Engineering Journal Review Process:
A Survey of Engineering Journal Editors

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Abstract

Journal publication is an important indicator of research productivity for individual researchers as well as academic institutions. However, for young faculty members the publication process can appear equivocal and daunting. If the academic does not actively engage themselves early in this process, then her or his career becomes an uphill (and sometimes insurmountable) battle. To assist the young academic, this study, sponsored by the National Science Foundation ADVANCE program, surveys journal editors representing numerous engineering fields. The survey attempts to quantify publication timelines and acceptance rates, and ascertain journal policies, advice for successful publishing, and gender differences.

Introduction

Publishing provides a repository of important research efforts and a recognition mechanism for researchers and institutions. However, despite its importance to academic success, the publication process may appear intimidating to doctoral students and novice faculty members. In an effort to aid the new academic, this paper summarizes a publication process survey sent to engineering journal editors that addresses a range of topics to include publication guidelines, acceptance rates, timelines, gender differences, rejection factors, and open-ended counsel.

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To the authors' knowledge these efforts are a first attempt to provide publication advice to the engineering academic audience. This is not to say that the scientific literature is void of publication advice. In fact, several excellent texts summarizing the publication process from a general readership perspective include McCloskey [10], Cantor [1], Silverman [12], and Luey [9]. Additionally, articles directed towards economics, finance, management, and accounting researchers may also be found in Zivney and Bertin [14], Mitenko and Diamond [11], Henderson and Reichenstien [7], Chow and Harrison [2], and Koh [8]. Papers addressing gender differences in the publication process for accounting researchers include Dwyer [5], Streuly and Maranto [13], and Collins et. al [3].

Survey and Results

The survey acquired information from successful publishing academics in the field of engineering. Although the acquired survey results are applicable to all academics, the National Science Foundation ADVANCE program funded these efforts to improve the recruitment and retention of women in engineering academia and to enhance career development of women engineering academics by addressing publications in refereed scholarly journals. Many novice scholars do not fully understand archival journals and the publishing process; they do not appreciate the differences among journals, they underestimate the review process lead time, they do not know how to constructively react to critical reviews or rejections, they are reluctant to argue or rebut, and they do not know how to join the editorial ranks of journals. The end result is often an abbreviated list of journal papers that does not truly reflect their research or their research potential. For many institutions of higher learning, a deficit of journal publications inevitably leads to denial of tenure or delayed promotion.

A 19-question web survey was e-mailed to 121 journal editors representing numerous engineering fields. Utilizing the ISI journal citation reports service, journal editors spanning aerospace, chemical, civil, environmental, industrial, and mechanical engineering disciplines were selected for initial contact. Of the 121 editors contacted, 40 usable responses (or a response rate of 33%) were aggregated for this study. The 40 respondents represent editorial experience from 33 engineering journals in 7 disciplines. Table 1 contains the number of journals represented per engineering field.

Journal Discipline	Number in Survey
Chemical	6
Industrial	6
Civil and Environmental	5
Engineering Management	5
Electrical	4
Mechanical	4
Systems	3

Table 1. Journal editor participants by engineering discipline

Table 2 summarizes the publication policies and guidelines of the survey participants, and Table 3 highlights the types of papers accepted in engineering journals. Note that most journals do not require a submission fee, the usual number of reviewers is three, the majority of journals utilize a single-blind review process, and the final page count of a paper varies uniformly.

Submission Fee		Usual Number of Reviewers		Review Transparency		Final Page Count	
91%	Free	3%	One	56%	Single blind	10%	< 10
3%	$50 - $150	18%	Two	18%	Double blind	18%	10 - 15
6%	NA	78%	Three	23%	Neither	15%	15 - 20
		3%	Four	3%	NA	26%	20 - 25
						15%	> 25
						15%	NA

*NA (not available)

Table 2. Journal policies and guidelines

Rank		**Percentage of papers**
1	Analytical developments	20%
2	Theoretical developments	18%
3	Conceptual developments	17%
4	Case studies	11%
5	Literature reviews	10%
6	Educational (or how-to) papers	10%
7	Responses to already published research	7%
8	Book reviews	4%
9	Position papers	3%

Table 3. Types of papers in engineering journals

Table 4 summarizes the acceptance rates of the surveyed participants' journals. The average acceptance rate across all engineering journals is 35%, with only a small percentage of papers accepted without a major revision. Also, note that the editor agrees with the reviewers' decision about 75% of the time.

