

# RESEARCH

## Using Q Methodology in Agricultural Communications Research: A Philosophical Study

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### ABSTRACT

*Communication rests on human experience and the uniqueness of subjectivity. Varying research methods and designs measure subjectivity, but few measure subjectivity using rigorous statistical analysis. Q methodology offers such design and rigor. Yet, agricultural communications has been slow to adopt Q methodology. Therefore, the purpose of this philosophical study was to establish a contextual and philosophical understanding of Q methodology and articulate its uses in agricultural communications research. This philosophical study was without traditional research design and methods. Thus, knowledge gained from the literature and best practices were synthesized with the intent of creating a discussion of the philosophies, concepts, and application of Q methodology. To conduct human subjectivity research, Stephenson proposed Q-methodology. It uses a small number of participants to represent the variance of perspectives about a topic. By focusing on and capturing the holistic perspectives of participants, knowledge bases and understandings of humanistic elements within agricultural communications could be enhanced. Benefits of Q methodology include harnessing subjectivity as a means for testing ideas and characterizing perspectives about an idea, limiting researcher bias, and gaining meaningful data from fewer participants. Challenges include misconceptions and misinterpretations related to terminology, concourse development, and generalizability. Agricultural communications depends on human experience and subjectivity related to food and fiber production. Thus, implementing Q methodology research into the agricultural communications discipline diversifies the research toolbox and provides researchers and practitioners with opportunities to explore perspectives related to diverse agricultural issues.*

### KEY WORDS

Human Subjectivity, Q Methodology, Research Methods

### INTRODUCTION

Communication has been the basis of human relationships for years. It materializes when information selection, utterance, and understanding act in one accord (Luhmann, 1992) and transpires at four levels—interpersonal, small-group, public, and mass communication (Telg & Irani, 2012). Communication is a substantial component to “environments that view freedom, liberty, justice, equality, individual responsibility, and the importance of the individual as primary values” (McCroskey, 2001, p. 4). Such communication dynamics have been investigated using textual analysis, qualitative research, and quantitative research paradigms (Berger, 2014) within a variety of contexts.

Textual analysis facilitates the interpretation of the meaning behind visual or recorded messaging (Frey, Botan, & Kreps, 1999) and is inclusive of semiotic analysis, rhetorical analysis, ideological criticism, and psychoanalytical criticism (Berger, 2014). Such research designs are broad in scope (e.g., speech, writings, radio, television, film, images) and have grown

in popularity with the power of mass media (Berger, 2014). Fairclough (2003) described texts as being “parts of social events” (p. 21), which should be interpreted within the context they represent. Textual analysis is impactful in communications research because texts can influence change in knowledge, beliefs, attitudes, and values (Fairclough, 2003).

Furthermore, communication researchers have a continued interest in qualitative analysis and phenomenological description (Stephen, 1985) because of their ability to provide insight into the human experience and to understand the holistic human (Allen, Titsworth, & Hunt, 2009). Some would describe qualitative research as the dominant methodology within communication inquiry (Lindolf & Taylor, 2011), providing researchers with a means of “describing everyday life” (p. 12) and allowing participants to “attribute meaning to events and to their environment” (Bryman, 2012, p. 399). Important to the understanding of the communication phenomena is qualitative research’s ability to bring beauty to the human experience (Lindolf & Taylor, 2011). Indeed, qualitative research designs neither provide basis for generalizability nor yield data that can be used for numerical analysis (Stephen, 1985), which has caused researchers, at some points, “to struggle to justify” (Lindolf & Taylor, 2011, p. 14) its use within communications.

Quantitative communication research investigates human action using scientific methods and analysis (Allen et al., 2009). Such research designs can be more efficient and powerful even though they are not appropriate for all studies within communication (Stephen, 1985). Quantitative research measures are typically intentional and can be replicated and validated (Allen et al., 2009), unlike methods dependent on the human instrument. Because quantitative research can be verified and replicated, researchers can use quantitative designs to establish “universally true” theory (Allen et al., 2009, p. 8). It, therefore, provides answers to the “what?” questions, offering researchers the opportunity to generalize beyond the population under investigation. Thus, researchers who employ quantitative research methods are typically interested in relationships and differences within and among populations and cultures (Allen et al., 2009).

