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Lane G. Perry III
Western Carolina University

April Perry
Western Carolina University

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About the Author(s)
Dr. Lane Perry currently serves as the Director of the Center for Service Learning and is an affiliated faculty member of the Human Services Department at Western Carolina University. Lane has presented and published extensively in the fields of community engagement, service-learning, global citizenship, and pedagogical approaches to disaster response.

Dr. April Perry is the Program Director & Assistant Professor in the M.Ed. Higher Education Student Affairs program at Western Carolina University. Her research interests are in Higher Education Student Development, Career Development, and Student Transitions.

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FACILITATING STUDENT ENGAGEMENT RESEARCH: AN HISTORICAL ANALOGY FOR UNDERSTANDING AND APPLYING NATURALISTIC INQUIRY

Lane G. Perry, III, Western Carolina University
April Perry, Western Carolina University

Abstract

This paper offers a historical theoretical discussion and practical perspective on the qualitative paradigm of inquiry referred to as Naturalistic Inquiry (Lincoln & Guba, 1985). Moreover, it endeavors to demonstrate the paradigm's versatility and usefulness when attempting to illuminate phenomena that specifically occur when students experience and interact with engaging, innovative, and experientially based pedagogies (e.g., service-learning, work-integrated learning, community-based learning). This paper presents and paradigmatically supports the researchers' worldview through a logical primacy and discussion of ontological, epistemological, axiological, and methodological perspectives (Guba & Lincoln, 2001). Following this, Naturalistic Inquiry is identified as a paradigm of inquiry that aligns with the worldview and serves as a useful paradigm for observing phenomena, collecting and analyzing data, and presenting transferable findings with regard to experiential pedagogy. This paper could serve as a citable source and theoretical underpinning advocating and calling for qualitative methodologies and research into student and community engagement.

Introduction

We believe as researchers we take the shape of keys. Each key varies slightly or considerably from other keys. It is our ontological, epistemological, methodological, and axiological assumptions that determine the shape and cut of our specific key. These assumptions of reality, knowledge, method, and values are largely shaped by our culture, experiences, and hermeneutics (among other influential factors). Denzin and Lincoln (2003) recognize that behind these labels is the "personal biography of the researcher" (p. 29). The voice of the researcher's personal biography is indicative of a lifetime of experiences that are inextricably shaped by class, gender, race, cultural, religious, and ethnic community perspectives.

Positioned between the 'researcher as a key' and the phenomena they intend to understand are locked doors. These doors represent the numerous paradigms of inquiry, which serve as collections of "logically related assumptions, concepts, or propositions that orient thinking and research" (Bogdan & Biklen, 1998), of which we as value-laden inquirers with "personal biographies" of our own may or may not align. The door, with its frame, knob, lock, and hinges, serves as a symbol for the axioms that underpin a particular paradigm. Each of these doors has a lock; and in order to open one, the researcher must be a key that fits and is granted access, methodologically speaking. While there are many doors to choose from, there is typically one that is most suitable for the key of the researcher and the phenomenon intended to be studied.

We must reiterate that this is our interpretation of a subjective process. Meaning, the door that a 'researcher as a key' opens is representative of a human constructed paradigm and subsequently is subject to human error, bias, and misinterpretation. The 'researcher as a key' is also not immune to human error because it is completely human, particularly idiographic, and emergent. Subsequently, the 'researcher as a key' is based on the hermeneutics of the researcher's view of knowledge, reality, method, and values. In this the 'researcher as a key,' so long as he or she is true to his or her worldview, can shape and reshape their key

(worldview) throughout access, interpretation, and synthesis of newly accumulated information. This allows for continual development of the researcher's perspective and the research process as they become immersed in their investigation. Furthermore, this aligns with the established concept of emergent design. In return, the phenomenon being investigated also has an influence on the paradigm of which a researcher aligns. Meaning that the paradigm of inquiry selected is also contingent on the topic of investigation (e.g., student test scores, student experiences, student engagement scores, community organizations' perspectives on service-learning). Understanding that the doors, or paradigms of inquiry, and the 'researcher as a key' are both predisposed to human error allows for the research process to unfold in an emergent way versus a predetermined or *a priori* design.

