine an issue/problem from multiple perspectives, thereby reducing the inherent bias of using only one particular method. This leads to having a broader and perhaps more valid sense of what is really going on (Coward, 1990; Houtes, Cook, & Shadish, 1986; Shadish, 1993).

Scholars have also critiqued critical multiplism as merely a part of triangulation and have argued that it promotes relativism and may be too costly (Guba, 1990; Patry, 2013). Triangulation has been described as using one or more approaches to answer a research question (Heale & Forbes, 2013). This may involve the integration of theoretical perspectives, multiple methods and data sources to study a single phenomenon (Kimchi, Polivka, & Stevenson, 1991). Critics have suggested that critical multiplism is merely another triangulation strategy, akin to mixed methods research and it offers very little contribution as a research methodology. This claim has been disputed by critical multiplist researchers who argue that critical multiplism shares certain similarities with triangulation but offers a broader approach to research compared with triangulation (Coward, 1990; Letourneau & Allen, 1999). The aim of both critical multiplism and triangulation is to limit bias (or reduce the likelihood that a certain perspective, theory, methodology will direct the research findings) by gleaning data from multiple perspectives or sources. What differentiates critical multiplism from triangulation is the fact that, with critical multiplist research, phenomena are studied from multiple perspectives (e.g. stroke rehabilitation can be studied from patient's perspective, caregiver perspective and clinician perspective), but with triangulation, a single phenomenon is studied using multiple methods (e.g. theoretical frameworks, data sources).

Some have claimed that critical multiplism (that acknowledges the existence of multiple truths/realities) promotes relativism by considering interpretations of all research findings relevant (Houts et al., 1986; Phillips, 1987; Smith, 1990). This claim has been disputed by other scholars who argue that critical multiplism uses objectivity (openness to public scrutiny) to avoid relativism (Phillips, 1987). Through public challenge, analysis and critique, researchers are assured that preconceptions related to personal views of one individual or group have been minimized (Phillips, 1987).

Critical multiplist studies often require multiple researchers, data collection approaches and analysis techniques, over different settings and times (Coward, 1990; Houts et al., 1986). The breadth of these requirements is associated with increased cost of conducting critical multiplism research. However, these costs are outweighed by the collaborative synergy that is inherent in critical multiplist research.

2.4 | Steps for conducting critical multiplist stroke nursing research

Critical multiplist investigators may use certain steps as a guide to approach their research. As an example, Shadish (1993) recommended five steps. These steps are described below, using the first author's (ET) emerging program of stroke nursing research, to demonstrate a postpositivist critical multiplist approach to underpin nursing research.

2.4.1 | Step #1. State the research problem/questions and select suitable methods for answering the questions

Stroke researchers may ask a question such as: What are the outcomes associated with inpatient stroke rehabilitation? This question is relevant to a variety of stakeholders (e.g. clinicians, administrators, patients), thus may be answered from a variety of perspectives and methods. For example, clinicians may wish to examine return to function, administrators may be more interested in the costs associated with length of hospital stay and the patient may be most concerned with the experience of undergoing inpatient stroke rehabilitation. Thus, researchers wishing to address this question would select a variety of perspectives and methods that complement each other in a way that enables a breadth of "views" to emerge. This might include measuring functional outcomes in stroke patients, using hospital databases to identify length of hospital stay and interviewing patients about their experience. Further, the answer to this question (from whatever perspective is used) may depend on a variety of variables such as age, sex/gender, severity of stroke, marital status and comorbid conditions (all of which could be identified by the multi-disciplinary and/or multi-stakeholder group approaching the research).

2.4.2 | Step #2. Determine biases present in research methods and address them

Each research method has its biases (e.g. strengths and limitations), whether they are due to philosophical premises, or means by which the data are collected, analysed or interpreted. For example, most stroke studies are randomized controlled trials aimed at treating stroke or based on large datasets that are "mined" to address a research question. These approaches to research have an important inherent bias away from understanding why a certain intervention works or does not work or understanding what is important

to the patient and/or family as they embark on the stroke journey. Thus, critical multiplist researchers benefit from using stakeholders' knowledge and understanding of the phenomenon in question to guide the team in determining which methods best address the question and what other methods might be used to supplement or offer greater understanding.

