Multiple Linear Regression Articles and the Article Publication Process

Patrick A. Newell
California State University Fresno

Patricia B. Elmore
Southern Illinois University Carbondale

David A. Walker
Northern Illinois University

This article provides authors with important factors to consider when approaching the publication process. These elements include the choice of a journal, the preparation of the manuscript, the requirements that different journals have for publication, how to collect sufficient information about the journal to make an informed decision and accelerate the publication process, and ethical and other standards that journals and their publishers maintain. Further, specific guidelines for publishing in *Multiple Linear Regression Viewpoints* are provided.

With significant changes that electronic publication methods and instant access to electronic-based information have brought to scholarly publication, as well as the plethora of newly available journals both in paper and electronic formats, new researchers and seasoned authors often have questions regarding how to best locate and recognize quality journals in which to publish. The many different types of metrics on which to gauge the worth of a publication, such as the impact factor, can add another layer to the learning process regarding which journals would be best for submission of one's manuscript. This article seeks to provide potential authors with important factors to consider when approaching the article publication process. These elements include the choice of journal, the preparation of the manuscript, the requirements that different journals have for publication, how to collect sufficient information about the journal to make an informed decision and accelerate the publication process, and ethical and other standards that journals and publishers maintain.

Authors often choose journals that they know about or learn about from their colleagues as places in which to publish their articles. While most authors are extremely familiar with the journals in their field, gathering information about potential journals in which to publish requires examining both journals about which one is familiar as well as journals with which one is less acquainted. While using the construct of the Johari Window, which provides a complete method for mapping-out how to uncover what is needed to make decisions about information (Shenton, 2010), it does not explicitly address how to find journals in which to publish. However, Johari Window does help explicate an important truth when looking for potential publications: it pays to be aware of what you do not know regarding potential publications.

While some academic fields focus solely on one type of literature (e.g., physics, chemistry, or mathematics), others cover subject matter that overlaps with other disciplines (e.g., molecular biochemistry, genetic physics, or mathematics education), requiring a review of the literature of different subjects both when doing bibliographic research as well as when looking for potential journals in which to publish. In the field of education, a discipline that crosses many boundaries both in subject and scope, choosing a set of literature to search becomes even less clear. Most academics can list the top 5 or 10 articles in their discipline and these serve as good journals in which to publish. In order to uncover a wider range of journals for which an article may be appropriate, searching in bibliographic databases that are broadly related to their topic will reveal to authors new publication avenues beyond the journals with which they are familiar.

Searching bibliographic databases for journals in different disciplines can provide important insight into how their topic is viewed by different specialists, as well as provide an understanding of other potential journals in which to publish. For example, most educational researchers are familiar with the Educational Resources Information Clearinghouse (ERIC) (U.S. Department of Education, 2012), and the database from the American Psychological Association (APA, 2012), PsycINFO; both of these databases provide a sound footing to begin a bibliographic search. For those whose work spans subject-specific fields, such as research into mathematics education or English language learners, other databases may be more suitable to finding resources and publishing targets for their topic. For example, in addition to checking the ERIC and PsycINFO databases, searching subject-specific databases for mathematics (e.g., MathSciNet produced by the American Mathematical Society (AMS, 2012)) will provide mathematics

education researchers the titles of other journals that may serve as useful targets for their articles. For researchers working with English language learners, bibliographic databases that focus on linguistics or language behavior, which often are not taught as part of the research training aspect of their library education, can provide insights into other publication venues.

Both mathematics education and English language learner researchers would benefit from searching the subject-specific bibliography databases in sociology, social work, economics, or other subject fields that encounter and work with teachers or students, perform research on or theorize about these populations, and have developed a lively scholarly community with whom to share their findings. Just as journals that focus on education will publish works on English-language learners, journals that focus on linguistics often publish research on how students learn English. Using bibliographic databases specific to an academic discipline that studies the same populations as educational researchers, allows the educational researcher new avenues to discover potential targets for their publication as well as to encounter new approaches to their subject areas. Thus, consulting with an academic librarian familiar with the scholarly publication process and scholarly databases would be time well spent.

