12-1-2004

PhD Students Perceptions of the Relationship between Philosophy and Research: A Qualitative Investigation

Joan Efinger
Holistic Health Promotion, joanefinger@earthlink.net

Nancy Maldonado
Virtual Sage, nancylmaldonado@aol.com

Geri McArdle
Human Resources Consultant, trainingdoctor@earthlink.net

PhD Students Perceptions of the Relationship between Philosophy and Research: A Qualitative Investigation

Abstract

This study explored, described, and discovered meaning in the lived experiences of PhD students regarding two courses: Philosophy of Science and Qualitative Methods. The philosophical underpinning was constructivism. The phenomenological methodology employed a structured questionnaire to collect data. It involved mailed computer disks with questions. Twenty of 43 students returned the disks. Content analysis and QSR N6 software were employed in data analysis. Findings included three broad areas: Thinking about Thinking, The Ah-Ha of Me and Thee, and The Never-Ending Journey of Darkness to Light. Philosophy of Science appears to have value for students in every aspect of their lives. Recognizing strengths and limitations of various paradigms could lead to different and new ways of approaching research. Philosophy of Science was a useful course for the participants.

PhD Students' Perceptions of the Relationship between Philosophy and Research: A Qualitative Investigation

Joan Efinger
Holistic Health Promotion, Bonita Springs, Florida

Nancy Maldonado
Virtual Sage, Fort Lauderdale, Florida

Geri McArdle
Human Resources Consultant, Fort Myers, Florida

This study explored, described, and discovered meaning in the lived experiences of PhD students regarding two courses: Philosophy of Science and Qualitative Methods. The philosophical underpinning was constructivism. The phenomenological methodology employed a structured questionnaire to collect data. It involved mailed computer disks with questions. Twenty of 43 students returned the disks. Content analysis and QSR N6 software were employed in data analysis. Findings included three broad areas: Thinking about Thinking, The Ah-Ha of Me and Thee, and The Never-Ending Journey of Darkness to Light. Philosophy of Science appears to have value for students in every aspect of their lives. Recognizing strengths and limitations of various paradigms could lead to different and new ways of approaching research. Philosophy of Science was a useful course for the participants. Key Words: Philosophy, Research, Phenomenology, Students, and Qualitative

Science, that simple saint, cannot be bothered
Figuring what anything is for:
Enough for her devotions that things are
And can be contemplated soon as gathered.
She knows how every living thing was fathered,
She calculates the climate of each star,
She counts the fish at sea, but cannot care
Why any one of them exists, fish, fire or feathered.
Why should she? Her religion is to tell
By rote her rosary of perfect answers.
Metaphysics she can leave to man:
She never wakes at night in heaven or hell
Staring at darkness. In her holy cell
There is no darkness ever: the pure candle
Burns, the beads drop briskly from her hand.
Who dares to offer Her the curled sea shell!

She will not touch it!--knows the world she sees
Is all the world there is! Her faith is perfect!
And still he offers the sea shell . . .
What surf
Of what far sea upon what unknown ground
Troubles forever with that asking sound?
What surge is this whose question never ceases?

Archibald MacLeish (1982)

Introduction

The purpose of this study was to explore, describe, discover, and find meaning in the lived experiences of PhD students regarding two courses: *Philosophy of Science and Theory Development* and *Qualitative Methods of Inquiry*. This phenomenological investigation employed a constructivist approach as the philosophical underpinnings. We spent time in self-reflection and introspection as we discovered our biases. Those bracketed biases led to maintaining Epoche; setting aside predilections, becoming open to the unknown/unexpected, disconfirming data, and acknowledging excitement about the undiscovered (Krefting, 1999; Merriam, 2002; Moustakas, 1994). The context of our study was: as professors who teach these two PhD courses, we really had no idea regarding the value over time, if any, our students found in these courses. So we set aside our own potential biases and predispositions by using reflexivity to create "a unique sort of philosophical solitude" (Husserl, 1970, p. 184). Furthermore, we had concerns about the dissertations we were reading that had no mention of philosophy or the philosophical underpinnings of their research questions or designs. Our concerns about PhD students (earning a Doctor of Philosophy degree) who never mentioned the word "philosophy" in their dissertations prompted this study. We really wondered and wanted to know if the Philosophy of Science and Theory Development course has relevance. In a research world that supports quantitative research with a bias against qualitative designs, we were curious about the experiences of PhD students who had experienced both the Philosophy of Science and Theory Development and Qualitative Methods of Inquiry courses.

Literature Review

Perspectives

In order to provide a basic understanding of the two courses, the course catalog descriptions are included. The researchers hope that this will assist readers to better understand students' responses. Philosophy of Science and Theory Development is described as follows: "A critical analysis of philosophy of science and epistemology as applicable to theory development in the human science disciplines". The Qualitative Methods of Inquiry course is described as follows: "A critical analysis of qualitative methods of inquiry for the human sciences to facilitate the understanding of the aims, processes, and outcomes of these methods."

Background

A number of issues guide debate about approaches to research. These include such questions as how to define science, what is good science or bad science, can absolute truth claims be made, and what is the importance of epistemology, ontology, worldviews, values, ethics, and ideologies (Patterson, 2000; Paul & Marfo, 2001; Slife & Williams, 1995; Smeyers & Verhesschen, 2001; Zucker, 1996).

In an effort to establish that assertions are "true," philosophy proposes three alternatives. The nature of "truth," some say, consists in the "correspondence" between sentences that we utter and objects and events in an external world. In this view, truth is "rational" (i.e., a connecting link between language and actual reality). The nearer language reflects entities and conditions that exist "out there," the nearer people have arrived at the truth of things. Realists and positivists commonly adopt this approach to truth.

The second theory of truth advanced by philosophy is the coherence theory. Proponents of this theory claim that statements are true if they "cohere" with an already-existing complex system of statements or principles. Mathematics is generally considered to be such a complex system in which all assertions are interconnected and in which any new assertion must fit into the "whole" in order to be regarded as true. The third theory is the pragmatic. It claims that the defining character of truth is its "usefulness." Do concepts, ideas, and beliefs aid in organizing and unifying experience? If they do, then they are truthful; if they do not, then they are irrelevant.

Each of these theories has had its champions throughout the centuries; likewise, each theory has its own inherent problems. Nevertheless, those who propose to research studies may want to consider determining which of these theories is likely to provide a sufficient basis for knowledge and a solid foundation for yielding the truth (Moser & Vander Nat, 1995).

Clark (1998) discusses the positivist view noting that truth "in positivist inquiry is achieved through the verification and replication of observable findings concerning directly perceivable entities or processes" (¶ 15). Denzin and Lincoln (1998) explain that positivist social science relies on four criteria; internal validity, external validity, reliability, and objectivity. Secretan (1997) points out Sir Isaac Newton's contributions, noting that since the time of Newton, "controlled observation, experimentation, and mechanics" have governed not only "a causal, logical approach to science" but the lives of those in the western world as well (p. 32).

Zucker (1996) maintains that "the positivist claim [is] that scientific explanation is best seen as deduction" (p. 67). Hempel's (1965) covering law model, discussed by Clayton (1997) stipulated "the ideal for science is to formulate 'lawlike' or 'deductive-nomological' explanations." Clayton continued, noting that these explanations "specify the antecedent conditions and the 'covering laws' that pertain to a given situation….[therefore] the thing to be explained (the explanandum) must follow deductively from the conditions and laws" (¶ 7).

D'Andrade (1986), in his review of Hempel's model, observes a problem: "the model does not give a reasonable description of science in general" (p. 20). He adds he believes there are three scientific worldviews; the physical sciences, the natural sciences, and the semiotic or semantic sciences. Further, he states that because of the focus on

laws, "Hempel's covering law model has set up an ideal against which no science but physics can come out well" (p. 39).

