# VIEWING AGRICULTURAL EDUCATION RESEARCH THROUGH A QUALITATIVE LENS

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## Abstract

*The Journal of Agricultural Education has primarily published research that uses quantitative research methods. Perhaps this is due partly to the lack of a qualitative research conceptual framework to guide our profession. Most researchers in agricultural education were academically prepared to conduct empirical research. Those who are in the professoriate are teaching and mentoring graduate students without the prerequisite skills to conduct qualitative research. In order to practice "good social science" research, agricultural educators need to understand the history of qualitative research, common types used in education, sampling techniques, data collection, analysis procedures, and issues of rigor and quality for the qualitative research paradigm. This study uses a heuristic research approach through a content analysis of the literature to create a qualitative research conceptual framework to guide the Agricultural Education profession.*

## Introduction

In 2003, Dyer, Haase-Wittler and Washburn indicated that the majority of research articles published in the *Journal of Agricultural Education* used quantitative, applied survey research methods. Their sub-heading on *Philosophy of Research* was based upon a commonly used reference in research methods, Gall, Borg, and Gall (1996). Essentially it was stated that researchers approach inquiry based upon "epistemological assumptions about the nature of scientific knowledge and how to acquire it" (p. 63). Campbell and Martin (1992) emphasize there are two world views, one based upon breaking information down so that it can be measured (positivistic) and the other a holistic view (interpretive). Other researchers suggest that there are actually three different methodological approaches: empirical (positivist), hermeneutic (interpretive) and critical methodologies (Merriam, 1998; Miller, 2006; Wardlow, 1989). Hermeneutic and critical methodologies fall under the qualitative research paradigm. Our profession has a few qualitative researchers, although "those operating in this paradigm may have experienced difficulty in gaining acceptance among peers" (Miller, p. 109). Based upon previous articles on the types of research published in the *Journal of Agricultural Education,* this appears to be the case.

Qualitative research can be defined in general terms as "multimethod in focus, involving an interpretive, naturalistic approach to its subject matter…Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 1994, p. 3).

## Purpose and Method

The purpose of this study was to build a qualitative conceptual framework to guide the profession. With a heuristic research approach, this study used content analysis through a review of the agricultural education and qualitative research literature to build the conceptual framework. The analysis included the history of qualitative research, types, sampling, data collection, data analysis, coding procedures, and issues of rigor and trustworthiness for the qualitative research paradigm. A conceptual model is presented in the final section of the manuscript.

Heuristic research "refers to a process of internal search through which one discovers the nature and meaning of experience and develops methods and procedures for further investigation and analysis" (Moustakas, 1994, p. 17). It is a type of phenomenological research where "the researcher is present throughout the process and, while understanding the phenomenon with increasing depth, the researcher also experiences growing self-awareness and self-knowledge" (Moustakas, p. 17). This is sometimes called an "aha" moment; the word *eureka* comes from the word *heuristic*.

## Qualitative Research from the Agricultural Education Perspective

Miller (2006) provided a philosophical framework for agricultural education research. He expressed concern that others have a low opinion of agricultural education research because it is "soft" or social science research and not experimental. He suggested that "the problem with agricultural education research is not always poor quality; the problem may be the lens through which agricultural researchers view the standards for quality research. Their lens is 'positivistic,' and has a discipline-specific focus" (p. 107). Miller continued that "our interests are primarily in interpretive and critical science. Yet, most of our preparation has been in learning to conduct empirical research. Our methods must be broadened and each interest area represented in departmental faculty" (Miller, p. 108).

In 1987, Warmbrod suggested that graduate programs preparing future agricultural education faculty should devote more attention to research methodology, data analysis, and reporting. Miller (2006) agreed and suggested that new hires should have these broadened research methodological and interdisciplinary skills. He also contended that "considerations of other approaches to inquiry beyond the traditional positivistic approach are not often included in the graduate programs preparing future agricultural education researchers" (Miller, p. 114). Although some of the institutions preparing graduate students require qualitative methods as a part of the doctoral program, most agricultural education departments do not teach a qualitative research course at the present time. Many professors who are mentoring graduate students have had no formal coursework in qualitative methods. In reviewing the research capacity of our profession, qualitative research skills had the lowest score for faculty expertise (Greiman & Birkenholz, 2003).