Beyond textual analysis and qualitative and quantitative research paradigms, William Stephenson proposed Q methodology to conduct human subjectivity research (e.g., communication; Stephen, 1985). At its core, Q methodology examines the subjective “values and preferences held by the public” (Steelman & Maguire, 1999, p. 362). It helps researchers “analyz[e] the phenomenological world of the individual ... without sacrificing the power of statistical analysis” (Stephen, 1985, p. 193). Q methodology uses people to measure tests or statements (Stephenson, 1935); whereas, traditional R methodologies (e.g., traditional correlation research methods) operationalize, marginalize, and minimize subjectivity by using tests to measure people. Thus, such methodologies close the window on data-rich perspectives associated with inherent operant subjectivity, which are captured in Q methodology (Brown, 1996).

Stephenson designed Q methodology to emphasize human subjectivity as it relates to social science disciplines (Brown, 1993). Humanistic elements can be hard to measure, but Q methodology provides a rigorous means (McKeown & Thomas, 1988) “to construct typologies of different perspectives” (Steelman & Maguire, 1999, p. 363). Brown characterized the strength of Q methodology as describing “life as lived from the standpoint of the person living it that is typically passed over by quantitative procedures” (Brown, 1996, p. 561). The “subjective science” methodology recognizes subjectivity without discarding the importance of objectivity (Stephenson, 1993/1994, p. 1-2). Yet, Q methodology has often been neglected or misunderstood by social scientists (Stephen, 1985).

Integrating Q methodology into the communication research toolbox provides a research methodology emphasizing contextual human subjectivity without sacrificing robust statistics (Brown, 1993). The qualitative angle of Q method is its ability “to investigate the diverse subjective experiences and perceptions” (Killam, Timmermans, & Raymond, 2013, p. 24) with robust tools. But, the statistical component—correlation and factor analysis—provides the rigor of and similarities with quantitative methods (Simons, 2013).

## THE PROBLEM

Disciplines, including communications, are strengthened by the inclusion of diverse research studies investigating various questions using an array of approaches (Allen et al., 2009). Yet, the agricultural communications discipline, an applied communications paradigm, uses the same approaches to continuously investigate the same issues without much research depth (Edgar, Rutherford, & Briers, 2009; Naile, Robertson, & Cartmell, 2010). "Agricultural communications research lacks diversity of research methodologies and scope, and perhaps depth and quality—if one assumes that depth and quality are indicated by methods that move toward cause and effect relationships" (Edgar et al., 2009, p. 30). Edgar et al. documented 47.3% of the research published from 1997 to 2006 used quantitative survey methodology, followed by content analysis (15.4%) and case studies (9.9%). In a follow up study conducted by Naile et al. (2010), 39.3% of the research published from 1990 to 2006 used quantitative mail survey methodology, followed by multiple method (14.8%), content analysis (8.6%), and online survey (7.4%). Thus, Edgar et al. (2009) and Naile et al. (2010) called for diversity of exploration—methodologies and research designs—in agricultural communications.

One way to enhance the research done within agricultural communications is to expand the repertoire of research methods and approaches. Such paradigm shifts have been championed in similar social sciences (e.g., nursing, rural sociology, mass communications) to achieve a research agenda inclusive of post-positivistic strategies and methodologies, including Q methodology (Durning, 1999). Research methodologies and approaches must be chosen on the basis of answering the question and not on the basis of convenience.

Therefore, the purpose of this philosophical study was to establish a contextual and philosophical understanding of Q methodology and to articulate its uses in agricultural communications research. To meet this purpose, the following objectives were used:

1. Clarify the basics and terminology of Q methodology,
2. Articulate the theoretical underpinnings of Q methodology,
3. Identify and operationalize the benefits and challenges associated with Q methodology, and
4. Articulate the practical application of Q methodology in agricultural communications research.

## METHOD AND PROCEDURE

In meeting these objectives, we followed methods and protocol for philosophical inquiry, rather than a typical research study. This article shares the nature of philosophical inquiry and its application with atypical headings and organization to allow for greater clarity in discussing the role of Q methodology in agricultural communications research.

Thus, this philosophical study was inherently and implicitly without traditional research design and methods. Philosophical inquiry is meant to "synthesize and summarize" theory in effort to "guide practice and inquiry" (Roberts, 2006, p. 18). Burbles and Warnick (2006) noted philosophical inquiry should be developed through a rigorous review of related literature, narrowed focus, and inclusion of multiple perspectives. As such, we synthesized knowledge gained from the literature and best practices with the intent of creating a discussion of the philosophies, concepts, and applications of Q methodology.