Paul and Marfo (2001) discuss the controversies about good versus bad science, indicating that the traditional standard for goodness was the epistemology of logical empiricism. Slife and Williams (1995) note that the "empiricist Western culture" has, in most cases, "ingrained in us this one way of knowing to the virtual exclusion of any other" (p. 71). They point out, however, that although the terms empirical and scientific have "become almost synonymous," empiricism is only one approach (p. 90).

Others have made distinctions regarding science. For example, Popper's (1962) concept of pseudoscience indicates that the scientific validity of a theory is its falsifiability or refutability. Brodbeck (1962) believes that some knowledge is perfect and some imperfect. Because her concept focuses on laws and closed systems, she believes only some areas of physics are perfect knowledge; all other knowledge is imperfect.

Clayton (1997) comments about Suppe's (1974) "Received View," which holds that "scientific theories and scientific rationality could be clearly delineated from all other human rational endeavors" (¶ 7). Zucker (1996) notes that most of the scientific community assumes that "modern science is objective, value-free, and context-free knowledge of the external world. To the extent to which the sciences can be reduced to this mechanistic mathematical model, the more legitimate they become as sciences" (p. 17).

Clark (1998) claims that the positivist view supports the concept of inquiry that states it can be free of bias and can be truly objective. However, Sandelowski (1993) disagrees and adds that researchers influence all aspects of their inquiries, and it is impossible to verify the interpretive findings of researchers. Glazebrook (2001) describes Heidegger's argument in the Beitrage that "experimental science sets nature up….[because] it "confines nature to the measurability of objectivity" (¶ 23).

Palmer (1998) claims that Western education honors the objective way of knowing, adding:

> The academic bias against subjectivity not only forces our students to write poorly (It is believed…," instead of "I believe…") but also deforms their thinking about themselves and their world. In a single stroke, we delude our students into thinking that bad prose can turn opinions into facts, and we alienate them from their own inner lives. (p. 18)

Similarly Clayton (1997) states that science is never purely objective. He notes that scientific theories should be holistic, saying "such notions as value-free science, pure observations, and conclusive falsifications of theories should be rejected as myths of the past" (¶ 19). Alexander (2001) adds that science continues to ask questions it cannot answer. He contends that:

> science is very limited in the kind of questions that it can address well: how things work, problems amenable to quantification, and deriving general laws about the properties of matter. But many types of human knowledge do not make their way into scientific journals—such as aesthetics, ethics, history, political theory and ultimate questions. (¶ 11)

Changes in the Philosophy of Science

Changes in the philosophy of science occurred as the result of Thomas Kuhn's (1962) presentation and discussion of paradigm (worldview) shifts. In this concept, Kuhn noted that science moves from long periods of "normal science," through increasing occurrences of anomalies, which cause scientists to question the established paradigm. When a new alternative paradigm becomes accepted, a radical paradigm shift occurs. Kuhn calls the conversion to the new paradigm a "scientific revolution" (Kuhn, 1962; Zucker, 1996, p. 159)

Clark (1998) adds that Kuhn makes it clear that scientific truth changes over time. Edge (2001) notes that even though the philosophy of science has moved somewhat away from positivism to a wider understanding of science and knowledge, there still is little agreement about defining science.

Howe (1985) believed that Quine had undermined the philosophy of logical positivism in 1951 when he published "Two Dogmas of Empiricism." Howe (1985) posited his view, and later Paul and Marfo (2001) stated:

> In addition to Quine and Kuhn, the work of Stephen Toulmin, Michael Scriven, and Paul Feyerabend also contributed to the dismantling of the positivist philosophy of science. Howe (1985) argued that the two dogmas of educational research—the rigid quantitative-qualitative distinction and the fact-value distinction—are held over from logical positivism and that the demise of logical positivism had little impact on the epistemology of educational research. (Paul & Marfo, 2001, p. 531)

Patterson (2000) discusses a model for science, which sees science as pluralistic, a "collection of paradigms" (¶ 3). And Guba (1990) proposes examining four paradigms; positivism, postpositivism, constructivism, and critical theory and their dimensions; ontology, epistemology, and methodology. Paul and Marfo discuss two important aspects of paradigms:

> The first is that paradigms differ in their assumptions about what is real, the nature of the relationship between the one who knows and what is known, and how the knower goes about discovering or constructing knowledge. The second is that paradigms shape, constrain, and enable all aspects of educational inquiry. (p. 532)

Smeyers and Verhesschen (2001) discuss the role of Kant's educational theory. They stress that Kant's theory is based on the concept that education is guided by ethics and "the main task of a human is to become moral." They add:

> "Science" is, according to Kant, *always* a system: knowledge built on the basis of principles. What is expressed has to emerge as necessary for the mind. A science whose foundation and principles are only empirical can produce only false knowledge….And although he was not indifferent to

how society develops, as a *scientist of education* he was interested neither in empirical falsification, nor in outcomes or predictions. (¶ 7)

Pickel (2001) notes Mario Bunge "is a scientist's philosopher of science," (¶ 1), and a "philosopher's philosopher of science," (¶ 2), adding Bunge is "clear on the distinctions between social science and social technology, and explicit about the indispensable role of ideology, politics, and morals in social studies" (¶ 15). Smith (2001) agrees about the centrality of research ethics, stating, "ethics should be rooted in laboratory practice and must include vigorous principles of honesty and justice. Those are not requirements imposed from outside but, internal requirements of the research community" (p. 615). Paul and Marfo (2001) also emphasize the importance of morals in their statement:

> The hegemony of quantitative research philosophy may still be in place in many research training programs and research publications, but the innocence in the educational research community about the epistemological, moral, and political nature and meaning of educational research is gone. (p. 528)

Strauss (2000) offers a recent trend in the philosophy of science. She states that Daniel Rothbart, a philosophy professor at George Mason University, teaches a philosophy of science class "in which 80 percent of the students are computer science majors" (¶ 6). She sees this trend growing out of recent debates in the medical, scientific, and public policy communities. However, she adds that this "applied philosophy" is viewed by traditionalists "as a distant cousin of the real thing" (¶ 7). Furthermore, Paul and Marfo (2001) discuss a change in the view of science:

> The old debate about "good science," usually meaning science done in the logical empiricist tradition respecting the canons of rigor, and "bad science," usually meaning science that was not rigorous, has changed. Research done poorly in either a quantitative or a qualitative tradition is fairly judged as "bad science." Research must adhere to the standards of the genre in which the research is conducted. (p. 532)

Philosophy and Research Method

A number of writers discuss the philosophical concepts they believe are directly related to research such as ontology, epistemology, values, ideologies, history, politics, and social and cultural contexts (Patterson, 2000; Paul & Marfo, 2001; Slife & Williams, 1995; Smeyers & Verhesschen, 2001).