Williams (1997) suggested that graduate students should practice "good science" based upon seven core concepts:

> (1) correct choice of a research problem, (2) logical design, (3) sustained productivity, (4) insights based on interpretation of research results, (5) contribution of the conceptual framework of a discipline, (6) knowledge of the developing literature in a chosen field, and (7) effective communication of findings in professional forums. (p. 32)

These "good science" concepts are representative of both positivistic and qualitative research paradigms and serve to guide our profession in terms of rigor and quality.

Due to the vast majority of quantitative research in the *Journal of the American Association of Teacher Educators in Agriculture* (84%), Wardlow (1989) posited alternative modes of inquiry for the profession. His implications noted that "social science research does not always lend itself to quantitative description. There are phenomena for which a deeper understanding of personal attitudes and values is required" (p. 5). These alternative modes of inquiry are often called *post*-positivistic but according to some historians are actually *pre*-positivistic. Qualitative approaches to research have historically guided practice for agriculture.

## History of Qualitative Research

Life does not come to us like a math problem, but more like a story. There is a setting or context, there are characters or respondents, and there is conflict or a

problem to address. Storytelling is how we have traditionally learned and passed on knowledge from one generation to the next. Folklore, oral history, and apprenticeships were common ways to pass on knowledge before the written word.

Early qualitative methods evolved out of the field of sociology in the 15th and 16th centuries as a result of problems encountered by early explorers such as Columbus (Vidich & Lyman, 1994). It was not until the 17th century that modern science was emphasized. Before sociology was a "profession," descriptive field notes (thick description) were communicated primarily by missionaries and explorers, with a Western bias. Comte, the social theorist who was the founder of sociology in 1842, proposed the "comparative method" to study the evolution of culture and civilization in the 19th century, the time period when qualitative research emerged as a field (Atkinson & Hammersley, 1994; Bogdan & Biklen, 1992, Tesch, 1990; Vidich & Lyman).

From the early 1900s until World War II, qualitative research within the social sciences, such as the Chicago School, used positivist perspectives. They produced "objective" descriptions deemed to be "valid" and "reliable." The subjectivity and bias of the social science researcher was thought to obscure accuracy and needed to be eliminated (Mottier, 2005). It was not until the interpretive return of subjectivity that disciplines such as ethnomethodology, phenomenology, and hermeneutics fully evolved (Rabinow & Sullivan, 1987). The term hermeneutics is generally used to refer to the interpretation of the meaning of cultural objects (texts, documents) and social practices (Mottier). Post-positivistic philosophies accept that inquiry is hermeneutic, where interpretation and explanation, objectivity and subjectivity cannot be completely separated (Mottier).

> Whereas positivist research aims to offer "objective" accounts of reality, post-positivist perspectives recognize the flawed nature of all methods, and therefore the impossibility of ever fully achieving this aim. The aim of authors such as Glaser and Strauss, Corbin, Miles and Huberman (and more generally, the grounded theory school) was to increase the "scientific" nature of social science research by developing as much as possible the equivalence to quantitative criteria of "good" research practice…Interpretive approaches share a common emphasis on the analysis of constructions of meaning, of the ways people make sense of their everyday activities and surroundings. In contrast to positivist and post-positivist perspectives, subjectivity is seen as a crucial and positive component of research in interpretive approaches (Mottier, 2005).

## Common Types of Qualitative Research in Education

Terms often associated with qualitative research include naturalistic inquiry, interpretive research, field study, participant observation, inductive research, case study, and ethnography (Merriam, 1998). The characteristics of this paradigm are (a) an interest in understanding the meaning people have constructed, (b) understanding the phenomenon from the participants' perspectives (emic), (c) the researcher is the primary instrument for data collection and analysis, (d) it usually involves fieldwork, (e) it primarily employs an inductive research strategy, and (f) the product is richly descriptive (Merriam, pp. 6-8). Additionally, the research design is emergent and flexible, the sample size is small, and the researcher spends considerable time in the natural setting.

Although approximately 26 approaches to the methodology exist, there are five types commonly used in educational research: (a) basic or generic; (b) ethnography; (c) phenomenology; (d) grounded theory; and (e) case study. For the basic or generic study, a researcher would include description, interpretation, and understanding in the form of recurrent patterns, themes or categories (Merriam, 1998). This is the most common type of qualitative method used in agricultural education.