Indicators of Journal Quality

A number of tools exist to help authors understand the scope and reach of journals. Measures that are important to investigate are often available in Journal Citation Reports (JCR) (Thomson Reuter, 2012) and include the immediacy index (i.e., the time from acceptance of an article to its publication and a ranking of how quickly a journal responds to new information and changes in the field); the cited half-life of the article (i.e., an analysis of citations that provides a measure of how long or short lived an article is in journal literature); the aggregate impact factor of a journal (i.e., the frequency with which a journal has cited articles and is also cited in other publications); citation influence (i.e., computed from the number of times an article is cited by other high ranking journals); the journal influence index (i.e., the computed influence of a journal that takes into account how many journals and articles in a particular journal are cited by other journals); and the paper influence index (i.e., a measure of how often an individual paper is cited by other authors).

Different computed measures of a journal's impact provide objective metrics by which to rate a journal's quality and these measures can help an author determine potential targets for a manuscript. The indicator of journal quality began with the Institute for Scientific Information, founded in 1960 by Eugene Garfield, and the development of the impact factor as a measure for reflecting the average number of citations affixed to recent articles published in science and social science journals. The impact factor is often used to gauge the importance of a journal within its field. Impact factors are calculated annually for those journals that are indexed in JCR (Thomson Reuters, 2012). The impact factor is calculated by taking the average number of citations received per paper published in a particular journal during the two preceding years (Garfield, 1994). While the impact factor is highly discipline-specific and is based on a Bradford distribution, rather than a normal distribution, it does supply a metric that gives the appearance of objectivity of a journal's relative importance in its field.

Because of the success of the impact factor as a way to rank the worth of a journal, a number of other ranking mechanisms developed subsequently that provide a similar sense of objective ranking. Another subscription database provider, Scopus, developed a set of bibliographic tools that are freely available to users. Their tools measure the impact of journals with data beginning from 2007. The metrics are calculated using a methodology based on Google's page rank technology. The SciImago Journal Rank (SJR) metrics differ slightly from the impact factor as they give greater weight to citing references from more influential sources. SJR also provides a ranking for journals and countries of the world (Lab, 2012). Scopus' Source Normalized Impact per Paper measures impact, but can adjust for varied citation patterns across different subject matter areas allowing cross-disciplinary comparison (Elsevier, 2012).

Eigenfactor.org (2012) is a free resource created by the Bergstrom Lab at the University of Washington and provides bibliometric scores of article influence. The Eigenfactor score uses eigenvector analysis to measure the prestige and influence of journals using JCR data from the past five years. Eigenfactor.org weights the information by putting greater value on references from more influential journals. Article influence is defined as the average influence per article of the articles in a journal.

Red Jasper's Center for Journal Ranking (Journal-Ranking.Com, 2012) also uses an eigenvector analysis based on Google page rank technology to create a fan (i.e., influence index) for either a journal or an

individual paper. A user can weight certain journals or articles and make cross-disciplinary comparisons using this tool; unfortunately, the information in this database appears to be somewhat sporadically updated across different disciplines and time periods. Google (2012) offers its scholar metrics tool to allow authors to quickly gauge the visibility and influence of recent articles in scholarly publications. The power of this tool lies in its ability to capture information and rank newer publications in related fields. Scholar metrics summarizes recent citations related to many publications and Google provides complete documentation on how the metrics are developed and the rankings maintained. The currency of the ranking information makes this tool particularly useful to authors seeking journals that include articles that have recently affected the scientific community.

The abstracting and indexing databases that include a journal also serve as another important indicator of journal quality. Journals with articles included in indexes are discovered, and also cited, more than journals that are not indexed. Thus, having the journal indexed makes it available to more researchers and being listed in multiple nationally recognized abstracting and indexing databases, such as site info, adds an aura of prestige to the journal simply because more researchers will be able to find the contents of the journal. Authors can easily discover which indexes include a journal by consulting the journal's web site, contacting the journal, or using popular journal directories. Most journals provide on their website information regarding the abstracting and indexing databases that include their journal in the index. Often, this is found with the author information that is available at the beginning of each journal or on the journal website.