An important aspect of this discussion concerns philosophy vis-à-vis method. Slife and Williams (1995) observe that the hermeneutic philosopher Gadamer contends that before the development of theory:

> There is always an operative understanding of truth. It is this (pre)understanding of truth that makes it possible to frame any method at

all. Without this understanding we could not formulate any method because we would not know what the method should be like—or that we even need a method. This means that understandings of truth produce methods, rather than methods producing truth….Methods, including the scientific method, are only devices we use to convince others and ourselves that our ideas are in some sense sound. They do not establish the truth of the matter. (pp. 181-82)

Paul and Marfo (2001) state "research education tends to place a disproportionate emphasis on technical methods and procedures, with little attention given to the philosophical, moral, and political values that underpin procedural practices…" (p. 525). Smeyers and Verhesschen (2001) agree. In their discussion of Carr's concepts about method, they note that Carr argues that:

The use of the term "method" refers to technical skills and modes of practice, which are deemed necessary to protect inquiry from the intrusion of personal knowledge, subjective preferences and ideological belief. "Method" furthermore requires the internalization of an ethical consciousness in which detachment, disinterest and neutrality are the major virtues and moral, political or educational commitments the major vice….He implies quite correctly that we have to get away from the kind of educational research that has been reduced to a mundane technical expertise in which non-technical, non-expert questions about the role of education in creating a good society are no longer recognizable. (¶ 12)

Similarly, Slife, Hope, and Nebeker (1999) assert that research methods are not objective and must be thoughtfully selected:

Method is not a transparent window or an objective instrument for testing our ideas. All methods (and languages) come with their own liabilities and assets and their own assumptions and implications. As a consequence, each method must be evaluated in relation to the context of its proposed use. (¶ 61)

Patterson (2000) likens methods to machinery, saying "it is the underlying philosophy that guides the operation of that machinery that should be the focus of discussion" (¶ 2).

Paul and Marfo (2001) add that often doctoral students "in education are deciding on methodological preferences for their dissertation research long before they have posed their specific questions and often with little or no conceptual grounding in the core philosophical assumptions behind the chosen methodologies" (p. 538). However, Cizek (1995) contends there should be:

a renewed conviction about the value of, and reintegration of the study of, the philosophy of science into the preparation of methodologists of either stripe…(qualitative or quantitative)…attention to epistemological

questions should be introduced as a beginning concern in educational research. (p. 26)

Smeyers and Verhesschen (2001) summarize these concepts well in their discussion of Wittgenstein's philosophy of education. They assert that Wittgenstein's beliefs:

> would not lead to the development of theoretical views, or any such thing, but would change the researcher: the world would come to be looked at differently. Coming to see the world differently is changing oneself. Philosophy may thus not change the world, but it changes people. (¶ 29)

Purpose

Instructors of research and those working with doctoral students sometimes disagree regarding the value of philosophy of science topics such as the history of science, cases of explanation, cases of confirmation, realism/anti-realism, and questions posed by philosophers of science regarding various disciplines. The objectives of the two courses, Philosophy of Science and Theory Development and Qualitative Methods of Inquiry, are to acquaint students with these sometimes-neglected concepts in order to provide a broader understanding of science, especially the human sciences. The researchers have a positive bias toward this broader understanding of science and believe that students will benefit from a focused discussion of many views of science and various philosophical perspectives. In spite of the positive bias toward a broader understanding of science and the belief that students will benefit from a focused discussion of many views of science and various philosophical perspectives, the researchers have attempted to bracket their views and listen to the voices of students. Sometimes instructors can learn from the experiences and perceptions of students. Therefore, the purpose of this phenomenological study was to investigate perceptions of 20 PhD students regarding two courses, Philosophy of Science and Theory Development and Qualitative Methods of Inquiry and to investigate their perceptions about interconnections between philosophy and research, both qualitative and quantitative.

Methods

Design

Phenomenology was selected for the methodological design because it was most appropriate for answering the research questions. This phenomenological study used structured, open-ended questionnaires to investigate perceptions of 20 PhD students regarding two core courses, Philosophy of Science and Theory Development and Qualitative Methods of Inquiry and their perceptions about interconnections between philosophy and research, both qualitative and quantitative. The phenomenological approach was best suited for the purpose of this study to gain understanding of the perceptions of participants who have a shared experience and to describe these subjective experiences (Berg, 2001; Colaizzi, 1978; Creswell, 1998; Merriam, 2002; Schwandt,

2001). Colaizzi (1978) notes that in phenomenology, in opposition to "experimentation as THE traditional method" of psychology:

> There is no such thing as THE phenomenological method. Instead the phenomenologist employs descriptive methods, with emphasis on the plural. Each particular psychological phenomenon, in conjunction with the particular aims and objectives of a particular researcher, evokes a particular descriptive method. (p. 53)

A constructivist approach most closely parallels the philosophical underpinnings of this study. This approach assumes an "emphasis on the world of experience as it is lived, felt, undergone by social actors….what we take to be objective knowledge and truth is the result of perspective…" (Schwandt, 2001, p. 236). What participants perceive as real is a construction of their minds. Individuals can have multiple, often conflicting constructions, and all of these can provide understanding for them regarding life circumstances (Denzin & Lincoln, 1998; Munhall, 1994; Schwandt, 2001).

Data Generation, Collection, and Processing

Participants

The researchers gained IRB approval to conduct the study. Student participants were selected through a recruitment letter sent to students in PhD programs at Schools of Nursing, Social Work, and Education at a small private university. A purposeful sample was chosen for their shared experiences. In addition to being PhD students, potential participants had to have completed the two courses: Philosophy of Science and Theory Development and Qualitative Methods of Inquiry. Participants volunteered to be a part of the study by completing questionnaires on computer disks sent to them along with stamped, addressed return envelopes. We chose this method of data collection because we respected our former students, understanding their many responsibilities and time constraints. We wanted to try an efficient data collection method. The students have very busy lives working full time and taking two or three PhD courses. We felt the mailed disks would allow students time to answer the questions when it was more comfortable and convenient for them.

We are not sure if this method of data collection is specifically consistent with phenomenology. We were unable to find sources with specific references to phenomenology and computer assisted data gathering. However, computer assisted data collection appears to be a current and certainly a future staple of qualitative data research. For example, we believe our collection method is similar to Creswell's (2003) presentation of email discussions. He notes that such documents enable a researcher "to obtain the language and words of participants" and represent "data that are thoughtful" (p. 187). Most of our participants' responses were both long and thoughtful, indicating the attention given to their responses.

We had concerns relative to anonymity and hoped that students (currently enrolled) would be more responsive and honest if we could guarantee such. Berg (2004) notes that computer (Web-based) data collection provides such a benefit. He adds:

One of the interesting ethical elements of Web-based research is that it is potentially far more anonymous than many other types of invasive data-collecting strategies. Thus, a greater sense of security and anonymity may be permitted for some research subjects. (p. 60)

The data generated from the participants' responses to the questions and prompts on the disks suggest that this data collection methodology is useful and effective in eliciting vivid details of their lived experiences. Although there was no opportunity for face-to-face dialogue between participants and researchers, the responses revealed a broad range of emotions. Participants reported feelings of fear and anxiety about the philosophy course and concerns about the foreign language of philosophy. Further, they revealed feelings of wonderment, elation, and exhilaration as they reported the moments when they grasped an understanding of philosophy and its value in relation to their research and their personal lives.

The expected intimacy of the traditional phenomenological interview was established a priori because we had taught at least one course to the participants. We believe that we recognized participants' uniqueness in the courses because assignments and exams were designed to be relevant to their individual professional lives, problems, and research interests. Our feedback on all submitted work was personalized to each individual's research questions and philosophical stances. This approach was the foundation of establishing respect for the participants and rapport with them. This provided the basis for our connection with the participants and allowed this innovative data collection methodology. Thus, we now believe that the computer disks added a unique research strategy in eliciting the emotions of the participants' lived experiences.

Upon reflection, if we were to conduct a similar type of study, we would again use computer assisted data collection methods. However, instead of mailing disks to potential participants, we would simply send a recruitment letter asking participants to be part of the study by accessing the open-ended interview questions online. This would allow for anonymity and would also be more cost effective by eliminating the cost of disks, envelopes, postage, and transcription.

The questionnaires

Examination of the literature regarding philosophy and research led to the development of a questionnaire consisting of five questions (Edge, 2001; Patterson, 2000; Paul & Marfo, 2001; Slife & Williams, 1995; Strauss, 2000; Zucker, 1996). The questionnaire included the following introduction:

You are asked to think about the Philosophy of Science and Qualitative Methods of Inquiry courses as well as your other research-focused courses. Please remember that your responses can never be connected with your name. Also, please note that you do not need to consult textbooks or class notes. This is about your general perceptions.

