

# Enhancing the Quality of Manuscripts Submitted to the *Journal of Agricultural Education*: Perceptions of Experienced Reviewers

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*This project was undertaken at the request of the Journal of Agricultural Education editor and is presented as a resource for researchers to use in preparing manuscripts for submission to the journal. Five experienced reviewers were selected based on the thoroughness of the reviews they regularly provide. Each reviewer was asked to identify common problems and issues in the manuscripts he/she had reviewed. Additionally, the editor also provided a summary of common issues he had seen. The editor summarized and synthesized all the comments and then sent that document to all the reviewers for comments, edits, and suggestions. This process was repeated until a consensus was reached. The opinions expressed in this editorial belong to this group of scholars and are based on their collective research training and experiences.*

## Writing Style

The *Journal of Agricultural Education* uses the *Publication Manual of the American Psychological Association*, 6th edition (i.e., APA Style) as its primary writing style guide. In addition to the APA Style manual, the journal has a *Submission Guidelines* sheet that gives very specific details about a variety of style and formatting issues. Incorrect use of APA style can be an indication of carelessness in manuscript preparation and perhaps carelessness in the general conduct of the research.

Articles submitted to the journal should be written in a scholarly style (e.g., scientific and/or technical prose) using proper American English. Mistakes related to incorrect grammar, spelling, and other technical language issues raise questions about the abilities of the researchers and the care in which that manuscript was constructed. It often appears that careful proof-reading would detect many of these errors, thus further implying that the researchers failed to exert suitable effort in creating a manuscript worthy of publication in the journal. Common

errors include misplaced commas, incorrect use of semi-colons, and subject/verb agreement.

Manuscripts should be written wherein reading ease and flow (e.g., logical, empirical, and/or rational) following a general structure as outlined in the journal *Submission Guidelines*. Fragmented manuscripts with disjointed sentences and paragraphs make it difficult for the reader to understand the logical thought process used by the researchers and thus difficult to judge the quality of the research. Disjointed and incongruent writing may produce faulty argument construction and lack of coherence. Argument and coherence are essential writing components to master in reporting scientific research.

## Introduction/Need

The identification of a worthy, researchable question is central for conducting a meaningful study. Quality research contributes to the body of knowledge; it fills gaps in the existing research base or addresses current problems/issues. Manuscripts that fail to

adequately demonstrate these characteristics are not useful. Further, using incomplete or inaccurate assertions to establish need reveals carelessness or ignorance on the part of the researchers. Inadequate or trivial research problems are not worthy of publication in the journal.

### **Theoretical Framework**

A theoretical framework in quantitative research provides the basis for conducting a study and thus should be developed before and, in some cases, modified during the conduct of the study. In qualitative research, the research may focus on developing theory, so researchers may begin without a clear theoretical framework and use the data to develop theory during and after the study. Accordingly, the theoretical framework may actually appear as a conclusion of a study.

At a rudimentary level, a theory attempts to explain processes or relationships between variables or phenomena. It occasionally seems like researchers conduct a study and then attempt to identify a theory that fits after-the-fact. In reality, most researchers (consciously or unconsciously) use one or more theories when selecting a researchable question, when identifying the appropriate variables to examine, and when establishing the research methodologies. Failure to write an adequate theoretical framework increases reading difficulty and decreases readers' understanding of the thought processes the researchers used to establish the study.

There are multiple levels of theories. Grand level theories are broadest in scope, explain general concepts, and are applicable in many contexts. Middle level theories explain relationships between specific variables and are applicable in a narrower set of contexts. Substantive theories are specific examples of a theory applied in a specific context. Substantive theory is analogous to a thorough synthesis of the literature. A philosophical article would often generate substantive theory. Agricultural education (education, extension, leadership, communication, etc.) is an applied discipline emanating from parent disciplines including psychology, sociology, anthropology, and perhaps others. Thus, the grand level and middle level theories used in agricultural education are

likely connected to these parent disciplines. Additionally, decades of research in agricultural education are grounded in a variety of established theories. Failure of researchers to make these connections reveals carelessness in establishing research studies, or ignorance of larger scientific theories. Reading broadly across disciplines will enable researchers to identify an appropriate theory for further development and is strongly encouraged.

