

An Experiment in Publication: Advance Publication Review

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In its first 12 years of publication, *Applied Psychological Measurement (APM)* has published almost 500 articles. Given a rejection rate for first submissions that averaged about 70%, this means that we have reviewed approximately 1,700 manuscripts to select the 500 that we have published. It also means that we have rejected about 1,200 manuscripts. Although some of these 1,200 manuscripts will find their way into print in some form, the vast majority will never be published.

There are many reasons that we have rejected manuscripts. These include:

1. The subject matter of the research was inappropriate for *APM*.
2. The research was not well grounded in the literature.
3. The research had design flaws that made the results uninterpretable.
4. The research questions were poorly conceived, were unanswerable, or did not permit a clear answer.
5. The study was designed in such a way that the design did not clearly follow from the research questions.
6. The study had deficiencies in implementing the analyses, or used methods of analysis that were inappropriate for the questions under investigation.
7. The results were not well presented.

Some of the rejected manuscripts which were basically sound in terms of design and analysis eventually were published after one or more revisions. Some of the manuscripts in Category 2 were eventually published, if their relationship to the literature was basically sound but the authors had overlooked some references that did not have a major impact on how the research was designed or analyzed.

Most of the papers that eventually were published were from Category 7. These papers also were sound in conceptualization, design, and analysis, but the authors simply did a poor job of presenting the results, drawing implications from the results, and/or relating their results to the literature that motivated the research.

A second group of papers that eventually were published used inappropriate analyses but were otherwise well designed, or included analyses that were incomplete or not well implemented. This group of eventually published manuscripts is much smaller than the first group, because in order to salvage the manuscript for publication the authors usually had to reanalyze their data. After spending much time and resources in the initial analysis of their data, many authors are understandably reluctant to spend additional time and resources in extensive reanalysis.

Although I have not kept careful records on the matter, I estimate that only 10% of initially rejected manuscripts are eventually salvaged for publication. Those that are published sometimes undergo four or five revisions before the manuscripts are accepted for publication. If the 10% figure is correct, this means that *APM* has rejected about 1,100 manuscripts that fell into rejection Categories 3 through 6.

If *APM's* experience is typical of other research journals, and the published rejection rates for the journals of the American Psychological Association suggest that it is, the research enterprise as it is now practiced is an extremely inefficient process. To implement a typical research article, such as those that *APM* publishes, requires a considerable investment in both direct and indirect resources. In most cases many hours are involved in the planning of a research study by those involved. An idea

is generated, discussed, and evaluated; proposals are drafted, revised, reevaluated, refined, and eventually agreed upon. Resources are then identified, including research participants, materials, tests or inventories, and space for data collection. Data are collected, sometimes at considerable expense to the researchers and to the research participants.

The data collected are then prepared for processing, converted into a processible form, and eventually analyzed. Associated with the analysis phases are the costs of developing or acquiring computer programs, and direct costs of computer time, supplies, and equipment. Once the data analysis is completed, the process of "writing up" the study begins. Costs involved here are obvious—personnel to write the manuscript, to type it, to make figures and tables, to repeatedly revise and polish until the paper is ready to submit for publication. And the end result? In 7 out of 10 cases (and in some journals more), all of this effort, time, and sometimes thousands of dollars, results in an irreversible decision that the paper will not be published. The waste of resources evident in this process is indeed appalling.

A Potential Solution: Advance Review Option

After thinking about this problem with increasing frequency during the first 10 years that I edited *APM*, in April of 1986 I proposed to *APM*'s Editorial Board that we experiment with a new approach to the publication process that should be more efficient and, if properly done, should result in better research. I called this proposal the Advance Review Option (ARO).

I proposed that ARO would function as follows. A researcher who has a research idea would review the literature, and design his or her study. The researcher would write the literature review section of his or her paper, and write a complete method section describing the study as if it had been completed. Then, the author would prepare dummy tables and figures for the study indicating how the results will

be presented. This complete document, including an introduction, literature review, complete method section, dummy results section, and a complete reference list would then be submitted for review.