Ethnography focuses on society and culture from the anthropological view. The study seeks to uncover and describe beliefs, values, and attitudes that impact group behavior (Merriam, 1998). Ethnography involves extensive fieldwork because it is through direct observations (participant observation) of the activities, communications and interactions with the people that the results emerge (Atkinson & Hammersley, 1994; Moustakas, 1994). This approach requires skill with writing detailed field notes and gathering a variety of information from different perspectives. Quotations should be used to represent participants' viewpoints in their own words (Moustakas). This approach would be appropriate for classroom-based, international, and extension education research.

Phenomenology is based upon experiential underpinnings of knowledge from the field of sociology (Holstein & Gubrium, 1994). All qualitative research has its philosophical roots in phenomenology, but there are distinctions that make a study a phenomenological one. Empirical phenomenological research is concerned with the *essence* or structure of a phenomenon. It uses data that are the participant's and researcher's firsthand experiences (Merriam, 1998; Moustakas, 1994). According to Patton (2002), essences are the core meanings mutually understood through a phenomenon commonly experienced. The approach "involves a return to the experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience" (Moustakas, p. 13). The original data is comprised of naïve descriptions obtained through open-ended questions and dialog. Then the researcher describes the structures of the experience based on analysis and interpretation of the story. A type of phenomenological research is heuristics.

> Heuristics begins with a question or problem which the researcher seeks to illuminate or answer. The question is one that has been a personal challenge and puzzlement in the search to understand one's self and the world in which one lives (Moustakas, p. 17).

Grounded theory is designed to build a substantive theory regarding some aspect of practice in the real world (Merriam, 1998). The approach is focused on understanding the nature and meaning of an experience for a particular group of people in a particular setting (Glaser & Strauss, 1967). According to Strauss and Corbin (1990), grounded theory should be true to everyday reality, make sense to those involved, and be applicable to a variety of related contexts. Grounded theory researchers continually question gaps in the data and stress open processes. Context and social structure is important in order to generate theory and data. Data collection, coding, and analysis occur simultaneously. It is an inductive process where theory must be grounded in the data (Moustakas, 1994).

Often researchers refer to the case study primarily as a style for reporting the results of a qualitative study. Case studies can be used in both quantitative and qualitative research. Case study is an intensive, holistic description and analysis of a single unit or bounded system and can be combined with any of the other types previously mentioned (Merriam, 1998). According to Stake (1994) "the reader comes to know some things told, as if he or she had experienced them (p. 240). Case study research includes "detailed contextual analysis of a limited number of events or conditions and their relationships" (Dooley, 2002, p. 335). A good case includes the setting, characters, events, problems, and conflicts, much like a richly detailed story.

## Qualitative Sampling and Data Collection Methods

Once a researcher identifies the problem and the most appropriate qualitative approach, the next step is to determine the unit of analysis (Merriam, 1998). Deciding where, when, who, and how are critical to any study design. The "who" dimension in qualitative research is a nonprobabilistic sample, often called purposive or purposeful. "Purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain

insight and therefore must select a sample from which the most can be learned" (Merriam, 1998, p. 61). To select a purposeful sample, specific criteria should be established that reflect the focus of the study. Types of purposeful sampling include (a) typical, (b) unique, extreme or deviant, (c) maximum variation or heterogeneity, (d) convenience, and (e) snowball, chain or network (Berg, 2001; Merriam; Patton, 2002).

For a typical sample, the researcher is seeking the "average person, situation, or instance of the phenomenon of interest" (Merriam, 1998, p. 62). A unique sample reflects the atypical or unusual perspective. Maximum variation attempts to capture the most divergent viewpoints. Convenience sampling can be used based on time, money, location, and availability, although caution is advised that credibility may be lost if this is the only basis on which sample selection is made (Merriam). Snowball, chain, or network sampling involves asking each respondent for additional respondents based upon the determined criteria. For all these examples, a set sample size is not the goal. Qualitative sampling is emergent and not set a priori. Lincoln and Guba (1985) recommend selection to the point of redundancy or data saturation.