The purpose of a theoretical framework is to communicate the theoretical stance used by researchers in establishing a study and presenting a summary of what is currently known about the variables or phenomena being examined. When using grand and middle level theories commonly referenced in agricultural education, it is unnecessary to spend an exhaustive amount of effort educating the reader about the theory. However, if presenting a new or seldom used theory, readers may require more detail. Additionally, the substantive theory presented should provide a suitable summary of existing research in agricultural education and appropriate related disciplines. It may be helpful to present an appropriate conceptual model (figure) that shows the variables being examined. However copying figures without copyright permission from the original author or copyright holder is unacceptable.

In general, research can: (a) use established theory to investigate a problem/question; (b) test existing theory in a new context, thus adding to or modifying existing theory; or (c) build new theory. It is helpful for readers if the researchers indicate how theory is being used in the study. Further, when using existing theory (options a and b) researchers should connect their conclusions drawn from their studies back to the theory used to establish those studies. An example of building new theory (option c) is grounded theory where the goal of the research is to develop new theory. Qualitative paradigms may begin a research project without a clearly identified theory. During data analysis a theory may emerge as the data coalesce into meaningful themes, in which case the theory will be explored in the conclusions section rather than the introduction.

## Methodology

For both quantitative and qualitative research approaches, it is necessary to provide a detailed description of the sample or population studied. This step is necessary to give readers sufficient information to understand the study and to aid with replication. Providing a detailed account of the research methods used is an expectation of research reporting and need not be presented as a distinct research question or objective.

### *Quantitative Research Approaches*

The design of the study should be influenced by the research problem and the theoretical framework used to initiate the study. Researchers should recognize that their preferred research methodologies are not appropriate to answer every research question. When necessary, researchers should expand their skills, or collaborate with other researchers who have the requisite skills and experience to sufficiently answer the research questions. Additionally, meaningful and important research questions probably require research methods other than those found in a quantitative descriptive research design.

One of the first key decisions when developing the research methodology is defining the population of interest and then deciding if a sample of that population or the entire population will be studied. Since defining the population and sample is a part of the methodology, it is unnecessary to include *describe the population and sample* as a research objective or research question. Researchers should clearly explain what they elected to do and justify why that decision was appropriate. It is also important to remember that parameters describe a population and statistics describe a sample. Further, inferential statistics (and the  $p$ -values that accompany them) are used to generalize from a sample to a population. If a sample is not representative of the population, generalizing is incorrect.

In designing the methodology, researchers should take great care to establish the validity and reliability of the study. When writing the manuscript, researchers should also clearly explain how validity and reliability were established and acknowledge the limitations of the study. Too often, researchers fail to

adequately discuss validity and reliability, thus leaving the reader uncertain about the quality of the research. Additionally, researchers should take care to consider the ethical treatment of research subjects and explain how human subjects rights were met.

Much of the research in the journal involves collecting data through survey research methods. When using this approach, nonresponse is usually a threat to the validity of the study. There are several cited methods of handling nonresponse error, some of which are easier to implement than others. When conducting survey research, researchers should implement procedures to minimize nonresponse and also plan *a priori* on how to test for nonresponse bias. One of the popular ways in agricultural education research is to compare early to late respondents, but the assertion that late respondents resemble non-respondents is not completely supported in the literature. Support for using extrapolation methods, such as comparing early to late respondents, is qualified and should only be used in cases where there are *a priori* grounds; otherwise, there should be no extrapolation. Compounding the issue is the wide variety of procedures that agricultural education researchers employ when comparing early respondents to late respondents. The results can be different when varying the *cut off* date and when using different variables for the comparison. In summary, it is important that agricultural education researchers account for non-response error and it is crucial that they select methodologies based on best practices in the social sciences, not on perceived ease.

Much of the research in the journal also involves using a variety of summated rating scales, often referred to as *Likert* scales. Typically, a set of items is grouped to create a construct. Data from these scales are often handled incorrectly. Data from individual items are ordinal. Accordingly, the appropriate method to present these data is as frequencies. Additionally, if individual items were being analyzed then a test-retest would be the appropriate reliability method to use. Data from an entire construct (multiple items) can be presented as one summed score for the construct or as an overall mean of individual items in the construct. The summated scores approximate an interval measure. Cronbach's alpha would be the correct reliability measurement in this case

giving the researcher(s) an internal consistency score for the construct.

### *Qualitative Research Approaches*

The underlying approach to qualitative research is very different from quantitative research. Qualitative research is as much a philosophy and an ethos as a methodology. The main purpose of qualitative research is to deepen the understanding of a phenomenon's impact on society, people, learning, and teaching.