As researchers, it is essential to understand the worldviews before unpacking the interplay that transpires among the researcher, the paradigm of inquiry with which they most align, and the phenomenon they seek to more deeply understand. Before one can subscribe to the most appropriate paradigm of inquiry, a researcher must provide insight into their worldview and its construction. The way they view the world is based on the experiences they have had and the hermeneutic understandings that they have come to through reflection, critical reflection, and attempts at making meaning. While paradigms are human constructions and therefore subject to human error (Guba & Lincoln, 2001), they do provide the door through which we can enter and interpret our world and its complex phenomena.

Essentially, it is this penultimate interpretation, or description of the door, that serves as the subconscious filter through which the collected data from an investigation will travel and ultimately be analyzed. Before one can discuss the paradigm of inquiry and the connected methods used to collect and interpret the data, a researcher must first provide the necessary context for understanding their ontological, epistemological, methodological, and axiological perspectives and assumptions.

The Researcher as a Key

As researchers and human beings, we have views of what reality is and how it has, can, or could come to be known. We have ideas about what counts as knowledge or truth, and we have a set of values, which serve as our "*arbiters of preference or choice*" (Lincoln & Guba, 1985, p. 160, italics original). Furthermore, bound within these views and ideas of reality, knowledge, and values, we have an understanding of how we as researchers can come to find them. The process of how we come to find out more about the phenomenon of study is referred to as methods. The nature of the methods researchers use is bound by their perception of reality, knowledge, and values. These elements are discussed in the following sections in a logical hierarchy, which Guba and Lincoln (2001) have suggested as a "necessary primacy" (p. 60), by first addressing the form and nature of reality. Based on what is real and what can be known about what is real, the process or methods used to seek the data to inform the researcher's knowledge is also determined. Throughout all of the decisions made and assumptions had on each of these elements are the axiological elements. Prescribed by the researcher's values, these influence the choice of research focus or topic, paradigm of inquiry, theory used to frame phenomena, and contextual or environmental agents or forces.

The departure point for understanding a researcher's ontological view is best described in the concluding sentence of Bogden and Biklen's (1998) anecdotal story entitled, "*Forever.*" "It is multiple realities rather than a single reality that concern the qualitative researcher" (p. 27). In this, the point is that there is no single reality, but many interpretations of what participants see, perceive, and experience as their realities. To further develop this idea, LeCompte and Preissle (2001) identified five assumptions within a major theoretical perspective of social science research. These assumptions demonstrate the interconnectedness and influence that conceptions of reality have on the framing of an inquiry.

1. Meaning is constructed through social interaction.
2. Individuals act on the basis of meanings they perceive.

3. Meanings change in the course of interaction because of different perceptions held by the actors.
4. Thus, reality is not a prior *given*; it is based upon interpretations and it is *constructed* during interaction between and among individual actors.
5. Reality is not *fixed*, but changes according to the actors and the context (p. 46-47).

If reality is not fixed, but perceived, constructed, and interpreted during an individual's interactions with others, their environment, and the phenomena being researched, *then* describing reality as singular, fragmented, or hypothetical variables may not be the only, or best, way to understand phenomena. Subsequently, the counter to this *if-then* statement is the recognition that there are numerous constructed realities based on individual interpretations that can and should be studied holistically. When phenomena are studied in this capacity, then the increased understanding does not lead to a singular, fragmented reality that is capable of being predicted and controlled, but to a deeper level of understanding of or a clearer illumination of the phenomena under investigation (Lincoln & Guba, 1985). This ultimately has implications for the reconstruction of constructed realities, which serves as the process for seeking a layered, more complex understanding of a phenomenon.