Primary data collection methods include interviews, focus groups, observations, and unobtrusive measures (documents and other archival data). Interviews have been called a conversation with a purpose (Erlandson, Harris, Skipper, & Allen, 1993). Interviews can be (a) highly structured with the wording and order of questions predetermined, (b) semi-structured with a mix of more and less structured questions, or (c) unstructured with open-ended questions that provide flexibility (Merriam, 1998). The first approach is actually an oral form of a survey and is more appropriate for positivistic research. Most qualitative researchers are guided by a set of basic questions and issues to explore but deviations may occur in order to capture nuances and emerging trends not previously determined. Questions that stimulate longer answers will produce richer data. Interviewers should avoid Yes-or-No questions and leading the respondent.

A focus group can be defined as a "carefully planned series of discussions designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment" (Krueger & Casey, 2000, p. 5). Essentially it is an interview designed for small groups that is guided by a facilitator or moderator (Berg, 2001). It can be used for collecting qualitative data in settings where a one-shot collection is appropriate. Interactions among and between respondents should stimulate active dialog about the phenomenon under investigation.

In combination with an interviewing technique, observations can maximize the researcher's ability to grasp motives, beliefs, concerns, and interests. Observations during data collection provide a framework for the context and help the researcher interpret findings built upon tacit knowledge (Lincoln & Guba, 1985). Patton (2002) adds that a skilled observer learns to pay attention to what they see and hear and to then write descriptive field notes. Knowing how to determine details from trivia and validate or triangulate what is observed with other data sources allows the researcher to better understand and capture the context (Patton). Observations can also range from focused to unstructured.

Another rich source of data are unobtrusive measures—documents, letters, memos, agendas, meeting minutes, records, newspaper clippings, diaries, pictures, websites—just about any archival information available. As a part of the research design and initial entry into a research site, the researcher should ask for access to potentially important documents and records. This type of data provides information that cannot be observed. Documents are "valuable not only because of what can be learned directly from them but also as stimulus for paths of inquiry that can be pursued only through direct observation and interviewing" (Patton, 2002, p. 294). All of these data collection types help to tell the story from multiple perspectives.

## Qualitative Data Analysis and Coding Procedures

Tesch (1990) suggests that there are three overarching types of qualitative analysis dependent upon the philosophical approach. The first is when the interest is in the characteristics of language as communication or as the cognitive representation of culture. *Content analysis* is commonly used for this approach. This procedure involves designing relevant categories and sorting words, sentences, phrases, and paragraphs into these categories.

The second type of analysis is when the interest is in the discovery of regularities and the patterns or connections between and among these regularities. The *constant comparative method* is an example of this type of analysis. In theory construction, concepts are first identified through open coding by looking at the "data line by line for empirical indicators consisting of behavioral actions and events, observed and described in documents and in the words of the interviewees" (Tesch, 1990, p. 85). A provisional code or name is given to that category. Once the category becomes clear, the researcher uses axial coding, consisting of intense analysis with one category at a time resulting in "cumulative knowledge about relationships between that category and other categories and subcategories" (Tesch, p. 86). The researcher uses specific criteria to create core categories or themes through selective coding in the final stage.

A third type of analysis is when the interest is in the comprehension of the meaning of text or action (Tesch, 1990). In order to check research bias in this case, a technique called bracketing can be used to suspend the researcher's meanings and interpretations and enter into the world of the unique individual who was interviewed (Tesch). The researcher reads the entire set of data and immerses in it holistically. Meaningful units relevant to the research questions become the theme and the process continues similarly to the constant comparative method.

Qualitative data analysis begins when the first piece of data is collected. Although variation in data analysis and coding procedures exists, there are some common features (Miles & Huberman, 1994). Most qualitative researchers affix codes to a set of field notes drawn from observations or interviews, noting reflections in the margins. A technique for sorting and searching through data to identify similar words and phrases, relationships, patterns, and themes is always present (called unitizing). Unitizing data is defined as "disaggregating data into the smallest pieces of information that may stand alone as independent thoughts in the absence of additional information other than a broad understanding of the context" (Erlandson et al., 1992, p. 117). Data analysis throughout the process allows the researcher to "test" working hypotheses that emerge from the initial patterns for the next wave of data collection. Qualitative researchers continually compare incidents and compile or sort data by "look-alike" characteristics. The constant comparison starts to generate theoretical properties (Glaser & Strauss, 1967).

