

# Publishing Research Findings: Some Suggestions for Junior Faculty

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Suggestions and tips for junior faculty to write quality research articles and publish in peer-reviewed journals, including to determine the type of articles, select publishable research topics, locate an appropriate journal to submit, avoid common mistakes in research design, and write in an academic style.

Keywords: Research Design and Publishing

## INTRODUCTION

Scholarly productivity is one of the most important and controversial requirements for success in higher education. Even those with little or no familiarity with colleges or universities have heard the dictum that professors must *publish or perish*.

Publication has always been important for those aspiring to a successful career in academe. However, today there is increasing pressure on many campuses and in different disciplines for faculty to be prolific writers (De Rond & Miller, 2005; Hartemink, 1999; Smith, 2000; Woods, 1999). As institutions have chosen to increase their emphasis on scholarly productivity, it has become highly influential in faculty evaluations. Consequently, decisions about tenure, promotion, and merit pay increases have become increasingly dependent on scholarly productivity. Because of the importance of scholarship, especially to beginning faculty who are pursuing tenure and promotion, we have decided to provide some suggestions we hope will be of value to such junior faculty members, especially those in departments that include information technology in education.

### WHAT KIND OF ARTICLES TO WRITE

While the number of publications is important, the type of publication as well as where the publication appears is also taken into consideration in most institutions. Unfortunately, there are no hard and fast rules that can be presented about the *best* type of

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publication, since there are significant differences across institutions and departments in the policies and procedures used to evaluate the scholarly productivity of faculty. Therefore, beginning faculty members should make it a point to investigate the specific requirements of their own departments and institutions to determine the most highly-valued type of publication in their own unique situations.

We would caution that it is not sufficient for beginning faculty to merely read the published guidelines available at most institutions to determine which type of publication is deemed the most deserving of reward. Official guidelines published in faculty handbooks tend to be general in nature and are often not highly informative. While these guidelines should be carefully studied, new faculty should also make it a point to talk to a wide variety of faculty members including those recently tenured and promoted, successful full professors, and academic administrators at a variety of levels in the department, the college, and the university.

At this point, it may be helpful to mention something about the concept of a *research agenda*. In some departments at some institutions, it is considered important for faculty members to concentrate their research in a narrow field, and continually dig deeper and deeper into related research questions. This is considered important because such individuals have a good chance of being recognized as an expert in that narrow topic. Some researchers are very good at this. Others, who are sometimes equally successful in terms of tenure, promotion, and merit-based salary decisions approach research in a much more general way, and tend to move from topic to topic as the years go by and their interests change. These two approaches might be thought of as a choice between being *an inch wide and a mile deep* or *a mile wide and an inch deep*. Obviously, beginning professors should strive to determine whether each approach is equally valued at their institutions, or whether being highly specialized is considered more professional and is thus more highly rewarded.

While there is a great deal of variation from situation to situation, most tenure and promotion committees consider all academic publications when evaluating faculty. Such publications include *research reports*, *books*, *literature reviews*, *position papers*, *historical essays*, and *method articles*. Those readers interested in general publishing advice regardless of type of publication are referred to several articles by one of the current authors (Maddux, 1995, 1996a, 1996b, 2003b). While it is common for all types of publications to be "counted" toward tenure, promotion, and merit salary increases, the most highly valued publications on many campuses are *research reports* published in prominent, peer-reviewed journals. Therefore, in this article, we will restrict our comments to those that we believe might be helpful to those who hope to plan, carry out and publish original research in peer-refereed journals.

#### *HOW TO SELECT A RESEARCH TOPIC*

Students and beginning professors often say that they have difficulty finding a good research problem, and ask us how we decide on such a topic. The best single piece of advice we can give on this subject is to make it a practice to regularly read many published research reports. Reading the published research reports of others will inevitably provide many ideas for additional research. After all, most journals require that authors address the topic of needed, future research on the topic. Sometimes such suggestions are for studies that are impractical because they would be too time-consuming or too expensive. However, sometimes the section on future research, which is usually found near the end of published research reports, contains excellent, specific, practical suggestions for research that can be adopted with only minimal modifications.

We have frequently published research that began as a suggestion in the *future research* section of someone else's published research report.

One thing to keep in mind is that the topic to be researched should not be one that has been heavily researched for years with the same or very similar results. Instead, the topic should be one that may provide some new insights and contribute to the knowledge base in the field. This is one reason why it is important to read extensively on the topic and become familiar with as much of the previous research as can be found.

When a new or innovative idea is found in previous research, it may be that a duplication of the study would be publishable, so long as there are some important modifications of the original study. For example, additional variables may be added, the participants may have different demographics, or the treatment may be modified to fit some theory or model.

Another way that a published research report can be the impetus for a new study is by correcting the problems or errors made in the original report. This is fertile ground for ideas for new research, since virtually all studies have weaknesses or errors that could improve the research.