Therefore, we began with a cursory review of literature, using databases and search engines including Google Scholar, Education Resource Information Center (ERIC), Journal Storage (JSTOR), and Texas A&M University library. Initial search terms included "Q method," "Q sort," "Q methodology," and variations of associated and contextual terminology. We were careful in selecting seminal articles and foundational writings from peer-reviewed journals to provide a basis for the study. Relevant articles from the initial search were mined for additional sources, eventually leading to monograph sources, including textbooks and similar resources. Additionally, we used Google Scholar to identify recent peer-viewed journal articles citing seminal and foundational Q methodology research. We specifically sought studies that applied Q methodology in social science research disciplines and agricultural contexts (e.g., agricultural communications, agricul-

tural economics, communications, journalism, and nursing) to provide relevance and application to this philosophical study. Further, best practices in Q methodology were identified by examining peer-reviewed literature for studies using Q methodology and by using our experiences with implementing Q methodology in previous studies.

This discussion will guide practice by explaining basics of Q methodology, its theoretical underpinnings, its benefits and challenges, its potential for use in agricultural communications, and recommendations for researchers and practitioners based on this philosophic inquiry.

### Basics and Terminology of Q Methodology

Q methodology, influenced by Sigmund Floyd, Charles Spearman, and R.A. Fisher, rests on subjectivity (Stephenson, 1993/1994) and “finite diversity” (Stainton Rogers, 1995, p. 182). Stephen (1985) characterized Q methodology as a measurement “for assessing beliefs, attitudes, or values; as an alternative method of data collection in large-sample, public opinion research ...; as the basis for assessing connectedness in sociometric or social network research; or as a rating system for observational research” (p. 194). Brown (1997) noted Q methodology uses people to test items, emphasizing variance among perspectives (Kitzinger, 1987). It does not reduce participants to a single understanding but provides elaboration of their “contextual, discursive, and social” perspectives (Goldman, 1999, p. 592). Q methodology establishes the ability to reveal patterns of perspectives and quantify subjectivity (Killam et al., 2013) by focusing on statement construction and not statement constructors (Stainton Rogers). Thus, Q methodology is a tool to capture opinions and perspectives about an idea, in a different and more holistic way than traditional correlational research.

The process of Q methodology is carried out in five stages—concourse development, Q sort identification, Q sort activity, factor analysis, and factor interpretation (Simons, 2013). Essentially, Q method studies involve participants sorting items (statements, images, etc.) from negative (not like me) to positive (like me). This is known as the Q sort and makes up the primary means of data collection.

Before conducting a Q method study, researchers must identify the **concourse**—all perceptions, opinions, and beliefs related to the topic under investigation (Brown, 1993)—which is the origination of the **Q set**. The Q set, statements used in the sorting process (Brown), is commonly developed using qualitative data and should represent all facets of the topic (Stephen, 1985). Therefore, the Q set is equivalent to the sample in R methodologies, and the **P set**, study participants, is equivalent to the experimental condition of such methodologies (Cross, 2005).

During the **Q sort**, process of rating objects or items, each participant physically sorts and assesses the items based on their perspectives of the statements. Simons (2013) argued a Q sort can be conducted with a small number of participants because Q methodology is the classification of individual perspectives and points of view. The P set uses a **form board**, a forced-distribution board, to sort the Q set from most like to least like their perspectives (Stephen, 1985; Tuler, Weblar, & Finson, 2005), which is often followed by a discussion related to how each member sorted the set (Fairweather & Keating, 1994; Previte, Pini, & Haslam-McKenzie, 2007). The P set uses the **condition of instruction**, the central question, as a guide for the Q sorting process (Previte et al., 2007). Last, a unique **data-analysis software** such as PQMethod, a free software downloaded from the Internet, is used to run the factor analysis (Killam et al., 2013).

### Theoretical Underpinnings of Q Methodology

Stephenson (1936) created Q methodology because he believed participants’ differences were ignored when variables were isolated. Therefore, to study individual differences (individual differences between members of the P set rather than individual differences compared to the P set), researchers need to study holistic individuals and not isolate variables. Q methodology yields data representative of personified viewpoints and typified perspectives by investigating holistic individuals and using their experiences, values, psyche, and beliefs to understand phenomena (Watts & Stenner, 2012). At its most basic tenet, Q methodology is an innovative and adaptive approach at factor analysis (Watts & Stenner, 2012).