Miles and Huberman (1994) purport that qualitative analysis consists of three interactive processes: (a) data reduction; (b) data display; and (c) conclusion drawing and verification. Data reduction involves selecting, focusing, simplifying, abstracting, and transforming the data that appear in field notes or transcripts. Data display often takes the form of 3x5 notecards, matrices, graphs, charts, or diagrams—all designed to assemble organized information so the researcher can begin to draw conclusions. Coding, storage, and retrieval methods allow the researcher to verify the meanings that have emerged from the data. "Qualitative data analysis is a continuous, iterative enterprise" (Miles & Huberman, p. 12). Once these three processes are complete, the researcher is ready to tell the story.

## Issues of Rigor and Trustworthiness in Qualitative Research

The issue that seems to receive the most discussion at our national meetings is verifying qualitative methods, especially the lack of "generalizability" due to small sample size. Lincoln and Guba (1985) provide techniques for establishing rigor and

trustworthiness for qualitative research. Trustworthiness relates to the degree of confidence that the findings of the study represent the respondents and their context. To operationalize with positivistic terms, internal validity is the extent to which the findings of the research display a relationship with reality (the truth). This "truth value" is based upon one reality; qualitative research assumes that there can be multiple realities (Erlandson et al., 1992; Lincoln & Guba). Thus, the term internal validity is not appropriate. The concept of truth value is nonetheless important. In qualitative research it is called credibility. *Credibility* is achieved by representing those multiple realities adequately. Specific strategies to accomplish this task include (a) prolonged engagement, (b) persistent observation, (c) triangulation, (d) referential adequacy materials, (e) peer debriefing, and (f) member checks (Erlandson et al.; Lincoln & Guba).

Prolonged engagement requires that the researcher spend sufficient time in the context to overcome distortions. Prolonged engagement helps the researcher to build trust, develop rapport with respondents, and to obtain a wide scope of accurate data. The researcher should be able to interpret daily events and understand the phenomenon as a result.

> While the researcher may be able to understand the events that occur and the relationships that exist in social context in the same way that they are understood by a person who is part of that context, nothing is added to what could be told by any intelligent "native" unless the researcher can identify those events and relationships that are most relevant for solving a particular problem or resolving a particular issue. (Erlandson et al., 1992, p. 30)

This quote describes the importance of persistent observation in order to pursue interpretations through an iterative process of constant analysis. Persistent observation also helps the researcher obtain in-depth data and to sort relevancies from irrelevancies. The "purpose of persistent observation is to identify those characteristics and elements in the situation that are most relevant to the problem or issue being pursued and focusing on them in detail" (Lincoln & Guba, 1985, p. 304).

The term triangulation derived from radio broadcasting where the angle of antennas pinpointed the source. Although some believe qualitative researchers should use three data collection methods to achieve triangulation, the concept is more about verification than number of methods. It can be achieved with the use of multiple and different sources, methods, investigators, and theories (Lincoln & Guba, 1985).

Referential adequacy materials (documents and other archival data) provide a holistic view of the context and aid in the meaning or understanding of the phenomenon for the researcher's analyses and interpretations. These materials provide a "slice of life" that can be obtained only using unobtrusive measures (Erlandson et al., 1992).

Being immersed in the context is important, but sometimes it is good to step away to reflect and "review perceptions, insights, and analyses with professionals outside the context who have enough general understanding of the nature of the study to debrief the researcher and provide feedback that will refine and, frequently, redirect the inquiry process" (Erlandson et al., 1992, p. 31). This is called peer debriefing. Peer debriefing allows the researcher to test working hypotheses and find alternative explanations.

"The member check, whereby data, analytic categories, interpretations, and conclusions are tested with members of those stakeholding groups from whom the data were originally collected, is the most crucial technique for establishing credibility" (Lincoln & Guba, 1985, p. 314). Member checks can occur during the interview as a summary back to the person who provided it or through transcripts sent to respondents for feedback, corrections, and clarifications.

External validity is judged by whether the findings can be applied in other settings or with other subjects (generalizability). The generalizability of a study in the traditional sense does not fit within the axioms of qualitative research because the context, and

respondents within it, will never be the same. That is not to say that a qualitative study will have no relevance or applicability for other contexts because *transferability* can occur if there are shared characteristics. In order for transferability to occur, the researcher must collect detailed data in context and report the data using thick description (Erlandson et al., 1992). From these thick descriptions, the reader vicariously enters into the setting and can make judgments about the applicability of the data to their context. Transferability is grounded in adequate description, thus it is imperative that the data be provided by those who know it best. Purposive or purposeful sampling helps to "maximize the range of specific information that can be obtained from and about that context" (Erlandson et al., 1993, p. 33).