Members of the Editorial Board or others would, as we do now, review the paper in terms of its relationship to the literature, the adequacy of the research questions, the adequacy of the design and analyses, and the adequacy of the proposed presentation of the results. We would then make recommendations for revision in the design or analysis and/or comment upon the relationship to the literature, pointing out literature that was missed. We might point out better ways to conceptualize or operationalize the study or other aspects of the research design, including the proposed presentation of the results. Much as we do now, the author would then receive the reviewers' comments, and a decision would be made as to whether the resulting paper would be publishable, contingent upon the author's willingness to revise the design, analysis, and presentation of the results, etc., in accordance with our reviewers' recommendations. We might, before making a decision on a manuscript, return it for revision and have it re-reviewed, as we do now.

Once we were satisfied with the study as proposed, we would accept the paper for publication. This acceptance would be contingent only on an adequate presentation and discussion of the results, and an adequate discussion of the conclusions and implications of the research. The author would then implement the research, complete the paper by writing the results, discussion, and conclusions sections, and resubmit the paper for publication. At that time, we might have additional review, but only the three new sections (Results, Discussion, and Conclusions) would be subject to criticism if the research had been implemented as we had agreed upon in our acceptance of the paper.

As might be predicted for a relatively radical proposal of this type, the reaction that I received from the Editorial Board was mixed.

Several thought it was a good idea, one or two thought it was infeasible, one thought it was not a good idea because we would end up reviewing everyone's thesis proposals, and several more were negative for other reasons. Finally, one member of the Editorial Board said that it was "so blatantly nuts that it merits a try." Overall the reaction was slightly more negative than positive, and as I became involved in other *APM* activities, I let the idea languish.

Although I still continued to experience the frustration of having to reject so many manuscripts that used substantial resources, I did not think actively about ARO until I read an article by Joel Kupfersmid in the August 1988 issue of *American Psychologist*. In that article, entitled "Improving what is published: A model in search of an editor," Kupfersmid independently proposed essentially the same advance review idea. In contrast to my proposal, he suggested that the author submit only the Introduction and Method sections of the paper.

Much of the rationale for Kupfersmid's proposal derived from what he perceived as the "statistical significance" problem in manuscript acceptance. Kupfersmid was concerned that in some journals manuscripts appear to be accepted for publication only if the results of an experimental (or quasi-experimental) study achieve some defined level of statistical significance. As a result, Kupfersmid suggested, many studies are not being published, or even submitted for publication, because the results are not "significant." Consequently, the nominal Type I error associated with published research is quite different from what it appears to be. In addition, Kupfersmid suggested that there also might be a tendency for researchers to over-analyze their data in order to obtain results that are "significant" and therefore publishable.

Kupfersmid also suggested, in accordance with my own evaluation, that the advance review process should result in manuscripts of higher quality and that there should be fewer studies published that are methodologically flawed. In addition, he suggested that the dis-

cussion sections of published papers could be shorter and more to the point because there would be fewer methodological flaws to be explained away after the study was completed; rather, these methodological flaws, which frequently limit the generalizability of the results, could be taken care of before the research was done.

Although Kupfersmid proposed advance review in the context of experimental research, many of the points that he makes about the desirability of this procedure pertain equally to the kinds of methodological research published in *APM*. My initial proposal, and Kupfersmid's as well, is premised upon the assumption that a properly done study provides usable information regardless of the results. If the results are positive in some sense, then some implications are appropriate; if the results are negative, other implications flow. While this could be said for any study, many studies have design and/or analysis flaws that limit the authors' ability to draw firm conclusions. If these flaws are identified *before* the study is implemented, the results should be more clear-cut and better research should result. Implementation of a procedure such as ARO should, therefore, increase the long-term efficiency of research as well as improve its quality.

As one member of *APM*'s Editorial Board argued, the net result of ARO might be that we will end up reviewing everyone's Ph.D. dissertation, and that by doing so we will be interfering in the educational process. I do not believe that this is the case. Note that what we will require is a *complete* paper, except for the results and discussion sections. The requirement of a *complete* set of dummy tables and dummy figures should prevent many from using this option cavalierly. Furthermore, because journal articles are typically much shorter than dissertations, it would be extra work for the student to reduce the study's results to typical journal article length.

ARO would likely be used only by serious researchers who want to obtain the input of their peers and colleagues prior to implement-

ing their research and who want some guarantee of publication. I also think that the danger of reviewing an occasional possible Ph.D. dissertation proposal is far outweighed by the advantages that will accrue to the field in terms of efficiency and the quality of the resulting research.