Questions included:

> 1). Reflect on the Philosophy of Science course. Then discuss concepts, philosophies, and theories that you learned about that had not been familiar to you prior to the course.
> 2). Regarding the Philosophy of Science course, what was the effect of this course on your "philosophical lens"? In other words, what was the effect on your understanding points of view not previously compatible with your own? How was your scope of understanding changed (if it was changed) in relation to doing research? Was this helpful to you? If so, how?
> 3). Reflect on the Qualitative Methods of Inquiry course. Discuss concepts, research theories, and methodologies that you learned about that had not been familiar to you before the course. Did this course help you to appreciate views other than the "received view"? Please explain. Which research methodologies and designs seem most useful to you?
> 4). Discuss your perceptions of the value of philosophy vis-à-vis research. Do you believe that what you have learned in the two courses, Philosophy of Science and Qualitative Methods of Inquiry, may help you in your own research—qualitative, quantitative, or a blend of the two? Please explain.
> 5). Specifically, what topics, philosophers, and/or philosophical approaches do you believe may be useful in your research--in framing research questions and in data collection and analyses?

We realized the questions might structure the students' responses. However, since we could not be present to do further probing questions, we chose to include expected, needed prompts and probes. The questions may have limited some information, but we wanted to keep the students focused. To gather any possible missed data at the end of the questions, the students were asked to make any additional comments regarding their experiences.

Data collection and processing

The researchers sent letters to 43 students, whom the researchers had taught, and received 20 responses. Students were asked to complete open-ended questionnaires consisting of five multi-part questions. Along with the recruitment letter and a hard copy of the questionnaire, students were sent a disk, which had the questionnaire on it in order for students to more readily answer the questions at their convenience rather than a scheduled face-to-face interview. We believe that we would have an honest, larger response to our questionnaires if students could respond in a setting where they felt anonymous, comfortable, and could select their best time to answer the questionnaire. Students were told that the questionnaire should take about 45 to 60 minutes to complete and were instructed not to identify themselves for purposes of anonymity. They were provided an addressed, stamped envelope in which to return the disks. All questionnaires were consistent, and participants invested as much or little time as they wished to respond to each question.

Transcriptions made from the disks students returned to the researchers provided a copy of questionnaire answers for the purpose of analysis (Maxwell, 1996; Silverman,

2000) and an "audit trail" that would leave evidence so others could "reconstruct the process by which the investigators reached their conclusion" (Morse, 1994, p. 230). Tentative ideas regarding categories and relationships began from the first readings of the transcriptions (Maxwell, 1996).

Data Analysis

The steps used in data analysis were similar to Colaizzi's (1978) suggested steps. Colaizzi notes that the steps should be "viewed flexibly and freely" since the research procedures may overlap (p. 59). These steps included: read all the transcripts, extract "significant statements" from the transcripts, try to determine the meaning of each significant statement—"formulating meanings," repeat the prior step and organize "formulating meanings" into "clusters of themes," and integrate results into an "exhaustive description" (pp. 59-62).

The researchers used the QSR N6 software for additional textual analysis of the transcripts. The researchers used the following steps: (1) catalogued ideas that had emerged from reading. In QSR N6, these catalogued ideas are called "nodes." Each node is given a title and a description, (2) associated the collective data files, (3) read and selected text passages that were of further interest, then using a "text search" assigned passages of text to nodes, and (4) conducted a "node search" in order to find relationships between the passages coded by different nodes. This led to semantic networks, which were the cornerstones of the emerging theories and themes.

The software analysis helped to identify and organize relevant ideas and quotations from the participants to support the appropriate categories (Berg, 2001; Creswell, 1998; Silverman, 2000). Although Colaizzi's (1978) work predated qualitative data analysis software, the researchers see a correspondence between the analysis outcomes of the software analysis and Colaizzi's significant statements, formulating meanings, clusters of themes, and exhaustive description.

Steps to Ensure Trustworthiness

Dependability, an aspect of trustworthiness, is whether the process of the study is consistent and reasonable over time and across researchers and methods (Berg, 2001; Creswell, 1998; Lincoln & Guba, 1985; Silverman, 2000). Dependability is parallel to reliability and shows that the process of inquiry is logical, traceable, documented, and dependable over time and across researchers and methods (Creswell, 1998; Guba & Lincoln, 1989; Lincoln & Guba, 1985; Miles & Huberman, 1994). This study employed triangulation to enhance dependability. Triangulation was used to establish validity using multiple investigators and QSR N6 software to confirm the researchers' coded categories and themes (Berg, 2001; Creswell, 1998; Silverman, 2000). In addition QSR N6 kept the large amount of data organized and provided easy retrieval of data for words, phrases, and appropriate quotes for the themes. The preservation of the transcripts served as another determinant of dependability; the transcripts were "preserved unobscured" (Miles & Huberman, 1994).

Transferability, parallel to external validity, addresses the issue of generalization in terms of case-to-case transfer. The findings of this study may or may not be

transferable to certain other settings. Confirmability, parallel to objectivity, establishes the fact that the data and interpretations of the inquiry have logical and clear linking associations, findings, and interpretations of the data (Guba & Lincoln, 1989). The researchers, as teachers of Philosophy of Science, clearly have a bias in favor of teaching philosophy of science as a foundation for research courses.

Credibility, or truth-value, as defined by Maxwell (1996) is the correctness of a description, conclusion, explanation, or interpretation. Credibility is parallel to internal validity and provides assurances of the fit between respondents' views of their experiences and the researchers' reconstructions and representation of the data (Guba & Lincoln, 1989). As defined by Maxwell (1996), credibility is the correctness of a description, conclusion, explanation, or interpretation. In order to enhance credibility, the researchers often included low inference descriptors, verbatim comments (Johnson, 1999). Furthermore, the researchers looked for responses that might disconfirm their expectations; this is often called negative case sampling (Johnson, 1999).

Guba and Lincoln (1989) further explain that trustworthiness criteria are parallel and analogs to conventional quantitative criteria and, thus, principally methodological criteria. However, the five authenticity criteria suggested by Guba and Lincoln are closely aligned with the constructivist epistemology that informs the definition of qualitative inquiry: Fairness, Ontological Authenticity, Educative Authenticity, Catalytic Authenticity, and Tactical Authenticity.

Guba and Lincoln's (1989) five authenticity criteria, closely aligned with the constructivist epistemology, inform the authenticity of qualitative inquiry. In the current study, *Fairness* was addressed by the study questions that allowed students' concerns, issues, and values to be represented in a range of balanced categories indicating how students made sense of their experiences and understandings of philosophy and research. *Ontological Authenticity* was demonstrated by many students' responses, which showed an integrated and sophisticated synthesis of their research courses with philosophy. However, two respondents were superficial in their responses and connections. *Educative Authenticity* was established through the students' responses and coded categories that revealed their greater understanding and appreciation of the philosophical positions and approaches to the research of others. *Catalytic Authenticity* occurred when the students reported they were moved to question everything they had believed. The courses and later the questionnaire stimulated some students to a realization that they would look at all research with a "critical eye." *Tactical Authenticity* was documented when students reported their decisions to develop research questions and research designs that questioned some traditionally held beliefs in new ways. For some participants, deeper understanding of meanings and questioning the findings of the "logical positivists" became the basis for further inquiry. Yet, others remained firm in the positivist approach while acknowledging they would consider alternative explanations of statistical findings.

