QUALITATIVE DATA COLLECTION METHODOLOGIES IN AGRICULTURAL EDUCATION RESEARCH

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Introduction

As we turn away from the twentieth century, many in agricultural education are poised to take advantage of the numerous opportunities and resources that have been made available to us. The use of pure qualitative strategy and methodology as a research design is one such resource. Historically, agricultural educators have focused their research efforts in the quantifiable realm, while the more interpretivist designs have been labeled as suspect (Balschweid, Thompson, & Cole, 1999).

The interpretivist paradigm strives to investigate the whole as well as humanistic subsections of a research topic with emphasis on understanding and interpreting complex social interrelations, not unlike those in agricultural education issues and trends (Woods & Trexler, 2000). One of the corner stones of qualitative research is its flexibility throughout all phases of the research process. Qualitative data collection methodologies are no exception. Data collection methods in qualitative research should correspond with the researcher's chosen strategy, allowing for the richness of investigation that qualitative measures are known for. "The interpretivist paradigm and its supporting methods provide much promise" (Woods & Trexler, 2000).

Theoretical/Literature Base

Qualitative research has a complex combination of traditions and practices that cut across many disciplines which in turn help to define it. Therefore, qualitative research does not belong to one field, nor are there standardized guidelines for conducting research (Denzin & Lincoln, 1994).

Strauss and Corbin (1990) point out that qualitative research is done by those individuals who are involved in the social and behavioral sciences, along with other groups that focus on human behavior and the functions of their lives. The qualitative researcher cares deeply about his or her inquiry. This should not infer bias, even though it is acknowledged that all social science research can be subjective, with proper techniques and an ethical attitude, credible qualitative studies are created (Marshall & Rossman, 1995).

Patton (1980) states that " Qualitative modes of understanding the world are rooted in philosophical and epistemological traditions that require explication in order to establish a context for making decisions about the usefulness, credibility, validity, and appropriateness of various qualitative evaluation strategies" (p. 12). Jacob (1987, 1988) has categorized the use of qualitative inquiry into six separate domains based upon historical traditions. These six domains attempt to, (1) understand behavior in which people naturally engage, (2) study the interaction between an individual and their environment, (3) understand behavior related to culture, (4) define perspectives and meaning through related and organized cognitive or semantic schemata-categories, (5) understand meaning through verbal and non-verbal interaction, and finally, (6) to understand how individuals create meaning through interaction with others. "Clearly, with such wide-ranging intellectual roots, qualitative research needs some generally recognized common procedures" (Marshall & Rossman, 1995, p. 1).

With it's broad base in the social sciences it seems logical that qualitative research has the possibility of being a widely used tool in agricultural education research. Woods and Trexler (2000) state, "…agricultural education's complex nature – entangled in interrelationships, replete

with social and natural science context, and laden with values – demands that an alternative paradigm drive the research" (p. 296). Furthermore, qualitative research can uncover the many intricacies that are difficult to gather with quantitative methods (Balschweid, Cole, & Thompson, 1999).

Purpose and Objective

The purpose of this study was to identify the data collection methods utilized by authors of qualitative articles in selected scholarly journals related to agricultural education and extension. As suggested in the literature, agricultural education has a complex nature and possesses entangled interrelationships that include the social and natural sciences, both of which suggest the need for research tools that can embrace the value in the discipline (Woods & Trexler, 2000). It is emphasized that the study examines qualitative data collection techniques only, not qualitative research strategies. Methods, as tools, are somewhat universal in use; therefore they are flexible enough to be used with many different strategies, but there are tendencies for particular methods to consistently fit well within given strategies. Furthermore, the methods are not uniform in use between researchers of different paradigms or disciplines (Denzin & Lincoln, 1994).

The primary objectives of this study are:

1. To explain the qualitative data collection methods that have been used in agricultural education and to highlight those methodologies in order that they might have the potential to benefit future agricultural education research.

2. To identify any patterns that may exist in the qualitative data collection methods utilized in agricultural education.