As such, to understand Q methodology, one must first understand factor analysis. Field (2009) defined factor analysis as a technique used “for identifying groups or clusters of variables” (p. 619). Field further noted factor analyses reduce a set of variables into a smaller set of interrelated factors. Traditional approaches to factor analysis measure variables across a population of participants and then use correlations to determine which variables exhibit signs of co-variation (Watts & Stenner). This elegant and effective system provides insight about how variables manifest in a population. Although such information is valuable, it misses out on how variables differ for each individual in a population (Stephenson, 1936).

Essentially, Stephenson (1936) sought to evolve factor analysis to investigate factors by person rather than by variable. He articulated this idea as follows:

Factor analysis ... is concerned with a population of  $n$  individuals each of whom has been measured in  $m$  tests or other instruments or estimates. The  $(m)(m-1)/2$  correlations for these  $m$  variables are subjected to ... factor analysis. But this technique ... can also be inverted. We may concern ourselves with a population of  $N$  different tests (or other items), each of which is measured or scaled relatively, by  $M$  individuals. The  $(M)(M-1)/2$  correlations again can be factorized by appropriate theorems. (Stephenson, pp. 344-345)

In summary, Stephenson believed differences in the aggregate population are as important as individual variable differences (Watts & Stenner, 2012).

Hence, the main idea of Q methodology is to invert, or flip, the traditional *Spearman's r* factor analysis to measure items across individuals (Watts & Stenner, 2012). Instead of using instruments to test the performance of an individual and make comparisons to the population, Q methodology uses each individual, complete with all the subjectivity and holistic diversity, as tests for the performance of items. Ultimately, Q method harnesses subjectivity and the concurrence theory, which traditional methods neglect and de-value (Watts & Stenner), to provide data representing varying perspectives and viewpoints.

### Examples of Q Methodology Research

Singer (1997) used Q methodology in mass communications and found journalists had three perspectives of online media (benevolent revolutionary, nervous traditionalist, and rational realist). To identify those three perspectives, she identified 18 reporters to sort 52 statements related to new media technology. In another example, Paige and Morin (2015) asked 44 nurse educators to rank 60 statements related to simulation design, which revealed one primary and two secondary perspectives. Further, Work, Hensel, and Decker (2015) found three perspectives of poverty (judges, allies, and observers) when they asked 23 Midwestern nursing students to sort 30 statements about poverty.

Additionally, Fairweather and Keating (1994) used Q methodology to define and describe the goals and management styles of New Zealand farmers. They identified descriptors of various farmer groups, adding participants' subjectivity and perspective to the research results. Ultimately, they found farmers have three management styles (perspectives) and offered implications for farm management practices, using 50 participants in their P Set. Further, Delnero and Montgomery (2001) offered extensive implications for professional development of high school agriculture teachers in California, drawing from the holistic perspectives represented by a P set of 23.

Other examples of ideas explored using Q methodology within social science research include Internet savvy users (Hashim & Meloche, 2007), media writing student attitudes (Popovich & Massé, 2005), farmers' management styles (Brodt, Klonsky, & Tourte, 2006), agriculturalist and community relations (Brodt, Feenstra, Kozloff, Klonsky, & Tourte, 2006), environmental attitudes (Davies & Hodge, 2012), writing skill development (Leggette, 2015), and student change as a result of agricultural study abroad programs (Redwine, 2014). Although these are just three of many Q methodology studies, they provide a glimpse of perspectives generated using the design.

## Benefits and Challenges of Q Methodology

Benefits of Q methodology include limiting researcher bias (Previte et al., 2007), using subjectivity to gather holistic understanding (Watts & Stenner, 2012), and gaining meaningful data from fewer participants because of flipped population and item scales (Simons, 2013). Challenges include misinterpretation of Q methodology practices, most noted by inaccurately measuring Q methodology against traditional R methodology terminology, concourse development, and generalizability. Each of these benefits and challenges are discussed in detail in the following paragraphs.

Limiting researcher bias (Previte et al., 2007; Simons, 2013) is a documented strength of Q methodology because of participants' role in "the development of reflexivity, consciousness-raising empowerment and locally situated understandings" (Billard, 1999, p. 365). Q methodology is more intuitive and subjective than quantitative research and provides the participant opportunity to become part of the phenomenon (Simons, 2013). Dryzek and Berejikian (1993) described Q methodology as "affording less interpretative latitude to the analyst" (p. 50) because the output is statistical and not biased by the researcher (Simons).