By recognizing the various interpretations of reality that participants in a research study may experience, a more thorough understanding of participant experiences may be achieved. The core tenets of experiential education and experiential learning as underpinnings of innovative pedagogy are based on participants experiencing and interacting with their environments or realities and from these, co-constructing their personal experiences (O'Steen, 2000). Moreover, this particular ontological view lends itself well to studying innovative, engaging, pedagogical theories within the philosophy of experiential education (e.g., service-learning, problem-based learning, inquiry-based learning, and transformative learning). As the relationship between experience and its influence on reality is individualized, an ontological view that recognizes the value of each of these constructed realities based on experience is an important one to recognize. Furthermore, this view provides the frame for understanding the experience students have within a range of experiential learning environments from a more holistic perspective. As noted previously, Guba and Lincoln (2001) selected a logical, if not necessary, primacy for discussing the fundamental elements of inquiry paradigms. With a researcher's ontological perspective established, subsequent answers to the epistemological questions can be addressed. These answers refer to what counts as knowledge and what types of relationships can exist between the inquirer and the topic of inquiry.

It is the inclination of most human beings to seek certainty: "We burn with desire to find solid ground and an ultimate sure foundation whereon to build a tower reaching to the Infinite. But our whole groundwork cracks, and the earth opens to abysses" (Pascal cited in Gergen, 2001). In Pascal's timeless description of our inclination as humans to "find solid ground," the vivid counterpoint of a cracking groundwork is described in order to metaphorically insinuate the subjective element and ephemeral nature of information. What is a solid foundation today may become rife with cracks tomorrow and completely incorrect or false the following day (e.g., the world is flat, phlogiston theory, and alchemy). With an ontological view based on multiple constructed realities, an accompanying epistemological view would be one that aligns with the previously determined ontological view. This alignment requires a certain type of relationship to exist between the knower, the known, and what can be known. This relationship is one that is mutual, interactive, and inseparable.

This epistemological view is best described in relation to the ontological view described previously. In describing the relationship between perspective and knowledge Gergen (2001) cites Hanson with, "seeing is a theory-laden undertaking. Observation of X is shaped by prior knowledge of X" (p. 15). An extension of this postulation one step further could add that an "observation of X is shaped by prior knowledge of X", *and previous interactions, experiences with, and reflections on X.* While this may agree with Hanson's idea

of knowledge, this addition is added in order to clarify the value of interactions, experiences, and reflection in the construction of knowledge. Additionally, Hanson demonstrates the influential relationship that exists between a perceived reality and knowledge. Ontologically speaking, there are multiple realities based on an individual's construction and reconstruction of experiences. If a topic of inquiry is pursued in this light, then the multiple realities and multiple constructions that are being established and explored should be inquired in a similar manner. Meaning, an *a priori* set of hypotheses and variables may not leave room for the emergent factors of the individuals' multiple realities and successive constructions of experiences (realities) leading to knowledge. This is of particular relevance when the topic of inquiry is based in the social sciences and even more strongly supported when the topic of inquiry is exploratory in nature.

Considering the multiple realities and interpretations of individuals based on their previous knowledge, the data synthesized by the inquirer leads to a more individualized body of knowledge. This stands in contrast to a generalizable, universally accepted body of knowledge that is attempted to be established by competing paradigms (e.g., positivist, structural functionalism, or behaviorism). In this more individualized paradigm, experiences and interpretations of experiences are framed by the participant's and the inquirer's prior knowledge and experiences. This can lead to a body of knowledge that is time and context bound and "more or less informed and/or sophisticated" (Guba & Lincoln, 2001, p. 63) than it might otherwise be.

It is within the discussion of paradigms of inquiry that the long established attempts at proving a cause and effect relationship comes into question. Reflecting on the ontological and epistemological views presented in the previous paragraphs, a dialectic perspective to causality should also be expected. This dialectic perspective is articulated as being a replacement for causality. It is referred to conceptually as "mutual simultaneous shaping" (Lincoln & Guba, 1985), and this concept promotes the assertion that the "whole is more than the sum of its parts, [and] each part contains the whole within itself" (Lincoln & Guba, 1985, p. 53). By identifying the "mutual simultaneous shaping" state of entities, the process guiding an investigation should consist of methods that allow for the inquiry's emergent design. For example, the fragmenting of complex phenomenon into simple variables with measureable, hypothetical outcomes can lead to an understanding of that single variable's reaction to treatments, but does not illuminate how the "whole" is actually affected and shaped by its natural surroundings.