Qualitative research is subjective by nature and allows researchers to give a voice to participants, which often includes the under-represented, the under-served, and the disenfranchised. All too often, researchers focus on the mechanics of design while missing the spirit of the research study. The resulting manuscripts are methodologically correct but do not reflect the underlying human condition that was studied. Qualitative research is action oriented and should focus on bettering our communities, schools, and fellow human beings. Participant voices should emerge loud and clear throughout the manuscript.

Qualitative research is not a single, all-encompassing methodology. Rather, it includes multiple methodologies, with each designed to explore different types of research questions. When outlining the research methodology, using the term *qualitative* provides a vague description of what was done and gives the reader very little information on which to base the quality of the research. Common qualitative methods include case study, narrative, historical, grounded theory, phenomenology, and ethnography. Researchers should implement appropriate methodological approaches and provide references that substantiate the methods implemented.

Researchers should clearly explain data collection processes and procedures for coding and analyzing data. Recognizing that qualitative methods can often be emergent and change during the data collection period, it is important for researchers to keep detailed records of the process as it unfolds and to thoroughly explain changes in the research manuscript. Often called an audit trail, this is a key feature of rigorous qualitative research. It is difficult to judge the quality of a manuscript without details about how data were collected and analyzed.

Qualitative sampling is purposive, participants are selected because they embody the requisite experience or attribute being studied. The number of subjects in a qualitative study is immaterial. A high quality study can be executed with a sample of one as well as 100. What is critical is the justification for selecting each participant. Generalization is not the goal of qualitative research, rather seeking a deeper understanding of the phenomena of interest. Researchers should provide a thick, rich description of the participants and the context in which the data was collected. Failure to provide a good description of participants makes it difficult for readers to determine how the research might apply to a similar situation.

Qualitative researchers should also take steps to ensure the validity and the ethical treatment of subjects within the research. Given that researchers are often the data collection instruments used in qualitative research, it is important for the researchers to embrace his/her own biases and subjectivity (reflexivity), and to include that information in the manuscript. The researchers' own thoughts, actions, and reflections should be presented in the manuscript with full disclosure of their roles. Additionally, given that the researchers typically have extensive interaction with participants, it is important to consider ethical issues before beginning the study and to explain how those issues were addressed in the manuscript. Another aspect of validity is often called credibility. Credibility is the extent that researchers have presented data that are an accurate representation of what participants provided. Credibility is often accomplished through procedures such as using multiple data sources (triangulation) and verifying the researchers' interpretations with the participants (member checking). Researchers should implement steps in the analysis to address credibility, which should be explained in the manuscript.

### **Implications/Recommendations**

The implications and recommendations section of the manuscript is the most important but often most neglected section of the manuscript. The implications and recommendations should connect directly back to the need for the study and the literature,

thereby contributing to the body of collective knowledge. The study should have been conducted to fill an identified gap in the research or address a specific issue or problem. Thus, the researchers should be able to identify specific implications and recommendations as a result of the conclusions of the study. Further, the researchers should be able to provide these implications and recommendations in a way that provides faculty in agricultural education (education, extension, leadership, communications, etc.) with implementable suggestions for practice and for future research.

Implications and recommendations are typically written last and placed at the end of the manuscript. Consequently, many researchers find themselves struggling with page limitations as they write this section. However, this portion of the manuscript answers the *So What?* question. Researchers should bring interpretative conclusions to this section and advance the literature by explicitly writing recommendations to improve practice and for future research. Therefore, this section is one of the most important to the entire manuscript and should not be short-changed at the expense of page limitations. Authors are encouraged to economize their words, use active voice, and avoid redundancy where possible in the manuscript.

Implications and recommendations provide a direct connection to the theoretical framework.

Based on what was presented in the theoretical framework, researchers should clearly indicate how their conclusions relate to or add to existing theory, or build new theory.

### **Responding to Reviews/Resubmitting**

The journal allows resubmissions of manuscripts that were not accepted. This action provides researchers with the opportunity to address identified deficiencies noted by reviewers. It is important to note that a poorly planned and poorly conducted study probably cannot be edited enough to be accepted in the journal.

During the review process, reviewers are encouraged to provide detailed feedback to the researchers. It is acknowledged that some reviewers provide greater detail than others. If researchers plan to resubmit a manuscript, it is expected that they carefully examine the feedback from reviewers and make appropriate changes. Upon resubmission, the same reviewers will see the manuscript, so it is very helpful for researchers to provide a summary of the changes made or a justification for not making suggested changes.