Brown (1996) posed the inclusion of holistic subjectivity as a strength of Q methodology. Durning (1999) called Q methodology a post-positivistic paradigm shift subverting objectivism. Its adaptability to humanistic nature makes it easy to identify participants' unique characteristics (Simons, 2013), "aim[ing] to accurately reproduce an individual's views in a manner consistent with his/her own experience" (Stephen, 1985, p. 205). Subjectivity cannot be overlooked because understanding "life as lived from the standpoint of the person living it" (Cross, 2005, p. 208) is important in social science research. Q methodology provides participants with freedom in deciding what is meaningful and what is not based on their perception of the phenomena (Watts & Stenner, 2005).

Additionally, because of its interpretive ability of diverse perspectives and its nature of operant subjectivity, few participants are needed to conduct a Q methodology study. Participants are the variables and not the population, and the population of the study becomes the concourse (the collection of comments and ideas gathered about the topic under investigation; Tuler et al., 2005; Watts & Stenner, 2005). Thus, researchers seek perspectives and not inferences (Brown, 2002). "By inquiring of people with unique points of view, Q researchers can reveal patterns in how elements of perspectives are related" (Tuler et al., 2005, p. 250) and how those perspectives describe the human experience.

The nature of populations in Q methodology leads to a potential misconception and challenge. Reviewers and critics may be tempted to interpret a small P set as a detriment because researchers typically revert to rules of quantitative research. This logic is well-intentioned but misapplied. Practitioners and researchers should remember the population in a Q methodology study, as described by Tuler et al. (2005), is constructed with a concourse of ideas not the participants conducting the sort. Those accustomed to looking at the number of participants in a study as a measure of effectiveness, or who seek to calculate effect size or power, may initially be tempted to discredit the effectiveness of Q methodology. This is analogous to seeking power and effect size in a qualitative study or seeking trustworthiness and member-check in a quantitative study. Q methodology studies have a large population when the concourse of ideas is large (Tuler et al., 2005), not when the number of participants is large. Thus, Q methodology studies have a large sample when the number of items in the Q set is large.

Another misconception about Q methodology is concourse development. Because the concourse is the population, developing an accurate and reliable concourse impacts the overall quality and reliability of the factors derived from the Q sort (Simons, 2013). Often, the concourse is developed through field data collection, most notably qualitative research methods (Brown, 1993; Tuler et al., 2005). Participants are forced to make decisions, categorize the Q set based on perspective, and demonstrate why they believe the perspectives should be retained. As such, a well thought out and developed concourse should provide enough choice but not too much (Simons, 2013).

Furthermore, despite some arguments, Thomas and Baas (1992/1993) contended Q methodology can be generalized in a qualitative sense as "*substantive inference 'about' a phenomenon*" (p. 22). Again, typical R methodology logic

might seek parameters of a sample and transfer them to statistics in a population. Instead, Q methodology transfers perspectives about an idea, rather than to a population. This notion is better quantified by Valenta and Wigger (1997): “Generalizations in Q-methodology research are based on the validity and theoretical implications of identified opinion types, and not on their numerical distribution among study participants” (p. 508). Therefore, if the P set is diverse, then all perspectives on a given subject are represented. For example, in Redwine (2014), the P set contained every gender, classification, major, ethnicity, and level of study possible given the population. Different populations may include different perspectives across some of the characteristics mentioned (for example, business students rather than agricultural science students). However, participants’ viewpoints and perspectives will still be represented by gender, ethnicity, classification, and level of study.

Brown (2002) noted Q methodology studies yield data about perspectives, not inferences, and those perspectives come from the whole person. In practice, one cannot separate the part of their holistic subjectivity that comes from being male, or from their age, or any other specific characteristic. As such, Q methodology defines a perspective based on a person’s characteristics.

### **Use of Q Methodology in Agricultural Communications Research**

In 2009, Edgar et al. recommended agricultural communications researchers “diversify their research methodological portfolios to include more variety in research methods and designs” (p. 31). The discipline is broad and encompasses many topics affecting the agricultural industry. Thus, opportunities for diversifying research questions and approaches in agricultural communications could begin with including Q methodology.

For example, GMOs continue to create strong debates among local, regional, national, and international audiences. These debates are time consuming and may not be scientific based. Understanding the various perspectives within the audiences, gathered through a Q methodology study, would assist agricultural communicators with disseminating scientific-based information to the diverse audiences. Knowing characteristics and descriptors of each perspective would simplify the communication process because the audiences would receive typified information relevant to their needs.