The process of advance review is not totally unfamiliar to most researchers. It is similar to the process that research proposals undergo when submitted to funding agencies. Proposals typically are peer reviewed, and on the basis of these reviews the funding agency sometimes encourages a revised proposal and submits the revision to further review. After these reviews, a funding decision is made and, if favorable, the researcher obtains the funds to implement the research. In many cases, however, research proposals submitted to funding agencies will not be as complete or as specific as will be an ARO manuscript. Most research proposals are more general and cannot be as focused as an ARO manuscript. But the parallels between the two procedures are evident, and when the peer review process for research proposals operates effectively with well-qualified reviewers, the result can be a better research proposal that is likely to provide clearer, more unambiguous, and more useful research.

Implementing ARO

Because of its potential to improve the quality of published research, *APM* will begin to accept manuscripts under ARO immediately. Note that ARO is being implemented as an *option*. We will continue to accept regular manuscripts as we have done for the last 12 years. ARO manuscripts will compete with complete manuscripts on the same terms for the limited journal space available. In addition, it is obvious that ARO is appropriate only for empirical manuscripts—literature reviews and other papers not based on new data will continue to be submitted in the usual manner.

ARO Manuscripts

When you submit a manuscript under the advance review option, please identify it as such in the cover letter. If the manuscript is prepared for blind review, it will be reviewed blind. To prepare the manuscript for blind review put the author's name(s), affiliation, and mailing address only on the cover page. Do not include an Author's Address at the end of the manuscript; this can be added once the manuscript is being prepared for publication. If the paper is prepared on a word processor, the submitted copy can be printed single-spaced to save paper and improve readability. Submit three copies of the ARO manuscript.

A complete ARO manuscript will include the following:

1. A review of the literature that summarizes the relevant prior research and from which the research questions addressed in the study derive. The literature review for an ARO manuscript will be essentially the same as the literature review for a completed research manuscript. The introduction should conclude with a clear statement of the objectives of the research.
2. A complete method section. This section, written in past tense, should describe the data, examinees, instruments, and the data analysis. This section, too, will be essentially the same as that of a completed research manuscript. It should allow the reviewer to determine exactly what the data were (will be) and exactly what analyses were (will be) done on the data to answer the questions under investigation. By writing this section as if the study were completed, it will be in final form for publication when the study is complete.
3. A complete set of dummy tables and figures, and a subheading outline of the text of the results section. All tables should be fully titled, and all column and row headings should be shown, as well as necessary explanatory footnotes. Similarly, all

figures should be fully titled and axes labeled as they will be in the final presentation of the results. To accomplish this requirement, the researcher will have to thoroughly consider how to present the results in a concise and informative manner.

4. A complete reference list, ready for publication.

The Review Process

Because ARO is optional, reviewers will also have the option to participate. This is important because there are some reviewers who will likely not resonate to this approach; if they are not given an explicit option (even though they always can return a manuscript unreviewed), we might not obtain a review of the highest quality.

ARO manuscripts will be reviewed in the same manner as other manuscripts. I will select two or more members of the Editorial Board or other experts who are particularly knowledgeable about the topic of the manuscript. They will review the rationale, method, and proposed presentation of the results and make a publication recommendation. Frequently this recommendation will include requests for further information and/or revision. Based on their reviews and recommendations, I will make a publication decision. This decision might be to accept with no revision, accept with revision, reject but encourage revision, or reject outright. When revisions are requested, the resubmitted ARO manuscript will typically undergo additional review, sometimes going through several revision cycles as do completed manuscripts. After the necessary number of review cycles, the ARO manuscript will be accepted or rejected.

Once a manuscript is accepted under ARO, the researcher will be assured that the research is accepted for publication, given only the constraints described below. The study can then be implemented, data analyzed, and tables and figures completed as agreed upon with respect to the final accepted ARO manuscript. The researcher would then complete

writing the results section, again following the results outline incorporated in the accepted ARO manuscript, and write the discussion and conclusions section. The completed manuscript would then be sent to me, with any deviation from the accepted ARO manuscript carefully delineated in the author's cover letter.