Findings

As indicated earlier, 47% (20 of 43) of students responded to the questionnaire. It should be noted that three students returned questionnaires with very short answers. One of the three indicated that he or she did not learn anything. However, the other 17 students' answers were quite detailed and lengthy. Based on the length and depth of the

responses, it might be deduced that those 17 students invested 20 to perhaps as much as 90 minutes completing the questionnaire. Three broad themes emerged from the students' questionnaires. One theme was *Thinking About Thinking:* the idea that students had encountered a vast number of unfamiliar concepts and terms. Another theme was *The Ah-Ha of Me and Thee:* students' perceptions that through the classes and the coursework, they began to see multiple and new ways of thinking. Finally, the last overarching theme described *The Never-Ending Journey of Darkness to Light:* included students' perceptions of philosophy vis-à-vis research.

Thinking About Thinking

When students were asked to reflect on the Philosophy of Science course and discuss new or unfamiliar concepts, philosophies, and theories, they mentioned a number of ideas. These included the concepts of hard and soft sciences, paradigm shifts, postmodernism, metatheories, feminist theory, constructivism, empiricism, rationalism, positivism, research assumptions, and covering laws. For example, one student said:

> Postmodernism, empiricism, and rationalism were very new to me. I had never thought about "thinking" and "research assumptions" such as bias in such a meticulous manner. I found the course interesting, but often times beyond my comprehension. I feel it would be better as a yearlong course rather than a single semester course.

Another noted:

> Nothing about the course was familiar to me when I enrolled in Philosophy of Science. I was more scared than I thought it was possible to be. I was instantly overwhelmed by the words which I could not spell much less pronounce correctly….I did get some of "it" at the end of the semester, but the ah ha moment occurred a year later when I was enrolled in the Qualitative Research course.

While discussing new concepts, another student remarked:

> Although I used to hear terms such as ontology and epistemology, this course helped me truly understand them. Equally, I now understand the post-modernist views, as well as nuances among constructivism/ constructivist interactionism, and critical theory such as Marxism, and feminism.

Another student perspective provided this point:

> The Philosophy of Science course was very challenging and brought a vast degree of important knowledge to my understanding of what it will take to achieve a PhD I had not previously read or been exposed to the different philosophers and the perspectives on life and mankind…. the

philosophical frameworks consisting of postmodernism, critical theory, and the feminist approach were also new for me and are critical to achieving this degree as well. As this course unfolded, all of the reasons for having a complete knowledge base came to light. The entire path to this degree is centered on the important knowledge learned and read about in this course.

An additional student commented:

The concepts learned in the Philosophy of Science consisted of discussing the hard sciences and the soft sciences. I had never thought of the sciences as such; I also learned that philosophy becomes science pure and simple. Philosophy takes itself to be the first and highest science…Philosophy is supposed to be a theoretical science, but [it should] give a practical guidance to our view of things and their interconnection and our attitudes toward them. Also it regulates and directs our interpretation of existence and its meaning. Philosophy as learned in the Philosophy of Science is wisdom of the world and of life.

While reflecting on the questionnaire, another student wrote:

The Philosophy of Science course opened me up to the idea that the scientific method was not "objective science." All science is based on the philosophy of the society in which the researchers live. I learned about the modernists and how the post-modernists said that there are no universal truths.

In a similar tone, a different student noted:

I learned that the terms, "objective," and, "believable" are relative depending on which philosopher's beliefs one chooses to adopt. For example, the positivists' rejection of value judgments as too subjective is consonant with the intolerance for the deductionists in quantitative research to accept qualitative methods as scientific.

The "Ah Ha" of Me and Thee: New Points of View

When asked if the Philosophy of Science course had an effect on their understanding points of view not previously compatible with their own, students provided a variety of responses. Most indicated that they were more able to see that people think differently, one saying there are a "multitude of lenses," and another said the terms "objective and believable are relative…truth is tentative." A number of students wrote about personal insights of themselves, others, and the world in which they live. As an example, one student commenting on such insights noted:

One needs to be able to understand oneself in order to appreciate others and the world we live in. I believe that philosophy provides individuals with the foundation on which to build and challenge them to explore the world around them. As mentioned before, I now view the world through more critical yet clear lenses. I no long accept the surface explanation; I find that it takes more to satisfy my curiosity about people, events, and things. I listen more keenly to speakers with the realization that there is always something I can learn from the ordinary person as well as from the masters.

This same student added:

I now understand what a paradigm shift is and what it means. Now as I listen to speakers, or read a text, I try to situate the speaker/author. I am also able to understand why I think and believe certain things. I now use my limited knowledge of philosophy in an attempt to understand/explain the ways people behave and sometimes think the way they do…Now I pay more attention to the special investigative reports on television, and I read research studies paying attention with a more critical eye and also with the thought of learning something new.

Another student discussed the concept of a more open viewpoint by writing:

Philosophy of Science helped me realize that there is not just one way of conducting research, the positivist approach. As a matter of fact, it opened my eyes on several fallacies inherent to positivism. I now understand that a person thinks in a given paradigm, a sort of worldview, and the thoughts and ideas one holds are reflections of that paradigm. I now understand that reality is not "one thing out there" that one can "objectively" discover. On the contrary, reality is complex and multiple; it is not fixed, nor can it be grasped fully. Therefore, knowledge is always relative and partial. The irony is that although I was exposed to the work of several philosophers for decades, it is the Philosophy of Science course that allowed me to see things differently.

This student added:

The Philosophy of Science course had an extraordinary impact on my intellectual maturity. It happened in two ways: I have learned new concepts and new theories, and most important of all, I have acquired a true understanding of items that I thought were familiar to me. I felt as if light suddenly sparkled in my mind. At this present moment, I am not able to discern what theories and concepts were new to me and which ones I was acquainted with. What I would like to focus on is the tremendous impact the course had on me in helping me truly understand different concepts, philosophies, and theories….I must say, with the Philosophy of

Science course, I feel I am finally a truly educated person. I also feel one
who has not taken this course, or an identical one, is not yet educated, not
yet intellectually mature, not yet an enlightened researcher!

Other students discussed how they have come to be more critical and challenging
regarding information. For example, one stated, "In my specific situation, I did learn the
foundations to understand and challenge present research approaches. This course helped
me to understand several scientific paradigms while simultaneously challenging their
foundations and trying to discover their hidden assumptions." Similarly, another wrote:

The course had the effect of making me question everything that I had
come to believe was actual undisputed science and to read research with a
new skepticism that I had never experienced before. I am now able to
more critically read research without taking it at face value.

Another said, "I learned to widen my approach to how people think
systematically, how they approach reality, and how they are sometimes narrowly
restricted by their own beliefs, causing some societies to become oppressed by their own
thoughts."

Several students commented on their perceived reasons for a baseline of
knowledge. For example, one confessed, "I must say I never liked philosophy, but this
course gave me a new perspective on the notion of 'thought.' The concepts of positivism,
postmodern, modernism and paradigms were invaluable to me, even more now in the
PhD program….essential." Another commented, "As this course unfolded, all of the
reasons for having a complete knowledge base came to light. The entire path to this
degree is centered on the important knowledge learned and read about in this course."

The Never-Ending Journey of Darkness to Light: Philosophy and Research

Most students indicated that they understand that research must be guided and
supported by philosophy or theory. They recognized some research will be testing theory
or developing theory. Several discussed the ideas of challenging current research
approaches, reading research more critically, and discovering hidden assumptions and
biases. One mentioned being better able to detect "unbracketed bias" in research, and
several realized they now read quantitative research with a more critical eye. Students'
comments regarding philosophy and research could be described as personal insights
regarding the connections and remarks about their own current or future research.

Insights regarding connections

A student related: "One must have a philosophical perspective prior to deciding
upon a research method for the essential reason that your paradigm will explain and
enrich your choice of method to give more credence and support to your research."
Another student said:

This course was extremely helpful to me because it helped me understand things in a way that I was not able to get by myself. Also, it helped me understand differently the research process as well as the role of the researcher.