Additionally, Q methodology would be one way to investigate the perspectives related to water conservation, such as implementation and adoption of water management plans. Perhaps, researchers could begin to classify perspectives into groups and seek to define those groups using Q sorts related to conservation, management, and adoption practices. One type may be the ultimate conservers—practicing water management practices in everything they do from cooking to watering the lawn. The next type may be moderate conservers who exercise water management practices when they cook but may not when they water their lawn or vice versa. The last type may not practice water conservation or management practices at any cost. Understanding how and why each of these types of people behave and perceive water conservation and management will help the industry more effectively disseminate targeted messaging.

Water and GMOs are just two examples of how Q methodology research could be applied in agricultural communications. In truth, Q methodology could be used to investigate many agricultural issues, including obesity, nutrition, labor practices, tax and estate management, and animal welfare. Investigating perspectives is not a substitute for descriptive or inferential studies but rather an extension. Understanding the characteristics and descriptors of unique groups within the society will assist with disseminating relevant, targeted information. Thus, Q methodology could provide new perspectives on dated issues, enhanced research approaches, humanistic nature, or subjectivity to understanding agricultural issues and audiences.

Q methodology provides diversity in research methods and fits within agricultural communications and applied communication paradigms. Agricultural communications researchers seek to understand perspectives related to various topics and issues within agricultural communication but often rely on positivistic methodologies to investigate such topics on the surface-level. Q methodology allows researchers to begin with statements derived from field method research and use those statements to identify perspectives and develop constructs within a research paradigm (Previte

et al., 2007). Therefore, such research designs could lead to deeper exploration of issues and add diversity and value beyond the surface level.

Because Q methodology is the understanding and grouping of statements and not of people, the small number of participants with varying perspectives fits well in agricultural communications. Identifying and working with large sample sizes can be expensive and time consuming. However, with a smaller number of participants, Q methodology allows a researcher to develop an understanding of different perspectives related to a topic and provide descriptors and identifiers related to each perspective. This is accomplished by Q methodology's unique ability to flip traditional correlational research. Remember, the population is made up by the collection of ideas, and the test items are participants in the P set (Simons, 2013). Therefore, because of Q methodology's statistical rigor, agricultural communications researchers can obtain meaningful and usable research to guide practice without seeking large samples and power and effect size. Q methodology is not designed to be a replacement for large quantitative studies, but rather it should add to the explanation of complex research questions in agricultural-based disciplines.

Research in agricultural communications has employed diverse methods to answer important questions, but failing to capture the subjectivity of human perspective may be a loss for critical interpretation and implementation. As such, vast opportunities exist to enhance the knowledge base and enrich understanding of humanistic elements of the discipline by focusing on and capturing holistic perspectives. The practice of agricultural communications rests largely on the subjectivity behind producers' and consumers' perceptions, behaviors, feelings, and values. Using Q methodology to explore such perceptions could strengthen the agricultural communications knowledge base. Including Q methodology research designs does not discredit or replace other research approaches, but it does add depth to the agricultural communications research toolbox.

## DISCUSSION AND RECOMMENDATIONS

The applications of Q methodology in agricultural communications are plentiful because of its subjectivity component. Implementing the methodology into the discipline diversifies the research toolbox and provides opportunities to explore perspectives related to diverse agricultural issues. Several Q methodology studies related to agricultural communications have been published in various publications. However, no studies citing Q methodology as the research design were found in the *Journal of Applied Communications* (the academic journal of the discipline). Thus, Q methodology is one potential answer to Edgar et al.'s (2009) call for diversity in research methodologies because it adds research depth to the journal.

Additionally, agricultural communications researchers often seek consumers' and producers' perspectives related to agriculture and the truth behind feelings, behaviors, and attitudes of certain groups within society. It can be hard to find adequate numbers to study behaviors and attitudes using quantitative research designs, but Q methodology could be used to gain valuable, useful, and rich information from stakeholders in a short amount of time. Using Q methodology to study behaviors and attitudes (Tuler et al., 2005; Watts & Stenner, 2005) will begin to facilitate classification of different perspectives related to agricultural issues and topics.