2.4.3 | Step #3. Analyse the data

There are often a variety of potential analytic methods that may be used for every dataset (whether quantitative or qualitative). Sometimes there is evidence that one analytic technique is superior to others. For example, modern structural modelling techniques replaced analysis of covariance (ANCOVA) to adjust for group non-equivalence (Cook & Campbell, 1979). At other times, there is no clear preference. It is important to ensure that analytic techniques, whether quantitative or qualitative, are in keeping with the research question and level of data, as well as other similar studies to enable "head-to-head" comparisons. However, it is also important to determine whether alternative analysis methods render similar results (thereby reducing potential bias of use of one analytic method over another).

2.4.4 | Step #4. Interpret the results

The goal of a critical multiplism approach to interpretation is to first generate a range of possible interpretations, then to assess those interpretations as more or less reasonable (Shadish, 1993). To accomplish this, critical multiplists use certain strategies when using either quantitative or qualitative methods. These may include enlisting the aid of multiple stakeholders in critiquing the results, sending a report of results to multiple interest groups who could point out hidden biases or assumptions and noting convergence of results across the multiple methods chosen to answer research questions. If the use of multiple methods yields different results, the differences must be transparently explained.

2.4.5 | Step #5. Disseminate the results

No single method would be enough to ensure that the results of research will be used either by researchers, by the community that shapes policy, clinicians or patients. Indeed, dissemination strategies need to be tailored to the intended audience and planned as early as possible in the research process—ideally as the research question is developed (Canadian Institutes of Health Research, 2019; Reed, 2018). In addition to relying on traditional methods of research dissemination such as publications and presentation at conferences, researchers who want their work to be used use other dissemination mechanisms such as preparing executive summaries outlining major findings and recommendations in simple terms and creating novel opportunities for end users to be appraised of the work (Shadish, 1993). In stroke rehabilitation, attending and speaking at stroke support groups or offering information through online blogs may be contemporary mechanisms to disseminate information to patients and their families.

3 | CONCLUSION

Postpositivists encourage researchers to integrate multiple theories and methods in addressing complex human phenomena associated with nursing practice. The postpositivist philosophy and critical multiplist approach offer a participatory paradigm for developing scientific nursing knowledge that suitably addresses the complexities of human phenomena while respecting the uniqueness and perspectives of stakeholder groups (which include patients, family members, knowledge users).

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTIONS

The authors have agreed to submit the final version of this manuscript and have met at least one of the following criteria of the International Committee of Medical Journal Editors.

- Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data.
- Involved in drafting the manuscript or revising it critically for important intellectual content.

ORCID

Eric F. Tanlaka  <https://orcid.org/0000-0002-0897-8367>

REFERENCES

- Canadian Institutes of Health Research. (2019). *Strategy for patient-oriented research*. <http://www.cihr-irsc.gc.ca/e/51040.html> Accessed 27 March 2019.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design & analysis issues for field settings*. Boston, MA: Houghton Mifflin Harcourt.
- Coward, D. D. (1990). Critical multiplism: A research strategy for nursing science. *Image: the Journal of Nursing Scholarship*, 22, 163–167.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. St. Leonards, NSW, Australia: Allen and Unwin.
- Fischer, F. (1998). Beyond empiricism: Policy inquiry in post-positivist perspective. *Policy Studies Journal*, 26, 129–146. <https://doi.org/10.1111/j.1541-0072.1998.tb01929.x>
- Gratton, C., & Jones, I. (2010). *Research methods for sports studies*. New York, NY: Routledge.
- Guba, E. G. (Ed.) (1990). *The paradigm dialog*. Newbury Park, CA: Sage Publications.
- Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence Based Nursing*, 16(4), 98. <https://doi.org/10.1136/eb-2013-101494>
- Heisenberg, W. (1930). *The physical principles of quantum theory*. Chicago, IL: University of Chicago Press.
- Henderson, K. A. (2011). Post-positivism and the pragmatics of leisure research. *Leisure Sciences*, 33(4), 341–346. <https://doi.org/10.1080/01490400.2011.583166>