Directories of Periodicals

Two directories of periodicals, Ulrich's Periodicals Directory 2012 (Bowker Company, 2011) and Cabell's Directory of Publishing Opportunities in Educational Psychology and Administration (Cabell, English, & Abernethy, 2007), provide authors with significant details regarding what a journal publishes. Ulrich's Periodicals Directory (Bowker Company, 2011) provides detailed information on almost all currently published journals and includes the circulation count of a given journal as well as a list of which abstracting and indexing databases index a journal. Additionally, these data can be indicators of a journal's influence in the marketplace and its subject area. Ulrich's is available at most academic libraries either in print or as an online database and contains subject areas for various journals, if a journal is available online, audience demographics, pricing information, and information about what materials a journal accepts as submissions.

Cabell's Directory of Publishing Opportunities in Educational Psychology and Administration (Cabell et al., 2007) includes complete reviews of journal submission information for a select subset of journals currently being published. The review includes the manuscript submission process; contact information for a journal including the editor-in-chief and the journal website (if available); summary statistics of a journal's review process metrics including acceptance rate, number of invited articles, the type of review used by a journal (peer, blind, or editorial); the time it takes for a journal to complete the review of an article; in which databases a journal is indexed; historical information regarding the launch date of the publication and the name of the sponsor/publisher of a journal; manuscript specifications including what style, length, and how to submit; and what level of reader for whom to prepare the manuscript. Additional manuscript guidelines and comments include topics that a journal specializes in, a complete list of the editors, the sponsor (if it is sponsored by a professional association), and a brief review of the journal. If available, a link to the publisher's website with detailed information that includes manuscript guidelines is included in the in-depth review.

AERA Code of Ethics

The Code of Ethics of the American Educational Research Association (AERA, 2011, p. 146) "articulates a common set of values upon which education researchers build their professional and scientific work." The five Principles that serve as a guide for educational researchers consist of: A. Professional Competence; B. Integrity; C. Professional, Scientific, and Scholarly Responsibility; D. Respect for People's Rights, Dignity, and Diversity; and, E. Social Responsibility. The 5 Principles are followed by 22 Ethical Standards. Table 1 shows the eight Standards of particular relevance for the conduct of research and publication of research findings quoted from the AERA Code of Ethics.

The recommendations provided by the American Physiological Society (APS, 2008) in its ethical standards poster, reprinted by permission as Figure 1, presents an excellent summary of the material discussed in detail in the AERA Code of Ethics.

What you need to know about

ETHICAL ISSUES

when Writing a Scientific Paper

The most common Ethical Problems found in scientific papers (and how to avoid them):

	Definition	*How to Avoid*
Plagiarism	Taking the work of another. Copying a figure, table, data, or even wording from a published or unpublished paper without attribution.	Provide citations to the work of others. Do not copy exact wording from another's paper to yours, even if referenced, unless in quotes.
Duplicate Publication	Submission of or publication of the same paper or substantial parts of apaper in more than one place.	Do not submit the same paper or parts of that paper to more than one journal at a time. Wait until your paper is rejected or withdraw it before submitting elsewhere.
Redundant Publication	Using data from another paper (usually your own) in a new paper. Also called auto- or self-plagiarism.	Do not use data from a previous study, even for statistical analysis. Repeat necessary control groups for each experiment.
Falsification and Fabrication	Changing or making up data in a manuscript, usually to improve the results of the experiment.	Paper should reflect exactly the protocol followed and the results in the experiment.
Figure Manipulation	Altering a figure so that the published figure does not match exactly the image or data acquired.	Do not obscure, move, remove, or introduce information or features. Do not combine parts of different figures so that they look like one. Any manipulations must apply to the whole image and be disclosed.
Human/Animal Welfare Issue	Treatment of animal or human subjects that does not meet standards or journal policy.	You must have IRB or IACUC approval for the study protocol. Do not deviate from the approved protocol.
Conflict of Interest	Real or perceived conflict due to employment, consulting, or investment in entities with an interest in the outcome of the research.	Disclose all potential conflicts to the Editor of the journal and within the manuscript.
Authorship	Disputes arising from addition, deletion, or change of order of authors.	Agree on authorship before writing begins, preferably at the start of the study. Sign publishers' authorship forms. All authors should have made a substantial contribution to the paper.