Beyond research, Q methodology could be used as a teaching practice in agricultural communications because it provides "enhanced learning, encouraged participation, increased understanding of the study, enriched feedback and alleviated scheduling conflicts" (Killiam, 2013, p. 27). Redwine (2014) recommended a Q sort be used as a reflection tool encouraging students to think about and make meaning of an experience. Implementing Q methodology into agricultural communications classrooms could help students learn about producers and consumers in the industry, about themselves, and about their culture and social context.

Agricultural communications depends on human experience and subjectivity related to food and fiber production. Yet, agricultural communications has been slow to adopt Q methodology to measure human subjectivity. Adopting Q methodology would provide researchers with another research method to further their understanding of agricultural stakeholders and constituents.

## REFERENCES

- Allen, M., Titsworth, S., & Hunt, S.K. (2009). *Quantitative research in communication*. Thousand Oaks, CA: SAGE Publications, Inc.
- Berger, A.A. (2014). *Media and communication research methods*. (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Billard, S. (1999). How Q methodology can be democratized. *Feminism and Psychology*, 9(3), 357-366.
- Brod, S., Klonsky, K., & Tourte, L. (2006). Farmer goals and management styles: Implications for advancing biologically based agriculture. *Agricultural Systems*, 89(1), 90-105.
- Brod, S., Feenstra, G., Kozloff, R., Klonsky, K., & Tourte, L. (2006). Farmer-community connections and the future of ecological agriculture in California. *Agriculture and Human Values*, 23(1), 75-88.
- Brown, S.R. (1993). A primer on Q methodology. *Operant Subjectivity*, 16(3), 91-138.
- Brown, S.R. (1996). Q methodology and qualitative research. *Qualitative Health Research*, 6(4), 561-567.
- Brown, S.R. (1997). The history and principles of Q methodology in psychology and the social sciences. Department of Political Science, Kent State University, Kent, OH. Retrieved from <http://facstaff.uww.edu/cottlec/Qarchive/Bps.htm>.
- Brown, S.R. (2002). Q technique and questionnaires. *Operant Subjectivity*, 26(2), 117-126.
- Bryman, A. (2012). *Social research methods* (4th ed.). New York, NY: Oxford University Press.
- Burbules, N.C., & Warnick, B.R. (2006). Philosophical inquiry. In J. L. Green, G. Camilli, & P. B. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 489-502). New York, NY: Routledge.
- Cross, R.M. (2005). Exploring attitudes: The case for Q methodology. *Health Education Research*, 20(2), 206-213. doi: 10.1093/her/cyg121
- Davies, B.B., & Hodge, I.D. (2012). Shifting environmental perspectives in agriculture: Repeated Q analysis and the stability of preference structures. *Ecological Economics*, 83, 51-57. doi:10.1016/j.ecolecon.2012.08.013
- Delnero, J., & Montgomery, D. (2001). Perceptions of work among California agriculture teachers. *Journal of Agricultural Education*, 42(2), 56-67.
- Dryzek, J.S., & Berejikian, J. (1993). Reconstructive democratic theory. *American Political Science Review*, 87(1), 48-60.
- Durning, D. (1999). The transition from traditional to post positivist policy analysis: A role for Q-methodology. *Journal of Policy Analysis and Management*, 18(3), 389-410.
- Edgar, L.D., Rutherford, T., & Briers, G.E. (2009). Research themes, authors, and methodologies in the *Journal of Applied Communications: A ten-year overview*. *Journal of Applied Communications*, 93(1-2), 21-34.
- Fairclough, N. (2003). *Analysing [sic] discourse: Textual analysis for social research*. New York, NY: Psychology Press.
- Fairweather, J.R., & Keating, N.C. (1994). Goals and management styles of New Zealand farmers. *Agricultural Systems*, 44(2), 181-200.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles, CA: SAGE Publications, Inc.
- Frey, L., Botan, C., & Kreps, G. (1999). *Investigating communication: An introduction to research methods*. (2nd ed.) Boston, MA: Allyn & Bacon
- Goldman, I. (1999). Q methodology as process and context in interpretivism, communication, and psychoanalytic psychotherapy research. *The Psychological Record*, 49(4), 589-604.
- Hashim, N.H., & Meloche, J.A. (2007). *Australian online newspaper: An exploratory study on Internet savvy users using Q-methodology* (Faculty of Commerce Papers 410). University of Wollongong, Wollongong, New South Wales, Australia.
- Killam L., Timmermans KE., & Raymond, J.M. (2013). The barriers to and benefits of conducting Q-sorts in the classroom. *Nurse Researcher*, 21(2), 24-29.
- Kitzinger, C. (1987). *The social construction of lesbianism* (Vol. 1). Bristol: Sage Publications.