Methods/Procedures

For the purpose of this study, qualitative studies are defined as those that do not draw results and conclusions based on statistical or quantifiable means. It is also necessary to create a distinction between qualitative strategy and qualitative methodology. Denzin and Lincoln (1994) describe a qualitative research strategy as collection of skills, assumptions, and practices that a researcher uses as a set of lens to see the research problem and the world before them. Some examples of qualitative strategies that have been implemented in agricultural education include, but are not limited to; Case Study, Phenomenology, Historical, and Symbolic Interactionism (Hikawa & Trexler, 1999; Hillison & Williams, 1999; Davis, Kieth, Williams, & Fraze, 2000; Mincemoyer & Thomson, 1998). Qualitative methods are those techniques used by the researcher to produce empirical materials as well as theoretical interpretations of the world, or basically, to collect data for a chosen strategy (Denzin & Lincoln, 1994). Examples of qualitative data collection methods used in agricultural education include, but are not limited to; Interviews, Personal Experience, Document/Archival Review, Observation, and Participant Observer

(Hikawa & Trexler, 1999; Hillison & Williams, 1999; Davis, Kieth, Williams, & Fraze, 2000; Mincemoyer & Thomson, 1998; Warner, Hinrichs, Schneyer, & Joyce, 1998).

The study was qualitative in nature and focused on qualitative studies in journals related to agricultural education and extension from 1995 to 2000. A review of documentation, literature, and research in agricultural education and extension and informal interviews were the data collection methodologies utilized for the study. Informal interviews were used in order to clarify data collection methodologies from selected authors.

Five scholarly journals related to agricultural education and extension were used to gather the data: The Journal of Agricultural Education, The Journal of Extension, Proceedings of the 22nd-27th National Agricultural Education Research Meeting, Proceedings of the 44th-49th Southern Agricultural Education Research Meeting, Proceedings of 14th-19th Western Region Agricultural Education Research Meeting. All of the above references, excluding The Journal of Extension were accessed in the departmental library of the Department of Agricultural Education and Communications at Texas Tech University. An online search was utilized to identify qualitative studies in The Journal of Extension. Informal interviews were face-to-face or phone interviews, and were conducted from November to December of 2000.

The data were initially grouped into two broad subsections, single data collection methods and multiple data collection methods. Finally, the data were divided once again in order to organize them into appropriate data collection methodologies as described by Denzin and Lincoln, (1994), Marshall and Rossman, (1995), Lincoln and Guba, (1985), Patton, (1980), and Patton, (1990).

Qualitative Data Collection Methods in Agricultural Education Single Method Studies

Interviewing

Personal Interviews

The interview is one of the most popular methods of collecting data among qualitative researchers (Denzin & Lincoln, 1994). Of the twenty-three qualitative articles identified as interviews eleven were personal interviews. Patton (1980) describes the process of interviewing as finding out about what is in and on a person's mind, and as a method to collect that data that is impossible to gather from observation.

Interviews were most commonly used to investigate subjects dealing with elementary and secondary students. Trexler (2000), Wilson and Stewart (2000), Hobbs (1999), Hikawa and Trexler (1999), Wingenbach and Gartin (1998), Weismiller and Talbert (1998), Trexler (1997, 1998) and Smith, Hill, Matranga, and Good (1995) used interviews to collect perceptions of elementary and secondary students about topics such as agricultural literacy and perceptions of participation in agricultural education programs.

Focus Group Interviews

Focus group interviews are the second most common interview type used in qualitative studies in agricultural education. We identified eight studies that used focus groups as their method of data collection. In a focus group interview the interviewer creates an open atmosphere that encourages discussion among group members (Krueger, 1988). The method draws self-disclosure from members of the group through this open environment (Marshall & Rossman, 1995; Patton, 1980). A focus group can be structured or very flexible, therefore themes may be

decided upon before a group meets or as the group interacts (Fontana & Frey, 1994; Patton 1990).

Focus groups were used to investigate topics related to higher education, unlike personal interviews, which dealt with younger subjects. Examples include Trexler, Johnson, and Heinze (2000), Nordstrom, Wilson, Kelsey, Maretzki, and Pitts (2000), Scanlon, Bruening, and Cordero (1996) and Wardlow (1996) who used focus group interviews to better understand perceptions about curricular issues and professional perceptions about the effectiveness of university services.