Relevant and influential to all paradigmatic elements discussed thus far are the axiological formulations. Essentially, it is the role of values in an inquiry that not only shapes the topic of inquiry, but also shapes the process of data collection, analysis, and presentation. A researcher's axiological formulations that influence a study are in connection with the inquiry process and concomitantly classify the investigation as being value-bound versus value-free. Lincoln and Guba (1985) cite numerous authors from the positivist or conventional paradigm who have recognized that, "values are determinative of decisions about what to study, how to study it, and what interpretations to make" (p. 162). In this, the emic constructions from, of, or about the topic of inquiry may be served. That the emic and etic constructions may be recognized in the axiom of a value-bound inquiry, may then guide the inquirer to a more informed or sophisticated level of understanding.

Ultimately, an inquiry is identified as being value-bound in many ways. Five of the most relevant are presented by Lincoln and Guba (1985) in the form of the following corollaries.

Corollary 1: Inquiries are influenced by *inquirer* values as expressed in the choice of a problem, evaluand, or policy option, and in the framing, bounding, and focusing of that problem, evaluand, or policy option.

Corollary 2: Inquiry is influenced by the choice of the *paradigm* that guides the

investigation into the problem.

Corollary 3: Inquiry is influenced by the choice of the *substantive theory* utilized to guide the collection and analysis of data and in the interpretation of findings.

Corollary 4: Inquiry is influenced by the values that inhere in the *context*.

Corollary 5: With respect to corollaries 1 through 4, inquiry is either *value- resonant* (reinforcing or congruent) or *value-dissonant* (confliction). Problem, evaluand, or policy option, paradigm, theory, *and* context must exhibit congruence (value-resonance) if the inquiry is to produce meaningful results (p. 38).

It is these corollaries that undulate throughout an inquiry. Whether it is the initial decision about what topic to explore and how to explore it, or the inductive data analysis that influences the study through tacit interpretation of data, qualitative investigations of engaging pedagogy are inextricably value-bound.

Like its precursors, the methodological question is informed by the previous questions reviewed in this section. This component of a paradigm is built around the purpose of recognizing "how… we know the world, or gain knowledge of it" (Denzin & Lincoln, 2003, p. 33). The answer to this question attempts to identify the process by which an investigator seeks, collects, and finds out what is knowable. As clearly demonstrated in the previous sections, this process is framed by a researcher's ontological, epistemological, and axiological assumptions; this frame is practically applied by using a methodologically supported design. The previous descriptions of our personal perspectives of reality, knowledge, and values as researchers coalesce to influence the actual implementation of an inquiry. This holds true for any researcher entering a field armed with nothing more than their own worldview, relevant literature, and their initial questions.

It is within this presentation of our worldview that an aligned paradigm of inquiry guiding a study can emerge. From the ontological, epistemological, axiological, and methodological perspectives addressed thus far, a researcher's key has been cut. The door, or paradigm of inquiry, that this key seems to most align is Naturalistic Inquiry (Lincoln & Guba, 1985), constructivism (Guba & Lincoln, 2001), the interpretative approach (Davidson & Tolich, 2003), and the phenomenological approach (Bogdan & Biklen, 1998). While it is recognized the axioms and methods guiding these paradigms of inquiry differ from one another, it is the axioms and methods presented in Naturalistic Inquiry (1985) that most align with the worldview presented here and those phenomena related to experiential education and student engagement. This paradigm of inquiry serves as the door most suitable for facilitating studies on students' experiences with experientially based pedagogies. Typically, research questions are most effectively answered by beginning a study with an exploratory viewpoint, and then shifting into a more descriptive viewpoint (e.g., trying to understand how students' engagement is influenced or determining what students experience within an experientially based classroom). An inquiry into experiential educative environments, the nature of the questions guiding it, and the researchers' worldview can clearly align with the axioms and characteristics of "logical dependence" (p. 39-46) found within a Naturalistic Inquiry (Lincoln & Guba, 1985).