On receiving the manuscript I will have several options. First, I will review it myself and determine whether there were any deviations from the accepted ARO manuscript. If not, I might review the results and discussion myself and simply proceed to publish the manuscript. Alternatively, I might send the manuscript to a reviewer or two to review the results and discussion sections, indicating to the reviewers that the introduction and method sections were not appropriate sections for additional review. In either case there is a real possibility that some further revision of the results and discussion sections might be necessary and that further review will be required. But this would be done with the understanding that the paper was still accepted for publication. A similar process occurs now with completed manuscripts that I accept; in the process of preparing them for publication I sometimes require that portions of the paper be rewritten or reorganized before it is published.

If there are significant deviations in the completed paper from the design and analysis approved in the accepted ARO manuscript, the manuscript might then revert to non-ARO manuscript status. That is, because the research was done differently than we had agreed upon, the paper will be submitted for standard review without cognizance of its former ARO acceptance. I would expect that this is an option that I will have to exercise very rarely, but only experience with the process will determine how often this will occur.

In order to ensure that ARO research is implemented in a timely fashion, some time limits are probably appropriate. In some cases the rationale for a given research study ceases to be current as new research appears in the literature. Consequently, I will likely impose a

flexible and tentative one-year time limit on accepted ARO manuscripts, which should give most researchers sufficient time to implement and analyze their research and complete the manuscript without the research becoming outdated. As experience with ARO accumulates, I will adjust this parameter of the process accordingly.

Evaluating ARO

I have proposed ARO as an experiment. Therefore, some procedure for evaluating its success is required. The first evaluation of ARO will be based on its use. If authors do not take advantage of it, it will be an obvious failure as an option. This still would not mean that if advance review were implemented on a mandatory basis it would not have all the benefits that Kupfersmid and I project for it. But at this point in time I would rather implement it as an option and evaluate it on other criteria. Therefore, I hope that researchers will take advantage of the opportunity and help us see if it produces the anticipated results.

I will keep careful records of which manuscripts are submitted under ARO, the length of time required by the review process, the number of review cycles necessary, and all of the reviewers' rating sheets and comments. I will also begin a similar record-keeping process for all regular manuscripts submitted as completed manuscripts, beginning with the submission of the first ARO manuscript. In addition, for the ARO manuscripts I will keep careful records of who the reviewers were for all phases of the review process. Beyond a reviewer's participation in the reviewing of a particular ARO manuscript, only the authors and I will have knowledge of which manuscripts were submitted as ARO manuscripts and which were submitted as completed manuscripts.

Both Kupfersmid and I contend that the ARO procedure will lead to higher-quality published

research and to articles that present clearer and less ambiguous findings. Kupfersmid suggested that ARO will "reduce the number of irrelevant and procedurally flawed studies in print" (p. 640). He also suggested that the discussion sections of papers would be shorter because authors would not have to "explain" negative findings, and that agreement among reviewers might be greater because decisions about a manuscript might be based more on a study's relevance and methodological appropriateness.

These are testable implications that will be open for investigation given the database that I will accumulate. In addition, the issue of quality can be investigated more directly by expert ratings on a set of manuscript quality dimensions of ARO articles compared to a contemporaneous set of regular published articles. This, too, will be researchable given the same database.

Consequently, after monitoring the frequency of ARO submission during the next several years, at an appropriate future date I will assemble a research team, in consultation with *APM's* Editorial Board, to design an appropriate evaluation study of ARO. I would anticipate that we will probably need to have 30 or 40 ARO articles published before a meaningful study can be implemented.

Therefore, it may be a number of years before it is possible to implement and report the results of an evaluation study of ARO. But Kupfersmid, several members of the Editorial Board, and I believe that the wait will be worthwhile and that the results will be in support of some of these hypotheses. Even if there are no distinguishable differences in these kinds of criteria, however, I believe that the increase in the efficiency that will result from not rejecting 70% or more of completed research manuscripts will make the process a worthwhile contribution in and of itself.

I hope that *APM's* authors will take advantage of the ARO option, and will feel free to

communicate with me about their experiences using this approach and their reactions to the process. I look forward to everyone's feedback and input on this experiment in publication.

Reference

Kupfersmid, J. (1988). Improving what is published: A model in search of an editor. *American Psychologist*, 43, 635–642.