Questionnaire Interviews

Using a questionnaire as an interview tool for gathering data for purely qualitative studies is not common in agricultural education. Our review of the literature identified only two studies that used this research method. Threadgill and Newman (1998) sought to determine if the information that was provided on the Mississippi Cooperative Extension Website was appropriate and useful to the clientele of the state. Radhakrishna (1998) collected information regarding challenges and changes from the last twenty-five years of the National Agricultural Education Research Meeting (NAERM).

Multiple Interview Methodologies

Two studies were identified for their use of multiple interview methods. Mincemoyer and Thomson (1998) utilized both personal and questionnaire interviews to describe mentoring relationships. Sprecker and Rudd (1997) used personal, telephone, and questionnaire interviews to determine competencies needed for graduates of the University of Florida's agricultural communications program.

Archival Research

Archival research has been a popular methodology in agricultural education scholarship. Hodder (1994) separated written text into two categories; records and documents. Documents are those materials created for personal use, (i.e. – diaries, notes, memos, letters, etc.). Records have or have had some type of formal use, (i.e. – deeds, contracts, statements, licenses, etc.). Additional archival resources include film, video, photographs and tape-recorded materials. Visual documentation, "provide(s) visual records of passing natural events and may be used as resources" (Marshall & Rossman, 1995, p. 90). Recordings in the form of music, oral history, etc. stand timeless as avenues to the many rich cultures and individuals in history (Clandinin & Connelly, 1994; Marshall & Rossman, 1995).

We identified twenty archive based qualitative studies in the literature we examined. Archival research in agricultural education scholarship was used primarily to reconstruct the development of government agencies or interactions between agricultural education programs and government agencies. Examples include Wakefield and Talbert (2000), Sutphin and Hillison (2000), Hillison and Williams (1999), Dyer and Williams (1997), Hillison (1996), Dyer and Osborne (1995 & 1996) and Herren and Hillison (1995).

Personal Experience:

The use of personal experience as a sole data collection method in agricultural education has been very limited. We identified only one such study in the literature we reviewed. Warner, Hinrichs, Schneyer, and Joyce (1998) used personal experience as a sole data collection method in a study designed to gain insight from Cooperative Extension Agents. Personal experience as a data collection method has been criticized for being too subjective and difficult to triangulate. Although the potential of bias from personal experience is real, many researchers feel that the method is useful because valuable data can be collected that describe an individual, an organization, or an institution (Clandinin & Connelly, 1994).

Qualitative Data Collection Methods in Agricultural Education Multiple Method Studies

The use of multiple methods or triangulation brings validity and rigor to qualitative studies (Denzin & Lincoln, 1994; Marshall & Rossman, 1995; and Patton, 1990). Triangulation allows the researcher to coordinate data and check observations through the use of numerous methods, sources, and perspectives, (Patton, 1990). Four foundation means of triangulation exist according to Denzin (1978); data triangulation (use of numerous data sources), investigator triangulation (use of multiple evaluator's insight), theory triangulation (multiple perspectives on one data set), and methodological triangulation (use of multiple methods). Though all of these have potential use in agricultural education, this review is primarily concerned with data and methodological triangulation.

Two data collection methodologies, observations and participant observer, are not mentioned as single data collection techniques in the above literature. From 1995 to 2000 in the field of agricultural education, observation and participant observations were not used as a single data collection methodology. They were however used in conjunction with other data collection methods that have previously been mentioned. Therefore, discussion concerning observation and participant observation have been reserved for the multiple methodology section.

Observation

Marshall and Rossman, (1995) state that, "observation entails the systematic noting and recording of events, behaviors, and artifacts (objects) in the social setting chosen for the study" (p. 79). Researchers who use observation as a data collection technique allow all of their senses to aid in data collection. They do not intrude on their subjects nor do they stimulate them in any way, the participants' world revolves around the observer as if they did not exist. Observations occur in natural settings and the researcher can observe directly in the research environment or from afar through the use of photography, video, or audio (Adler & Adler, 1994).