Not only do the axioms of Naturalistic Inquiry align with our worldview, but they also seem to align with the axioms underpinning the philosophy of experiential education, theory of experiential learning, and the pedagogy of service-learning. The axioms guiding Naturalistic Inquiry are as follows:

1. The nature of reality – *There are multiple constructed realities that can be studied only holistically; inquiry into these multiple realities will inevitably diverge (each inquiry raises more questions than it answers) so that prediction and control are unlikely outcomes although some level of understanding (verstehen) can be achieved.*
2. The relationship of knower to the known – *The inquirer and the "object" of inquiry interact to influence one another; known and known are inseparable.*

3. The possibility of generalization – *The aim of the inquiry is to develop an*d *idiographic body of knowledge in the form of "working hypotheses" that describe the individual case.*
4. The possibility of causal linkages – *All entities are in a state of mutual simultaneous shaping so that it is impossible to distinguish causes from effects.*
5. The role of values – *Inquiry is value bound in at least five ways, captured in the corollaries that* are listed previously (p. 67-68).

These axioms underpin Naturalistic Inquiry and subsequently underpinned the example investigation presented in the following section. These particular axioms, and the implications they have for facilitating inquiry, are addressed in detail in the next section, which justifies the methodological and practical decisions made throughout the example study in accordance with the axioms underpinning Naturalistic Inquiry. Practically, the data collection methods supported by the assumptions and views presented in the previous section encompass well-established qualitative and quantitative methods. See Table 1.1 for greater detail of each relevant axiom and its application in praxis.

Once the Door is Unlocked: A Case Example

The *why* of research (paradigm of inquiry, literature reviewed, gap left in literature, purpose of investigation) is very important to consider, but it is the *how* of research that concerns this section of the paper and will serve as the case example of how a Naturalistic Inquiry was facilitated to illuminate the student experience and their engagement within an experiential education environment. When it comes to the implementation of a Naturalistic Inquiry, there are a number of practical characteristics that shape an investigation's design. In the following section, each of these characteristics will be explored in light of the methodological decisions from a recent PhD research study on the influence of service-learning on student engagement (*A Naturalistic Inquiry of Service-Learning in New Zealand University Classrooms: Determining and Illuminating the Influence on Student Engagement; Perry, 2011*).

This example of a Naturalistic Inquiry investigated the use of two different approaches to service-learning pedagogy (Approach I and Approach II service-learning) in two university classrooms in New Zealand. The study sought to describe and illuminate the experiences of 18 students in those two approaches to service-learning (9 from each approach), compared and contrasted those experiences with an established model of service-learning (Clayton et al., 2005), and illuminated the complex, but influential relationship between service-learning and student engagement. Course lecturers also served as participants with regard to how each course was created, the intentions of design, and perspective on service-learning's value. The axioms of Naturalistic Inquiry align with the most appropriate methods of collecting data on these two approaches to service-learning. In this, the characteristics indicative of a Naturalistic Inquiry address the study (Appendix A).

Conclusion

The relationship that exists between a researcher's worldview, the paradigm of inquiry aligned with, and the phenomenon being investigated, can weave a complex web. The purpose of this paper is to demonstrate an idiographic portrayal of two researchers' worldview through an ontological, epistemological, axiological, and methodological primacy, and how it served as a key designed to unlock paradigms of inquiry. Aligning with our worldview and phenomena related to student engagement and experiential education, the particular paradigm of inquiry unlocked was Naturalistic Inquiry.

Again, it is who we are, what we have experienced, and what we think we know about the elements we encounter while doing research that will fundamentally influence the data we collect, the way we analyze it, and the findings we present. To demonstrate this, Dewey once compared doing philosophy to the action of climbing mountains (as cited in Fishman & McCarthy, 2007). He believed that the good in philosophy, or climbing mountains in the

metaphor, is to see other mountains we still have yet to climb. This analogy clearly demonstrates the concept of perspective and positionality, and also demonstrates the greater purpose of qualitative research methodology. The good in doing qualitative research is much like climbing mountains. By doing, this you will see other mountains, from a different vantage point, in a new context, at a new time, subsequently leading to a more tuned, further evolved view of the world and the phenomenon being studied.