- Leggette, H.R., McKim, B., & Homeyer, M. (2015). Perspectives of writing related to critical thinking and knowledge creation. *NACTA Journal*, 59(3), 275-284.
- Lindolf, T.R., & Taylor, B.C. (2011). *Qualitative communication research methods* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Luhmann, N. (1992). What is communication? *Communication Theory*, 2(3), 251-259. doi: 10.1111/j.1468-2885.1992.tb00042
- McCroskey, J.C. (2001). *An introduction to rhetorical communication*. (8th ed.). Needham Heights, MA: Pearson Education.
- McKeown, B., & Thomas, D. (1988). *Q methodology*. Thousand Oaks, CA: SAGE Publications, Inc.
- Naile, T.L., Robertson, J.T., & Cartmell, Jr., D.D. (2010). Examining JAC: An analysis of the scholarly progression of the *Journal of Applied Communications*. *Journal of Applied Communications*, 94(1-2), 49-60.
- Paige, J.B., & Morin, K.H. (2015). Using Q-methodology to reveal nurse educators' perspectives about simulation design. *Clinical Simulation in Nursing*, 11(1), 11-19.
- Popovich, M.N., & Massé, M.H. (2005). Individual assessment of media writing student attitudes: Recasting the mass communication writing apprehension measure. *Journalism and Mass Communication Quarterly*, 82, 339-355.
- Previte, J., Pini, B., & Haslam-McKenzie, F. (2007). Q methodology and rural research. *Sociologia Ruralis*, 47(2), 135-147.
- Redwine, T.D. (2014). *A model of global learning: How students change through international high-impact experiences* (Unpublished doctoral dissertation). Texas A&M University, College Station, TX.
- Roberts, T.G. (2006). A philosophical examination of experiential learning theory for agricultural educators. *Journal of Agricultural Education*, 47(1), 17-29. doi: 10.5032/jae.2006.01017
- Simons, J. (2013). An introduction to Q methodology. *Nurse Researcher*, 20(3), 2-32.
- Singer, J.B. (1997). Changes and consistencies: Newspaper journalists contemplate online future. *Newspaper Research Journal*, 18, 2-18.
- Stainton Rogers, R. (1995). Q methodology. *Rethinking Methods in Psychology*, 178-192.
- Steelman, T.A., & Maguire, L.A. (1999). Understanding participant perspectives: Q-methodology in national forest management. *Journal of Policy Analysis and Management*, 18(3), 363.
- Stephen, T.D. (1985). Q-methodology in communication science: An introduction. *Communication Quarterly*, 33(3), 193-208. doi: 10.1080/01463378509369598
- Stephenson, W. (1935). Correlating person instead of tests. *Journal of Personality*, 4(1), 17-24.
- Stephenson, W. (1936). The inverted factor technique. *British Journal of Psychology. General Section*, 26(4), 344-361.
- Stephenson, W. (1993-1994). Introduction to Q-methodology. *Operant Subjectivity*, 17(1), 1-13.
- Telg, R., & Irani, T.A. (2012). *Agricultural communications in action: A hands on approach*. Clifton Park, NY: Cengage Learning
- Thomas, D.B., & Baas, L.R. (1992/1993). The issue of generalization in Q methodology: "Reliable schematics" revisited. *Operant Subjectivity* 16(1), 18-36.
- Tuler, S., Webler, T., & Finson, R. (2005). Competing perspectives on public involvement: Planning for risk characterization and risk communication about radiological contamination from a national laboratory. *Health, Risk and Society* 7(3), 247-266.
- Valenta, A.L., & Wigger, U. (1997). Q-methodology: Definition and application in health care informatics. *Journal of the American Medical Informatics Association*, 4(6), 501-510.
- Watts, S., & Stenner, P. (2005). Doing Q methodology: Theory, method and interpretation. *Qualitative Research in Psychology*, 2(1), 67-91.
- Watts, S., & Stenner, P. (2012). *Doing Q methodological research*. Thousand Oaks, CA: Sage Publications, Inc.
- Work, J., Hensel, D., & Decker, K.A. (2015). A Q methodology study of perceptions of poverty among Midwestern nursing students. *Nurse Education Today*, 35(2), 328-332.

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