Participant Observation:

Patton, (1980) describes participant observation as a process in which the researcher shares, with great intimacy, the lives and activities of the research subjects in an attempt to investigate from the "inside". Thus, the researcher not only sees what is taking place, he or she feels it as well (Patton, 1980). The researcher brings his or her own bias, perceptions, and individual experiences to the study as a member, therefore the researcher not only collects the data, he or she creates aspects of it as well (Alder & Alder, 1994; Marshall & Rossman, 1995).

While the obvious strength of the participant observation methodology is inclusion and intimacy, the primary weakness rests with the researcher's objectivity. If the researcher becomes overly immersed in the research and can not retain objectivity, the quality of the study is greatly diminished (Alder & Alder, 1994; Marshall & Rossman, 1995).

Multiple Method Studies

Sixteen studies were identified that utilized multiple qualitative data collection techniques. Authors of the sixteen identified studies implemented two to four different data collection methods. These studies investigated a wide variety of research questions that are popular in agricultural education research. The focus of the sixteen multiple method studies included, leadership, distance education, adult education, preservice education, program evaluation, competition in youth programs, student enrollment, extension programs, and individualized perceptions.

Murphrey and Dooley (2000) utilized the personal interview and observations in order to study characteristics about distance education technology in a college of agriculture at a land grant institution. Davis, Kieth, Williams, and Fraze (2000) attempt to validate perceived benefits of competitive livestock shows by Texas 4-H members in a study that incorporates symbolic interactionism as a strategy. The researchers utilized interviews, observations, and a review of historical documents as methodologies for their chosen strategy. Duncan and Marotz-Baden, (1999) use focus group interviews and a review of documentation in a case study that sought to, "illustrate how marketing techniques can be used by Extension to develop programs for the expressed needs of the target population" (p. 2). Through the use of observations and interviews, Jones, Bowen, and Rumberger (1998) investigated factors that were related to the enrollment of African American students in secondary agriscience programs. Pilat (1997) also utilized participant observation, personal interviews, focus group interviews, and a review of documentation in order to explore judicial and Cooperative Extension Service relationships in Indiana. In a 1996 historical study, Hillison searches for the origins of agriscience employing the use of first hand accounts (interviews), and a review of documentation. Wardlow, Graham, and Scott, (1995) utilized focus group interviews and observations as data collection methods in a study designed to, "identify perceptions about professional careers, especially those related to agriculture, held by minority youth from a rural community in the Mississippi River delta region of the Southeastern United States" (p.484).

Educational, Scientific, and Practical Importance of the Study

"As researchers it is important for us to examine all forms of research methodology to determine the existence of benefits to alternative practices of data collection" (Balschweid, Thompson, & Cole, 1999, p. 445). This study sought to do what Balschweid, Thompson, and Cole suggest. Agricultural education research has a broad base that can surely offer reciprocal roles to both the positivist and interpretivist paradigms. Unfortunately, qualitative means of inquiry are not yet solidified as an equal partner in the realm of agricultural education. The educational, scientific, and practical importance of this study relates to the need for a better understanding and uniform procedures of qualitative research in agricultural education.

One of the most important findings of this study was not the qualitative research evident in agricultural education, but the types of qualitative research not evident in agricultural

education scholarship. Our findings indicated that qualitatively based agricultural education scholarship was centered on two distinct methods, interviews and archival research. Of the 45 qualitative studies we identified as single method studies, 43 used interviews or archival methods. A majority of the sixteen studies we identified that used multiple data collection methods were also focused around interviews and archival data collection. The tendency to base qualitative research to these two areas has limited agricultural education scholarship to only a small portion of the qualitative methods available to scholars. The findings of this study indicate that scholars of agricultural education have not fully taken advantage of qualitative data collection methods which indicates a possible lack of familiarity with other qualitative data collection methods available to researchers. The findings also indicate a majority of the studies implemented only one data collection method, while the benefits of multiple data collection benefit the validity and reliability of a study.

Because this study was focused on the utilization of data collection methods only, steps should be taken to investigate the value of these methods when considering different research areas. Also, based upon the flexibility of qualitative research, inquiry should be made concerning the qualitative theoretical strategies that will best complement the field of agricultural education research. Considering once again the flexibility of qualitative inquiry, the researchers would like to further study qualitative research inside and outside of agricultural education in order that we may utilize the strengths of the interpretivist paradigm to temper future research in our discipline.

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