We have said we would restrict our suggestions in this article to those applying to carrying out and publishing research reports. However, there is another type of article that can serve as a source of ideas for research. That type of article is a *review of existing research*. We know many editors of journals dealing with technology, and many of them have told us informally that it is almost impossible to find good research reviews, and that they seldom publish such reviews only because they seldom receive any (some editors say they *never* receive any). Good research reviews are time-consuming and difficult to write, but good ones are therefore exceedingly easy to get published. More relevant to the present discussion is that writing a good literature review will almost always provide many ideas for one's own future research. After all, one of the most important functions of a good literature review is to identify the general direction that research on that topic should take in the future as well as specific studies that need to be undertaken.

### *CHOOSING A JOURNAL*

After a topic is decided upon, a journal should be targeted. Choosing the journal ahead of time will be useful in making decisions at every stage of the research including the design stage. It is a mistake to write a research report, then begin looking for an appropriate journal. This is true, because it is entirely possible to develop a manuscript that is not appropriate for *any* current journal in the field.

In deciding on a journal to target, there is no substitute for examining a good sample of recent back issues. While there are published books that outline the requirements of hundreds of journals in education, by the time these volumes are published they are frequently out of date. Therefore, a trip to the library (or the Web, in the case of online journals) should be made and at least a year of back issues examined.

Examining a few issues from several different journals will most likely show that the writing style for research reports varies greatly. Journals often differ substantially in the length and depth of literature reviews, the extent to which authors articulate any underlying theoretical background, the level of statistical detail. Some journals tend to require only the barest details including whether or not significant differences were found while others often include detailed tables and graphs based on the findings. Some journals prefer informal, easy-to-read language aimed primarily at practitioners while others require highly technical language. One of the most important goals in examining back issues of a journal is to develop an impression of the quality and *weight* (the term

weight here can be the width and depth the issue is explored, the amount of statistics procedures and results presented, or the level of vocabulary used in the writing) of the work typically published in that journal.

### DESIGNING THE RESEARCH

All stages of a research project are important, but it could be argued convincingly that this is the most critical part of any study. Mistakes made at this point are often fatal ones from a publication standpoint, and many cannot be corrected at a later time.

A major decision that must be made at this stage is whether to employ a *quantitative* or a *qualitative* research design. A full discussion of this controversial topic is beyond the scope of this article, and there is a large literature widely available dealing with this issue (Maddux, 2003a; Willis, 1999). We believe there is clearly an appropriate place for both types of designs. However, our bias is that there has been a recent, unfortunate rush to qualitative designs, and that this rush has frequently been joined for the wrong reasons. Some doctoral students, new professors, and others have chosen qualitative designs, not because they believed these were the designs best-suited to answer the research questions posed, but because they erroneously believed that a qualitative design would relieve the researcher from the necessity of careful and rigorous planning and because they did not feel competent to deal with the statistical concepts and procedures necessary to analyze and interpret data gathered in quantitative designs. The result has been that there are many research studies in education employing qualitative designs when a quantitative design would have been more appropriate (Polloway, 2002).

A complete discussion of errors to avoid in quantitative or qualitative designs is beyond the scope of this article. Suffice it to say that in quantitative research, issues of internal and external validity are important. These issues are covered quite well in many textbooks designed for use in beginning research methods courses (i.e., Wiersma, 2000). The issue is not as clear for qualitative research. For example, Onwuegbuzie and Daniel (2003) published an article entitled *Typology of Analytical and Interpretational Errors in Quantitative and Qualitative Educational Research*. The article does an excellent job identifying common errors in quantitative research studies. However, they say the following about errors in qualitative designs:

Many data analytic and interpretational errors permeate qualitative research. . . . the authors would have liked to have outlined the most prevalent analytical and interpretation errors that have been found to occur for each of the major data-analytic techniques—similar to that undertaken for quantitative research.

However, this goal was beyond the scope of the present article.

Onwuegbuzie and Daniel go on to make the point that there is not a high level of agreement among qualitative researchers about what constitutes their data-analytic techniques and how best to carry out those techniques. In fact, they contend that there is not even agreement about what to call these techniques. This, we believe, is one reason why it may be more difficult to carry out good qualitative research than it is to do good quantitative research (Maindonald, 2000). The rules to follow in quantitative research are much more clearly stated and widely agreed-upon than they are in qualitative research. In fact, some qualitative researchers maintain that rules and specific techniques cannot be stated for qualitative research.

Currently, both types of designs are published in journals dealing with information technology in education. In fact, a recent study coauthored by one of the current authors analyzed all 591 articles published over a 3-year period in five journals in the area of information technology in education (Kongrith, Chaffin, Aberasturi, Paone, & Maddux, in preparation). These authors reported that 45% of all articles published were

quantitative research reports, while 15% were qualitative research reports. We would simply advise that the research questions should be used to decide on the appropriate design.

It is at this point that the proper statistical analysis should be selected. This choice should never be left until after the data is gathered because we have seen instances where there was simply no appropriate statistic to analyze a set of data that had already been gathered.

When deciding on a statistic, a good rule is to select the simplest, least complicated analysis that will answer the research questions. This, of course, is the principle of parsimony, which is a hallmark of the scientific method. If descriptive statistics or a t-test will do the job, they should be chosen in preference to a more complex analysis. Every time one moves to a more complex level of statistical analysis, one further limits the potential audience for the results.