Quality research also provides evidence that if a study were to be replicated with similar subjects, the findings could be repeated. Reliability of the instrument is important to ensure consistency and accuracy when collecting quantitative data. Reliability depends on replication. As stated previously, with multiple realities and varying contexts, replication of qualitative findings is impossible (although methods could be replicated). For qualitative studies the researcher wishes to ensure *dependability* of the findings. The intent is to track the process by providing an audit trail with documentation on methodological decisions and reflections. This is called the dependability audit.

Researchers seek to check biases and ensure that the findings are the products of the data collected. Maintaining objectivity or neutrality requires a "distance" between the researcher and subjects. Qualitative researchers are fully engaged and interacting with the respondents—events that allow for richer description and deeper understanding. That is not to say that the researcher should manipulate the findings in a particular direction. The qualitative researcher must take special precaution to check biases and ensure that the findings are indeed the words, feelings, and beliefs of the respondents. Data must be traceable to the original (raw) data sources and interpretations logically assembled (Erlandson et al., 1994). This is called *confirmability*. The use of an audit trail for dependability of the processes also can be used to judge the products of the inquiry. In this case, it is called a confirmability audit. Conclusions, interpretations, and recommendations should be traced directly back to their sources. These trustworthiness measures ensure that the researcher will tell the story giving voice to the respondents.

## Conclusions, Recommendations, and Implications

Through the heuristic approach and content analysis of the literature, a conceptual framework appropriate for agricultural education emerged (Figure 1).

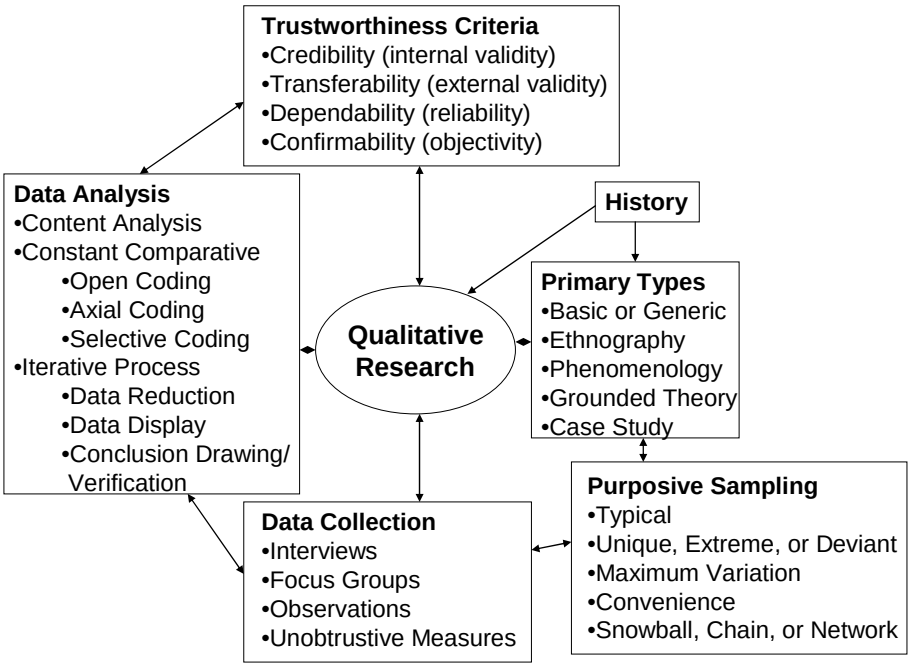


*Figure 1.* A qualitative research conceptual framework for agricultural educators.

In the center, represented by a circle, is the overarching concept that served as a focus for this review. The arrows both enter and exit the qualitative research circle because methods continue to evolve over time for specific needs and disciplines. One exception to this is the history of qualitative research box, which is mono-directional, because history has defined, shaped, and provided the context for the conceptual model as it stands today. The historical context could change qualitative research methods in the future, as was illustrated in how the pendulum swung from subjectivity to objectivity (Chicago School in early 1900s) back to subjectivity. The concepts are neither linear nor cyclical—instead the process is continuous and iterative (Miles & Huberman, 1994).