Brought to you by the Publications Committee of the American Physiological Society

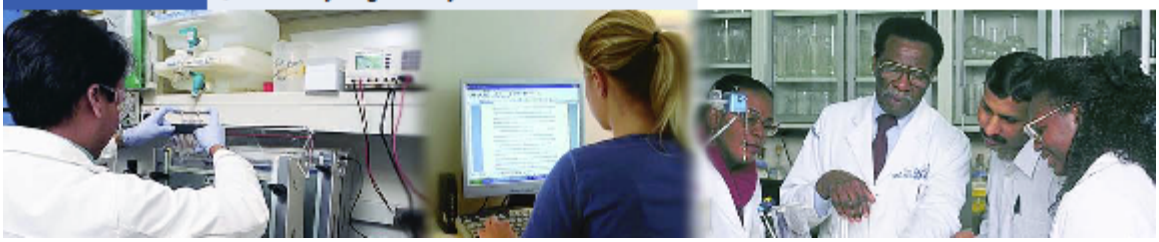

Figure 1. APS recommendations for ethical standards in research

Table 1. AERA Code of Ethics: Selected Sections of Ethical Standards Relevant to Research Publications

Section	Heading	Content
4	Fabrication, Falsification, and Plagiarism	Education researchers do not engage in fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.
10	Conflict of Interest	Education researchers avoid where possible or otherwise disclose and manage conflicts of interest and the appearance of conflicts of interest.
12	Confidentiality	Education researchers ensure that confidential information is protected.
13	Informed Consent	Informed consent is a basic ethical tenet of scientific research on human populations. Education researchers do not involve a human being as a participant in research without the informed consent of the participant or the participant's legally authorized representative, except as otherwise specified in this Code (see, e.g., 13.01[b] and [c]).
14	Research Planning, Implementation, and Dissemination	Education researchers have an obligation to promote the integrity of research and to ensure that they comply with the ethical tenets of research in the planning, implementation, and dissemination of research. They do so in order to advance knowledge, to minimize the possibility that results will be misleading, and to protect the rights of research participants.
15	Authorship Credit	Education researchers ensure that all who have made a substantive contribution to an intellectual product are listed as authors. Read sections b, c, and d for more detailed guidelines.
16	Publication Process	Read Section 16.01 Submission of Manuscripts for Publication; Section 16.02 Duplicate Publication of Data; Section 16.03 Responsibilities of Editors
17	Responsibilities of Reviewers	Education researchers adhere to the highest ethical standards, including standards of competence, when serving as reviewers for publication, grant support, or other evaluation purposes.

An edited book entitled The Reviewer's Guide to Quantitative Methods in the Social Sciences (Hancock & Mueller, 2010) is particularly relevant to responsibilities of reviewers. The 31 chapters within the book were written by quantitative methodology experts not only for journal manuscript reviewers, but also for educational researchers to use as a guide when reporting research findings. Further, the Handbook of Complementary Methods in Education Research edited by Green, Camilli, and Elmore (2006) contains over 40 chapters that provide an introduction to diverse research methodologies including art-based, historiography, philosophy, qualitative, quantitative, and mixed methods suitable for graduate students as well as research scholars.

AERA Reporting Standards

Reporting standards for the humanities and social sciences have been approved by the AERA Council and published in *Educational Researcher.* Two overarching principles in the "Standards for Reporting on Empirical Social Science Research in AERA Publications" published in *Educational Researcher* (AERA, 2006) are:

> First, reports of empirical research should be *warranted*; that is, adequate evidence should be provided to justify the results and conclusions. Second, reports of empirical research should be *transparent*; that is, reporting should make explicit the logic of inquiry and activities that led from the development of the initial interest topic, problem or research question; through the definition, collection, and analysis of empirical data or evidence; the articulated outcomes of the study. (p. 33)

Empirical social science research refers to qualitative, quantitative, and mixed methods.

The "Standards for Reporting on Humanities-Oriented Research in AERA Publications" published in *Educational Researcher* (AERA, 2009) complements the standards for empirical social science research.