In quantitative studies, instruments often must be chosen. If an existing instrument is available, it should be used. The development of custom instrumentation is a difficult and time-consuming process. In reviewing existing instruments, issues of reliability and validity are of importance, and reliability and validity studies that have been carried out by others should be obtained and quoted in the research report.

#### *DATA COLLECTION*

Before data can be collected, approval must be obtained from any human subjects committees in whose jurisdiction the study lies. Policies and procedures vary from institution to institution, but approval is an absolute requirement. Such committees, officially called *Institutional Review Boards* (IRB), meet periodically, and it is important for researchers to learn the schedule of their meetings and submit research protocols according to a schedule that will provide time to adopt any modifications suggested by the committee and permit data collection to begin at the optimal time. If, during the carrying out of a study it becomes necessary to change any of the data collection procedures, researchers must secure permission from the Institution Review Board before changing treatment of participants in any way. As Richmond (2004) emphasized, an IRB protocol should be prepared as a manuscript submitted to a refereed journal.

#### *WRITING THE REPORT*

The exact structure of the report will depend upon the nature of the study and requirements of the journal to which the manuscript will be sent. One of the first considerations is related to manuscript length. Most journals specify a maximum length, and it is vital to ensure that the manuscript conforms to that guideline. One of the most common reasons for rejection of a research report is that the manuscript exceeds the maximum length permitted by the journal.

##### *The Introduction and Literature Review.*

Most commonly, the manuscript will begin with an introduction that summarizes a statement of the problem the research is designed to address. This is followed by a literature review. Higher education courses seldom teach how to write a literature review, and good literature reviews are difficult for many beginning writers and researchers. It should be remembered that a good review is not merely a list of articles or books. Good literature reviews actually develop an argument that establishes why the new research is needed, why it is structured the way it is, why the data will be analyzed as it is, and what will be proven given varying results. The literature review should: (a) provide

background information on the topic, (b) review related theories or theoretical framework, (c) review related practices (what works, what does not...), and (d) review variables in the study.

The literature review, taken as a whole, should then lead logically back to the purpose of the study and to the specific research questions being addressed.

One author of this article was the external evaluator of a doctoral program in a nearby university and reviewed a random sample of dissertations from that program. Some major problems in the literature reviews of those dissertations were:

1. Some reviews consisted only of a largely unrelated annotated list of studies.
2. Many of the studies listed in the reviews were not relevant to the new study.
3. Many theories were mentioned or described in the reviews, but often without a clear, logical connection among the theories and without clearly pointing out the relevance of each description.

#### *The Method Section.*

In the method section, the procedures should be described as completely as possible without getting into results. The goal here is to describe the method so completely that someone could replicate the experiment after merely reading the description. The method section should also clearly describe the participants and any instruments employed.

#### *The Results Section.*

The results section presents all the findings obtained. Tables and figures can be used, but most journals limit the number they will permit. The results should be presented objectively without editorializing and without hypothesizing about possible reasons why the specific results were obtained.

#### *The Discussion Section.*

In this section, authors are free to insert their own opinions, to hypothesize about why the results turned out as they did, and what the implications are for practitioners and for future research. This section should also include any limitations of the study.

#### *Writing the Title.*

The best time to write the title is after the entire manuscript has been completed. It has been said that *if the article is a dragon, the title is the eyes of the dragon*. In that case, a good title will be the *shining* eyes of the dragon. A good title should be clear, concise, as short as possible, and highly descriptive of the study. One of the current authors recently reviewed 225 submitted manuscripts over a six-year period and summarized some problems in the titles of those manuscripts. Some common problems found were:

1. Titles that were too long. A rough rule of thumb for length is that titles should not exceed 15 words
2. Titles that are not relevant to the content of the study.
3. Titles that are unclear or confusing.
4. Titles that promise more than the study delivers.

### **SOME CONCLUDING REMARKS**

This article has presented some suggestions for beginning researchers who hope to publish their research in academic journals. One of the reasons for this article is that the coauthors are both editors or section editors of academic journals, and often review manuscripts that are rejected. Many of these could easily have been improved sufficiently to permit publication if their authors had been aware of some of the points raised here.

There is, of course, very much more that could have been said in this article. However, space and time limitations have required us to be brief. Then in addition, we wanted to emphasize common errors we see as we review articles for this journal and for others with which we are associated in an editorial capacity.

This online journal is currently soliciting research reports of interest to an international readership from the field of information technology in education. Some suggested topics of interest follow:

1. Pedagogy of teaching with technology
2. Technology as a teaching strategy
3. Technology as a learning style
4. Impact of technology
5. Technology and instructional design
6. Design of technology integration
7. Development of technology-based curriculum
8. Distance education
9. Exploration of the use of technology tools (Internet, multimedia/hypermedia, digital imaging, and video)
10. New technology tools and innovations
11. Faculty development
12. Technology leadership
13. Assessment and evaluation
14. International and multicultural issues in the use of technology

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