As Williams (1997) suggested, agricultural educators need to practice "good science" (or should we say good *social* science). Ultimately, the choice of research problem should drive the methods used for sampling, data collection, and analysis. A logical research design helps the researcher to focus on the strategies or techniques to use. In qualitative research, emergent design provides the researcher the flexibility to change processes to ensure interpretations are based upon the perspective of the respondents. Fully describing the phenomenon under investigation allows both the researcher and the reader of the research to determine transferability and relevance of the research. Through qualitative approaches, the researcher is able to contribute theory grounded in practice to enhance the conceptual framework of the discipline. Thick description and case study reporting provide the reader vicarious experiences to better understand the phenomenon (communicating the findings through storytelling). It is recommended that agricultural education researchers develop appropriate research designs to solve complex problems relevant to the profession. An implication exists that qualitative research methods should be taught in our graduate programs and future professional development sessions at our professional meetings should focus on qualitative research methods.

## References


Atkinson, P. & Hammersley, M. (1994). Ethnography and participant observation. In N. K. Denzin, & Y. S. Lincoln, (Eds.) *Handbook of Qualitative Research,* (pp. 248-261). Thousand Oaks, CA: Sage.

Berg, B. L. (2001). *Qualitative research methods for the social sciences*. Needham Heights, MA: Allyn & Bacon.

Bogdan, R. C. & Biklen, S. K. (1992). *Qualitative research for education: An introduction to theory and methods*. Boston: Allyn & Bacon.

Campbell, M. & Martin, R. (1992). Qualitative research as a tool for agricultural and extension education. *Journal of Agricultural Education*, *33*(4), 55-60.

Denzin, N. K. & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.

Dooley, L. M. (2002). Case study research and theory building. *Advances in Developing Human Resources, 4*(3), 335-354.

Dyer, J. E., Hasse-Wittler, P. S. & Washburn, S. G. (2003). Structuring agricultural education research using conceptual and theoretical frameworks. *Journal of Agricultural Education, 44*(2), 61-74.

Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: A guide to methods.* Newbury Park, CA: Sage.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction*. White Plains, NY: Longman.

Glaser, B. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York, NY: Adeline.

Greiman, B. C. & Birkenholz, R. J. (2003). Agricultural education research capacity in NCA-24 institutions. *Journal of Agricultural Education, 44*(3), 66-77.

Holstein, J. A. & Gubrium, J. F. (1994). Phenomenology, ethnomethodology, and interpretive practice. In N. K. Denzin, & Y. S. Lincoln, (Eds.) *Handbook of Qualitative Research,* (pp. 262-272). Thousand Oaks, CA: Sage.

Krueger, R. & Casey, M. A. (2000). *Focus groups: A practical guide for applied research* (3rd edition). Thousand Oaks, CA: Sage.

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

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* San Francisco, CA: Jossey-Bass.

Miller, L. E. (2006). A philosophical framework for agricultural education research. *Journal of Agricultural Education, 47*(2), 106-117.

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

Mottier, V. (2005, May). The interpretive turn: History, memory, and storage in qualitative research. *Forum: Qualitative Social Research*, *6*(2). Retrieved July 11, 2006, from http://www.qualitative-research.net/fqs-texte/2-05/05-2-33-e.htm

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

Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.

Rabinow, P. & Sullivan, W. (1987). *Interpretive social science*: *A second look*. Berkeley, CA: University of California Press.

Stake, R. E. (1994). Case studies. In N. K. Denzin, & Y. S. Lincoln, (Eds.)

*Handbook of qualitative research,* (pp. 236-247). Thousand Oaks, CA: Sage.

Strauss, A. & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. London: RoutledgeFalmer.

Vidich, A. J. & Lyman, S. M. (1994). Qualitative methods: Their history in sociology and anthropology. In N. K. Denzin, & Y. S. Lincoln, (Eds.) *Handbook of qualitative research,* (pp. 23-59). Thousand Oaks, CA: Sage.

Wardlow, G. (1989). Alternative modes of inquiry for agricultural education. *Journal of Agricultural Education*, *30*(4), 2-6.

Warmbrod, J. R. (1987, February). Research in agricultural education: Requisites for further progress. *Proceedings of the 41st Central States Agricultural Education Research Conference*.

Williams, D. L. (1997). Focusing agricultural education research: An agenda for the graduate student. *Journal of Agricultural Education, 38*(3), 28-35.

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