Another student commented:

The Philosophy of Science course helped broaden my perspective of research and allowed me to see how any proposed statement has to be grounded in a philosophy. I have so many ideas running around in my head, and I am now able to fit them into an ideological perspective and within a philosophical assumption…. All in all, these courses are absolutely important in preparing doctoral students for the research process.

Another said:

I became more aware of the philosophical implications of the different research endeavors, but did not find closure to my quest for a different, more comprehensive, more sensitive to the data being studied, style of research. In a sense, looking in retrospect, I was exposed to a most diverse range of methods and to a profound analytical study of the main schools of thought, and was challenged in every one of my analyses and interpretations; all of this in a most permissive and pedagogical way.

Still another student pointed out:

Philosophy of Science left (a classmate) in a daze. Why? Well, this student did not understand where Philosophy of Science fit within the coursework and why it was being taught. Later the student realized that Philosophy of Science was very important in understanding research, performing research, and understanding the concepts of the research process.

Noting the importance of philosophy, one student wrote:

Whether the researcher is conscious of it or not, research is conducted in a given philosophical paradigm. Careful understanding of philosophy is an essential pre-requisite to research. The two courses have given me the opportunity to reflect on my own philosophical views, and to acquire a better understanding of reality/truth/knowledge. These two courses will help me conduct better research for my dissertation. Things would have never been the same without these courses!

As a response to questions about the Qualitative Methods of Inquiry course, one student wrote:

This course has totally changed my understanding in relation to research. I now realized that even though numbers are important, they do not tell the whole story, they do not present the whole picture; worse, they can be very superficial and misleading. The role of the researcher is not to uncover an immutable reality. Also, universal laws are not absolute; an experiment conducted in the positivist view is done in an artificial setting; generalizations are not warranted because they ignore the exceptions (of course, the exceptions deserve attention); the truth is relative; the researcher does have an impact on the research (no matter what). This course was extremely helpful to me because it helped me understand things in a way that I was not able to get by myself. Also, it helped me understand differently the research process as well as the role of the researcher.

Another student's comments included:

Once again, I learned a great deal from the Qualitative Methods of Inquiry course. I feel as if I went from darkness to light! This course helped me understand research should be associated with a purpose useful to humankind; the voice of the people being studied is important; getting extensive knowledge of a limited number of participants may shed more light (and more useful light) than getting limited knowledge on a large number of participants; there are multiple realities, the truth is relative, and knowledge is relative.

Still another student noted:

I thought that all we could do to understand "qualitative" phenomena was to define them "operationally." Now I understand that this understanding of mine was a denial of qualitative experience and an involuntary affirmation of the all pervasiveness and ultimately the only reliable method, the quantitative method. In other words, I was practically a reductionist, thinking that all was well and done if we were left with the ultimate quantitative elements and methods of analysis. What I have discovered is that there are two kinds of realities: one amenable to quantitative analysis and another amenable to qualitative analysis. What I have found is a method of study, analysis, and understanding of the qualitative dimensions of reality, consistent with scientifically sound and rigorous research methodology, providing convincing evidence of the seriousness and "objectivity" of the results. This means that the results are not fictions of the imagination, but realities in the world of the real.

Comments regarding the two courses included this reflection:

These two courses have definitely helped me in my research exploration. I am more curious to the point of being inquisitive. I keep recalling an

explanation one professor gave me about the atom and the parts that make it up. That illustration is the basis for me not accepting one absolute answer to any situation. Of course in my quest for more, I tread softly because I realize that I do not know enough to contribute at this time, so I just listen, absorb and try to retain and apply as necessary.

Another student added:

Absolutely, everything I learned in both of these classes is going to be critical to the evolution of my research and final paper. I will refer back to these classes, the notes, papers, textbooks, and class assignments as tools to guide me through my dissertation challenge. I believe research is philosophy based. When a researcher is tasked with a project, one must consciously accept a philosophical approach to guide them and the research to be conducted. This will help to validate the data and achieve acceptance in a world of skeptics as far as qualitative research is concerned.

Students' Perceptions about Personal Research.

As a response to questions about their own research, several students indicated a clear sense of method. For example, one wrote:

As a result of these two classes, I will probably do a quantitative study. One thing these courses taught me was that a good qualitative study is time-consuming and hard work. Although people are able to give answers not limited to A, B, C, or D, someone must be available to code, transcribe, and put the information into narrative form. Then you have so many different types of people to deal with. People think so differently and have their own philosophies that must be captured. You must be able to reach them without imposing your own biases. Hard work. Finally, taking these courses will allow me to conduct a quantitative study BUT include aspects of a qualitative study. I believe this is necessary to conduct a thorough study.

Another student pointed out:

The two courses have helped me form a research proposal that embraces both quantitative and qualitative techniques, as appropriate to the demands inherent in finding answers to my specific research and broad proposal questions. This balanced approach of achieving enough statistical power with my sample size and covering enough detail in questions to participants is necessary for reporting sensible findings that can inform and change current practice in my field and in real-world contexts.

This student added:

> An approach that is useful to my research question may be postpostivism, as advanced by Comte [sic], in which one strives for objective, precise, and generalizable findings while still recognizing that there are exceptional conditions that, contrary to Popper, do not falsify findings but textualize them, thus allowing for deeper levels of conceptual analysis. It is this deeper level of analysis (for example forming response categories with factor analysis) that will make my research both conceptually relevant and replicable.

A third commented that "a careful and profound analysis of assigned research articles has provided me with closure to a philosophical and scientific quest." This student continued:

> This is a most respectful and serious study, a truly alternative scientific approach. One other thing I found after this new paradigm of qualitative research was firmly and basically accepted by me: the possibility of studying social action issues with a complex, qualitative, and action-sensitive methodology. I will do my thesis within a critical theory paradigm. I am interested in social-action issues with an objective of social justice in them. I would like to make my research socially relevant.

Other students indicate that they have a sense of the direction that their research will take. For example, a student wrote:

> Even though I learned the different theories and applied them, I did not really see the connection until I took the first level qualitative methods class and was working on my qualitative paper. I realized that the research had do be supported by a philosophy or theory and saw how the different philosophies and theories were tied into the research question. This is helpful to me because it allowed me to really understand the direction my research would take.

Another commented:

> I think it is important to have a philosophical foundation for the research one conducts. When possible I try to have students reflect on their philosophical point of view when working with various topics. The material covered in Philosophy of Science and Qualitative Methods of Inquiry will definitely help me in my research. In fact, it already has enhanced the way I approach organizing the class that I teach. In addition it will contribute significantly to my efforts in completing the area of specialization and dissertation papers yet to be completed. I favor qualitative methods of research, but I am hoping to include both quantitative and qualitative data in my dissertation.

Another student discussing personal research noted:

> These courses helped me to formulate my own concepts of practical research design ideas I can use towards my final dissertation. I was impressed with the degree and quality of the research studies I read. Research is information and information is power. These courses helped me to identify and begin my research paradigm and thesis.

Another wrote, "I believe that the philosophies that I learned help give my study direction and body, helping my readers to better understand my study. I believe that these also help me to better understand what I am doing." Still another indicated direction by stating:

> After studying postmodernism, I understand the importance of doing perception studies (like this one!). I used to think perception studies were less rigorous and important than basic research. Actually, I will probably end up doing a perception study for my dissertation since it has to do with human motivation. However, I will do a survey since I realize that statistical techniques, larger sample sizes, and random sampling procedures will help bolster the believability of my research findings. This believability is important for changing policies, which I hope to do.