- Herrington, J. A. (1997). *Authentic learning in interactive multimedia environments*. Joondalup, Australia: Edith Cowan University Research Online.
- Houts, A. C., Cook, T. D., & Shadish, W. R. (1986). The person-situation debate: A critical multiplist perspective. *Journal of Personality*, 54, 52–105. <https://doi.org/10.1111/j.1467-6494.1986.tb00390.x>
- Kimchi, J., Polivka, B., & Stevenson, J. S. (1991). Triangulation: Operational definitions. *Nursing Research*, 40, 364–366. <https://doi.org/10.1097/00006199-199111000-00009>
- LaSala, C. A. (2009). Moral accountability and integrity in nursing practice. *Nursing Clinics of North America*, 44, 423–434. <https://doi.org/10.1016/j.cnur.2009.07.006>
- Letourneau, N., & Allen, M. (1999). Post-positivistic critical multiplism: A beginning dialogue. *Journal of Advanced Nursing*, 30, 623–630. <https://doi.org/10.1046/j.1365-2648.1999.01133.x>
- Miller, K. I. (2000). Common ground from the post-positivist perspective: From “straw person” argument to collaborative coexistence. In S. R. Corman, & M. S. Poole (Eds.), *Perspectives on organizational communication: Finding common ground* (pp. 46–67). New York, NY: Guilford Press.
- Panhwar, A. H., Ansari, S., & Shah, A. A. (2017). Post-positivism: An effective paradigm for social and educational research. *International Research Journal of Arts & Humanities (IRJAH)*, 45(45), 256–259.
- Patry, J. L. (2013). Beyond multiple methods: Critical multiplism on all levels. *International Journal of Multiple Research Approaches*, 7(1), 50–65. <https://doi.org/10.5172/mra.2013.7.1.50>
- Phillips, D. C. (1987). *Philosophy, science and social inquiry: Contemporary methodological controversies in social science and related applied fields of research*. Oxford, UK: Pergamon Press.
- Playle, J. F. (1995). Humanism and positivism in nursing: Contradictions and conflicts. *Journal of Advanced Nursing*, 22, 979–984. <https://doi.org/10.1111/j.1365-2648.1995.tb02651.x>
- Popper, K. R. (1963). Science as Falsification. *Conjectures and Refutations*, 1, 33–39.
- Reed, M. S. (2018). *The research impact handbook*, 2nd ed. St. Johns Well, Ireland: Fast Track Impact.
- Rutherford, F. J., & Ahlgren, A. (1991). *Science for all Americans*. Oxford, UK: Oxford University Press.
- Ryan, A. B. (2006). *Post-Positivist Approaches to Research*. In Researching and writing your thesis: A guide for postgraduate students (pp. 12–26). MACE: Maynooth Adult and Community Education.
- Shadish, W. R. (1993). Critical multiplism: A research strategy and its attendant tactics. *New Directions for Program Evaluation*, 1993, 13–57. <https://doi.org/10.1002/ev.1660>
- Smith, J. K. (1990). Alternative research paradigms and the problem of criteria. In E. G. Guba (Ed.), *The paradigm dialog* (pp. 167–187). Newbury Park, CA: Sage Publications.

How to cite this article: Tanlaka EF, Ewashen C, King-Shier K. Postpositivist critical multiplism: Its value for nursing research. *Nursing Open*. 2019;6:740–744. <https://doi.org/10.1002/nop2.306>

Copyright of Nursing Open is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.