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Appendix A

Naturalistic Inquiry's theoretical axioms and methodological applications in praxis

Characteristic	Axiomatic Support from *Naturalistic Inquiry	Researcher's Practical and Methodological Responses
Natural Setting	"realities are wholes and cannot be understood in isolation from their contexts… research interaction should take place with the entity-in-context for fullest understanding…" (p. 39).	The research approached gatekeepers to each site (service-learning courses) and received Human Ethics approval (HEC2008/147). The researcher then established his role at each site (see *Human as Instrument*).
Research Participants (Purposive)	"maximum variation sampling… increased confidence in common patterns… purposive sampling… increases the scope… of data exposed as well as… the full array of multiple realities to be uncovered" (p. 200 & 40).	Participants were purposively identified from within each class by observations and preliminary data from AUSSE. The participants' scores where then categorized into 3 levels of engagement: *LOW*, *MOD.*, & *HIGH*, based on the mean of their class's data set.
Human as Instrument	"humans [are] primary data-gathering instruments because it would be virtually impossible for a nonhuman instrument to adjust to the variety of realities encountered… it would intervene with the mutual shaping… and it is value-based… but only the human [could] identify the resulting biases" (p. 39-40).	*Approach I*: The research served primarily as a researcher and secondarily as a tutor to this class. He attended all lectures, tutorials, and group meetings; this helped establish rapport and a

		greater depth of understanding; *Approach II*: The researcher served primarily as a researcher and secondarily as a student in this class. He was a member of a service group and this helped establish rapport and a deeper understanding – ultimately both roles led to "thick description." *Preliminary Survey (AUSSE)*: focused at university-wide level of engagement scores and tool for establishing purposive sample.
Obtaining Quantitative Data	"note the absence of an anti-quantitative stance… indeed there are many opportunities for the naturalistic investigator to utilize quantitative data…" (p. 198-199).	*Follow-Up Survey*: focused at the class-level for course specific engagement scores.
Obtaining Naturalistic/ Qualitative Data	"the human as instrument is inclined toward methods that are extensions of normal human activities: listening, speaking, reading… therefore [researchers] tend toward interviewing, observing, mining available documents, taking account of non-verbal cues, and interpreting inadvertent unobtrusive measures" (p. 199).	For both approaches, there were weekly observations of lectures (*field notes*), bi-weekly observations of service-learning group meetings (*field notes*), observations of project implementations (*field notes*), semi-structured interviews with 18 participants (9 from each approach; *transcriptions &*

		coding), document/artifact analysis (reflection papers, presentations, emails; *coding*), final focus group/interviews with teachers (*transcription & coding*).
Processing Naturalistic Data	The goal in processing data for interpretation is "to reconstruct the categories used to conceptualize experiences and world view… [through] inductive data analysis... [which] is aimed at uncovering embedded information and making it explicit" (p. 203 & 334).	*Micro-Analysis*: a systematic unitization or coding process was adopted for all data sources; *Mid-Analysis*: a systematic combining of provisional categories and cross-coding of unitized data; *Meta-Analysis*: systematically/organically shaped provisional categories into emergent themes presented as a model.
Reporting Naturalistic Data	"the case report… [demonstrates] thick description, axiomatic representations, and vicarious reader experience... it is emic, builds on tacit knowledge, demonstrates interplay between knower and known, probes for internal consistency, and is a grounded assessment of context" (p. 214 & 359).	*Thick Description*: achieved by prolonged engagement in the field and an iterative redundancy of emergent design; *Axiomatic Representation*: achieved by communicating multiple realities; *Vicarious Reader Experience*: achieved by intentional writing in a grounded, holistic, and

		familiar way.
Trustworthiness	"the ultimate purpose of any report is to improve the reader's level of understanding of whatever the report deals with… [established by] credibility, transferability, dependability, and confirmability" (p. 219 & 358).	*Credibility*: prolonged engagement, persistent observation, triangulation, peer debriefing, member checking; *Transferability*: thick description, emergent themes; *Dependability*: credibility, triangulation, inquiry audit; *Confirmability*: audit trail, reflexive journal, triangulation.
Notes	**All citations come from Naturalistic Inquiry (Lincoln & Guba, 1985).*	