Discussion

Findings of this study indicated that when students were asked to reflect on the Philosophy of Science course and discuss concepts, philosophies, and theories that had not been familiar to them, they mentioned a number of ideas. These included the concepts of hard and soft sciences, paradigm shifts, postmodernism, metatheories, feminist theory, constructivism, empiricism, rationalism, positivism, research assumptions, covering laws, and the idea that the terms "objective and believable are relative…truth is tentative."

When asked if the Philosophy of Science course had an effect on their understanding points of view not previously compatible with their own, students provided a variety of responses. Most indicated that they were more able to see that people think differently, one saying there are a "multitude of lenses." Another student said the lens was more "holistic." Several discussed the ideas of challenging current research approaches, reading research more critically, and discovering hidden assumptions and biases. One student stated, "I question everything I had believed." Most students indicated that they understand that research must be supported by philosophy or theory.

Students were asked to reflect on the Qualitative Methods of Inquiry course and to discuss what they had learned. Most students responded that they were very or relatively unfamiliar with qualitative methods before the course. One mentioned being better able to detect "unbracketed bias" in research, and several realized they now read quantitative research with a more critical eye. One student noted, "I realized that I was a reductionist," hoping to change this perspective. Although several reported they are "empiricists," a number indicated they have an appreciation of qualitative methods because these methods can yield "richness."

Students were asked to discuss their perceptions of the value of philosophy vis-à-vis research and if that knowledge would assist them in their own research. One student noted that the philosophy course is a good indicator of how successful one might be in doctoral courses because of the level of difficulty. Another said the philosophy course should run two semesters. Several students indicated they are able to see how philosophy guides both quantitative and qualitative research, valuing philosophy as the foundation to build, challenge, and explore the world. A number of students said it is clear that researchers must have a philosophical perspective prior to deciding research method. One student said, "Philosophy of science is the platform for the research process."

The essence of the analyses was that these two courses were life-changing experiences for the students. They reached a philosophical and research maturity as demonstrated by *Thinking about Thinking*, and recognizing the value of different paradigms by *The Ah Ha of Me and Thee*. They were able to articulate and apply their growing knowledge to the research process, their professional choices, and to their daily lives. They saw living meaningful lives and evaluating and conducting research as *The Never-ending Journeys of Darkness to Light.*

Limitations and Strengths

One perceived limitation of this study may be that it is not generalizable in the usual quantitative sense; however, concepts discussed by the participants may have transferability to certain other settings (Lincoln & Guba, 1985). The sample of participants might be viewed as both a limitation and a strength. The somewhat homogeneous nature of the sample (all from a small, private university) might be considered a limitation. However, their commonalities make them appropriate participants for a phenomenological study (Colaizzi, 1978; Creswell, 1998; Moustakas, 1994; Munhall, 1994). It might be inferred that the 20 students who chose to participate were those with a greater interest or belief in philosophy.

Denzin and Lincoln (1998) in their discussion of verisimilitude, ask whether a particular text has a relationship to some agreed-upon opinion or opinions. The results of this study are in agreement with previous research and theory in the area of philosophy and research (Edge, 2001; Patterson, 2000; Paul & Marfo, 2001; Slife & Williams, 1995; Smeyers & Verhesschen, 2001; Zucker, 1996). Furthermore, the participants' responses often revealed shared perceptions, and according to Gay and Airasian (2002), researchers can have more confidence in their interpretations if there are shared perceptions.

Implications/Recommendations

The themes provide important information for ways to strengthen the Philosophy of Science, Qualitative, and Quantitative Methodologies courses. The PhD degree implies that students have a background and understanding of philosophy and understand the impact that philosophical approaches have on research questions and methodology. The findings provide confirmation of the value of and the need for integration of philosophy of science concepts in all research courses.

Furthermore, several students who completed their dissertations with us did discuss the philosophical underpinnings of their studies. We might reasonably conclude,

at least for these students, that the integration of philosophy in the classes enhanced students' understanding of philosophy and the impact that philosophical approaches have on research questions and methodology. A logical next step would be an investigation of a number of other students' dissertations to ascertain if they also included discussions of the philosophical underpinnings of their studies.

We believe that all studies need to be examined in order to ascertain if there is a greater scope of understanding beyond that of statistical significance. For example, some studies which report no statistical findings might, if examined from another vantage point, add as much knowledge as those with p values < .01 (Risjord, Dunbar, & Maloney, 2002). We also believe that researchers should articulate the philosophical underpinnings of their research. Recognizing the strengths and limitations of their paradigms could lead to different and new ways of approaching research (Tollefson, 2002).

Findings of the current study suggest areas for discussions in all PhD courses to encourage students' critical thinking, and findings support the notion that faculty in PhD programs have an obligation to reinforce and support various philosophical viewpoints. The researchers believe that a foundation in philosophy provides insights and opportunities for people to recognize connections between and among various philosophical foundations and their own specific disciplines. These disciplines include, but are not limited to, leadership, psychology, nursing, social work, human resources, history, ethics, change theory, systems theory, chaos theory, and others. As an example, Secretan (1997), in his discussion of organizations, notes how some organizations are "mechanistic" and traces this model to Sir Isaac Newton. Wheatley (1999) discusses leadership concepts within the framework of quantum physics, indeterminism, systems theory, and chaos theory. Pert (1999) discusses a scientific revolution regarding health and disease, her biomolecular discovery of the basis of emotions. She notes this change moves medicine from Cartesian reductionist thinking toward a more holistic model. And Palmer (1998) explains how the impact of the western cultural search for "objectivity" impacts education. He states:

> We turn every question we face into an objective problem to be solved— and we believe that for every objective problem there is some sort of technical fix. That is why we train doctors to repair the body but not to honor the spirit; clergy to be CEOs but not spiritual guides; teachers to master techniques but not to engage their students' souls. (p. 19)

"All great truths begin as blasphemies, (Shaw, 1917) "

References

Alexander, D. (2001, August 25). Face to face: Science in search of God. *The Guardian*, 1-24. Retrieved September 5, 2002, from ProQuest Database.

Berg, B. L. (2001). *Qualitative research methods for the social sciences* (4th ed.). Boston: Allyn and Bacon.

Berg, B. L. (2004). *Qualitative research methods for the social science* (5th ed.). Boston: Allyn and Bacon.

Brodbeck, M. (1962). Explanation, prediction, and "imperfect" knowledge. In H. Fiegel & G. Maxwell (Eds.), *Minnesota studies in the philosophy of science* (pp. 231-273). Minneapolis: University of Minnesota Press.

Cizek, C. J. (1995). Crunchy granola and the hegemony of the narrative. *Educational Researcher, 24*(2), 26-28.

Clark, A. M. (1998). The qualitative-quantitative debate: Moving from positivism and confrontation to post-positivism and reconciliation. *Journal of Advanced Nursing, 27*(6), 1242-1250. Retrieved September 19, 2002, from ProQuest Database.

Clayton, P. (1997). Philosophy of science: What one needs to know. *Zygon: Journal of Religion and Science, 32*(1), 95-105. Retrieved September 5, 2002, from ProQuest Database.

Colaizzi, P. F. (1978). Psychological research as the phenomenolgist views it. In R. S. Valle & M. King (Eds.), *Existential-phenomenological alternatives for psychology* (pp. 49-71). New York: Oxford University Press.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

D'Andrade, R. (1986). Three scientific world views and the covering law model. In D. W. Fiske & R. A. Schweder (Eds.), *Metatheory in social sciences: Pluralisms and subjectivities* (pp. 19-41). Chicago: University of Chicago Press.

Denzin, N. K., & Lincoln, Y. S. (1998). *The landscape of qualitative research: Theories and issues.* Thousand Oaks, CA: Sage.