These standards state:

> The term *humanities-oriented* is intended to capture a constellation of familiar education research genres used in domains such as history or philosophy, for which the *Social Science Standards* are clearly not suited, and also to include emergent approaches to education research not as readily identifiable with traditional humanities disciplines. (p. 481)

MLRV

Multiple Linear Regression Viewpoints (MLRV) is a publication sponsored by AERA's Special Interest Group (SIG) on Multiple Linear Regression (MLR): The General Linear Model (GLM). It is published twice a year to facilitate communication among professionals, practitioners, and students who focus their research on the theory, application, or teaching of MLR models and/or the GLM. Manuscripts submitted to MLRV should conform to the language, style, and format of the Publication Manual of the American Psychological Association (6th ed.) (2010). Once received by the editor, manuscripts will be anonymously peer-reviewed by two editorial board members. The review process will take approximately two to three months. A letter acknowledging receipt of the manuscript will be sent to the first author, and upon review completion, a letter indicating the peer-review decision will be sent to the first author. Potential authors are encouraged to contact the editor to discuss ideas for contributions or determine if their manuscript is suitable for publication in MLRV.

Summary

We recommend that all researchers planning to publish in AERA and AERA-SIG sponsored journals, in particular *MLRV*, become familiar with the following publications:

- *AERA Code of Ethics* (AERA, 2011)
- *Cabell's Directory of Publishing Opportunities in Educational Psychology and Administration* (Cabell et al., 2007)
- *Publication Manual of the American Psychological Association* (6th ed.) (APA, 2010)
- Standards for reporting on empirical social science research in AERA publications (AERA, 2006)
- Standards for reporting on humanities-oriented research in AERA publications (AERA, 2009)
- *Ulrich's Periodicals Directory 2012* (Bowker Company, 2011)

References

American Educational Research Association. (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, *35*, 33-40.

American Educational Research Association. (2009). Standards for reporting on humanities oriented research in AERA publications. *Educational Researcher*, *38*, 481-486.

American Educational Research Association. (2011). Code of ethics. *Educational Researcher*, *40*, 145-156.

American Mathematical Society. (2012). *MathSciNet*: *Mathematical Reviews on the Web*. Retrieved from http://www.ams.org/mathscinet/help/about.html

American Physiological Society. (2008). *What you need to know about ethical issues when writing a scientific paper*. Bethesda, MD: Author. Retrieved from http://www.the-aps.org/publications/journals/Ethics%20Poster_2008_aps.pdf

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

American Psychological Association. (2012). *PsycINFO*. Retrieved from http://www.apa.org/pubs/databases/psycinfo/index.aspx

Bowker, R. R. Company. (2011). *Ulrich's periodicals directory 2012*. Retrieved from http://uclibs.org/PID/5987

Cabell, D. W. E., English, D. L., & Abernethy, B. S. (2007). *Cabell's directory of publishing opportunities in Educational Psychology and Administration*. Beaumont, TX: Cabell Publishing.

Eigenfactor.org (2012). *Ranking and mapping scientific knowledge*. Retrieved from http://www.eigenfactor.org

Elsevier, B. V. (2012). *About SNIP*. Retrieved from http://www.journalmetrics.com/snip.php

Garfield, E. (1994). *Impact factor.* Retrieved from http://thomsonreuters.com/products_services/science/free/essays/impact_factor/

Google, I. (2012). *Google scholar metrics*. Retrieved from http://scholar.google.com/intl/en/scholar/metrics.html

Green, J., Camilli, G., & Elmore, P. B. (Eds.). (2006). *Handbook of complementary methods in education research*. Washington, DC: Lawrence Erlbaum Associates, Inc.

Hancock, G. R., & Mueller, R. O. (Eds.). (2010). *The reviewer's guide to quantitative methods in the social sciences.* New York: Routledge.

Journal-Ranking.Com. (2012). *Red Jasper's Center for journal ranking*. Retrieved from http://www.journal-ranking.com/ranking/web/index.html

Lab, S. (2012). *SCImago journal & country rank*. Retrieved from http://www.scimagojr.com/

Shenton, A. K. (2007). Viewing information needs through a Johari window. *Reference Services Review*, *35*, 487-496.

Thomson Reuters. (2012). *Journal citation reports*. Retrieved from http://thomsonreuters.com/products_services/science/science_products/az/journal_citation_reports/

U.S. Department of Education. (2012). *ERIC*. Retrieved from http://eric.ed.gov/.

Send correspondence to:
Patrick A. Newell
California State University Fresno
Email: pnewell@csufresno.edu