Edge, H. (2001). Readings in the philosophy of science: From positivism to postmodernism. *The Journal of Parapsychology, 65*(1), 96-102.

Gay, L. R., & Airasian, P. (2002). *Educational research: Competencies for analysis and application* (7th ed.). Upper Saddle River, NJ: Prentice-Hall.

Glazebrook T. (2001). The role of the Beitrage in Heidegger's critique of science. *Philosophy Today, 45*(1), 24-32. Retrieved September 5, 2002, from ProQuest Database.

Guba, E. G. (1990). The alternative paradigm dialog. In E.G. Guba (Ed.), *The paradigm dialog* (pp. 17-30). Newbury Park, CA: Sage.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.

Hempel, C. (1965). *Aspects of scientific explanation and other essays in the philosophy of science.* New York: Macmillan/Free Press.

Howe, K. (1985). Two dogmas of educational research. *Educational Researcher, 14*(3), 13-20.

Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy* (D. Carr, Trans.). Evanston, IL: Northwestern University Press. (Original work published 1936)

Johnson, R. B. (1999). Examining the validity structure of qualitative research. In A. K. Milinki (Ed.), *Cases in qualitative research: Research reports for discussion and evaluation* (pp. 160-165). Los Angeles: Pyrczak.

Krefting, L. (1999). Rigor in qualitative research: The assessment of trustworthiness. In A. K. Milinki (Ed.), *Cases in qualitative research: Research reports for discussion and evaluation* (pp. 173-181). Los Angeles: Pyrczak.

Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

MacLeish, A. (1982). Dr. Sigmund Freud discovers the sea shell. In L. Perrine (Ed.), *Sound and sense* (6th ed., p. 61). New York: Harcourt Brace Jovanovich.

Maxwell, J. A. (1996*). Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage.

Merriam, S. B. (Ed.). (2002). *Qualitative research in practice: Examples for discussion and analysis.* San Francisco: Jossey Bass.

Miles, M. B., & Huberman, A. M. (1994*). Qualitative data analysis*. Thousand Oaks, CA: Sage.

Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 220-235). Thousand Oaks, CA: Sage.

Moser, P. K., & Vander Nat, A. (Eds.). (1995). *Human knowledge: Classical and contemporary approaches.* New York: Oxford University Press.

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage.

Munhall, P. (1994). *Revisioning phenomenology: Nursing and health science research.* New York: NLN.

Palmer, P. (1998). *The courage to teach: Exploring the inner landscape of a teacher's life*. San Francisco: Jossey Bass.

Patterson, M. E. (2000). Philosophy of science and leisure research. *Journal of Leisure Research, 32*(1), 106-110. Retrieved September 5, 2002, from ProQuest Database.

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Newbury Park, CA: Sage.

Paul, J. L., & Marfo, K. (2001). Preparation of educational researchers in philosophical foundations of inquiry. *Review of Educational Research, 71*(4), 525-547.

Pert, C. B. (1999). *Molecules of emotion: The science behind mind-body emotion*. New York: Touchstone.

Pickel, A. (2001). Mario Bunge's philosophy of social science. *Society, 38*(4), 71-74. Retrieved September 19, 2002, from ProQuest Database.

Popper, K. (1962). *Conjectures and refutations*. New York: Basic Books.

QSR N6. (2002). [Computer software]. Doncaster, Victoria, Australia: QSR International.

Risjord, M. W., Dunbar, S. B., & Maloney, M. F. (2002). A new foundation for methodological triangulation. *Journal of Nursing Scholarship, 34*(3), 269-276.

Sandelowski, M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing science, 16*(2), 1-8.

Schwandt, T. A. (2001). *Dictionary of qualitative inquiry* (2nd ed.). Thousand Oaks, CA: Sage.

Secretan, L. H. K. (1997). *Reclaiming higher ground: Creating organizations that inspire the soul.* New York: McGraw Hill.

Shaw, G. B. (1917). *Annajanska The Bolshevik Empress.* Retrieved September 2002, from http://www.readbookonline.net/title/3144/

Silverman, D. (2000). *Doing qualitative research: A practical handbook*. Thousand Oaks, CA: Sage.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? Discovering hidden assumptions in the behavioral sciences.* Thousand Oaks, CA: Sage.

Slife, B. D., Hope, C., & Nebeker, S. (1999). Examining the relationship between religious spirituality and psychological science. *The Journal of Humanistic Psychology, 39*(2) 51-85. Retrieved September 5, 2002, from ProQuest Database.

Smeyers, P., & Verhesschen, P. (2001). Narrative analysis as philosophical research: Bridging the gap between the empirical and the conceptual. *International Journal of Qualitative Studies in Education, 14*(1), 71-84. Retrieved September 5, 2002, from ProQuest Database.

Smith, D. H. (2001). Notes on a pilgrimage to science: A fly on the wall. *Science and Engineering Ethics, 7*(4), 615-634.

Strauss, V. (2000, October 31). Philosophy's resurgence: Not just for theorist anymore, courses now contemplate real-life issues raised by technology and genetics. *The Washington Post*, p. A11. Retrieved September 19, 2002 from ProQuest Database.

Suppe, F. (Ed.). (1974). *The structure of scientific theories*. Urbana: University of Illinois Press.

Tollefson, J. (2002, April 24). Biologist interested in ways of looking at culture, science. *The Santa Fe New Mexican*, p. B5.

Wheatley, M. J. (1999). *Leadership and the new science: Discovering order in a chaotic world.* San Francisco: Berrett-Koehler.

Zucker, A. (1996). *Introduction to the philosophy of science*. Upper Saddle, NJ: Prentice Hall.

Author Note

Joan Efinger earned her doctorate and masters degrees from the University of Pennsylvania. She is a Board Certified Advanced Holistic Nurse (AHN-BC) and a Board Certified Advanced Practice RN: Clinical Specialist Adult Psychiatric and Mental Health (APRN, BC). She is Research and Evaluation Consultant and in a holistic health promotion private practice. Joan taught philosophy, research methods (both quantitative and qualitative), and biostatistics. Her research interests are holistic in nature focused on health promotion/disease prevention and improvement of health services and education. She can be contacted at joanefinger@earthlink.net; PO Box 490, Bonita Springs, FL 34133.

Nancy Maldonado earned a PhD in Educational Leadership from Barry University, an MA in English from Barry University, and a BA in English from Florida International University. Nancy taught two PhD research courses: Philosophy of Science and Theory Development and Qualitative Methods of Inquiry. She has also taught Ph.D. and Master's courses in leadership, communication and a course called Reflective

Educator. Her research interests include moral leadership, social justice issues, end of life issues, and connections between philosophy and research. She can be contacted at 6641 NW 181 Lane, Miami, Florida, USA; Telephone: 305.556.5214; E-mail: nancylmaldonado@aol.com or nlmaldonado@bellsouth.net.

Geri McArdle earned a PhD in Educational Leadership from Syracuse University, an MPA from the Maxwell School at Syracuse University and a CAS from Harvard University. Additionally she was a postdoctoral fellow at the Harvard University Philosophy in Education Research Center, 1991 – 1996. Geri has taught Human Resource Development theory and practice courses and leadership courses; her research interests include leadership, ethics, trainer roles and competencies, and learning styles and learning modalities. She can be contacted at Geri McArdle, 2350 West First Street, #202, Ft. Myers, Fl 33901, USA; Telephone: 239.278.1799; E-mail: trainingdoctor@earthlink.net

Author's Citation

Efinger, J., Maldonado, J., & McArdle, G. (2004). PhD students' perceptions of the relationship between philosophy and research: A qualitative investigation. *The Qualitative Report, 9*(4), 732-759. Retrieved [insert date], from http://www.nova.edu/ssss/QR/QR9-4/efinger.pdf