Overall Acceptance Rate		**Acceptance Rate without Major Revision**		**Editor Concurrence**	
3%	< 10%	38%	< 5%	5%	< 60%
15%	10 - 20%	20%	5 - 10%	23%	60 - 70%
28%	20 - 30%	13%	10 - 15%	26%	70 - 80%
15%	30 - 40%	8%	15 - 20%	23%	80 - 90%
28%	> 40%	5%	> 20%	10%	90 - 100%
13%	NA	18%	NA	13%	NA

Table 4. Journal acceptance rates

Table 5 summarizes publication processing time information. The editor initially reviews the paper about 3 months before submitting it to reviewers, the initial peer review time is 4 months on average, and the editor requires 1 month before making a final decision regarding paper acceptance. The total review time (including all revisions) ranges from 6 to 18 months, and a delay of 6 to 12 months is expected from paper acceptance to in-print.

Initial Editor Review		**Initial Peer Review**		**Editor Decision**	
23%	< 1	17%	< 2	74%	< 1
43%	1 - 3	43%	2 - 4	11%	1 - 3
29%	3 - 5	26%	4 - 6	3%	3 - 5
3%	5 - 7	6%	6 - 8	9%	5 - 7
3%	NA	3%	> 8	3%	NA
		6%	NA		

Total Review Time (including revisions)		**Accepted Papers to Print**	
14%	< 6	34%	< 6
43%	6 - 12	49%	6 - 12
34%	12 - 18	9%	12 - 18
3%	18 - 24	3%	18 - 24
6%	NA	6%	NA

Table 5. Publication timeline (in months)

Editors selected the top five factors contributing to a rejected journal paper, in order of observed frequency. Table 6 summarizes the responses. The 'number of times selected' indicates the total number of times a rejection factor was identified in the top 5 reasons for rejection. The average importance rating is an indicator of the significance the respondent placed on the rejection factor. The rating is based on a 5-point scale with the most likely reason receiving a five. Thus, a rating of a 5 indicates the respondent selected the rejection factor as the most likely reason for rejection. The overall importance rating multiplies the 'number of times selected' and the 'average importance rating' to provide an aggregate perspective. Finally, the overall importance rating is used to proxy the percent of papers rejected per rejection factor by proportioning the overall importance rating. For example, the rejection factor 'lack of contribution to the field' was selected in the top 5 reasons for publication rejection by all 40 survey respondents. It received a rating of 4.77 on a 5-point scale, an overall importance rating of 191, and is the factor accounting for one-third of all rejected papers.

Rank	Rejection Factor	Number of times selected	Average importance rating	Overall importance rating	Percent of papers rejected
1	Lack of contribution to the field	40	4.77	191	32%
2	Poorly framed research problem	35	3.07	108	18%
3	Lack of theoretical/empirical development	29	3.23	94	16%
4	Poor paper organization and presentation	29	2.56	74	12%
5	Inadequate conclusions	23	2.17	50	8%
6	Inadequate literature review	18	1.94	35	6%
7	Other reason	11	2.46	27	5%
8	Unclear introductory section	7	1.75	12	2%
9	Excessive length	8	1.00	8	1%

Table 6. Reasons for paper rejection

In order to identify perceived gender aspects of the publication process, the survey participants were asked the following questions:

1. "Have you observed any barriers in the publication process that impact the acceptance of women researchers' papers? If so, would you elaborate?"

Of the survey respondents, none have witnessed gender barriers in the publication process. Several comments are worth noting. Five respondents stated that barriers are high for everyone to include gender, nationality, and ethnic background, two respondents stated that women have higher acceptance rates versus men in the journals that they manage, and one respondent stated that even though women face real or imaginary barriers in the work environment, these barriers do not exist in the publication process.

2. "What, if any, additional or unique advice would you give to women researchers (versus men) concerning a successful publication practice?"

The majority of respondents stated that advice for women researchers would be the same for men researchers. One respondent sums it best "We are just looking for great papers". However, several respondents had additional comments. Four respondents advise women researchers to be aggressive and persistent and not to take criticism personally, one respondent states that women tend to write more tentatively and less arrogantly than men, one respondent recommends that women should exploit their better skills in organization and methodical work (versus men), one respondent recommends women researchers to use initials on submitted papers instead of complete names, and one respondent recommends that journals should adopt a double-blind review process.

Concluding Remarks

This study surveyed journal editors from a variety of engineering disciplines in order to quantify the publication process and capture expert advice concerning a successful publication career for beginning academics. Topics discussed included publication guidelines, acceptance rates, timelines, and gender differences. These results quantify the publication timeline and encourage active and quality research early in the academic career. The information should be used to help new academics develop effective publishing strategies.

Finally, it should be noted that these efforts did not explicitly investigate topics related to the academic's advisor and institution reputation, and geographical location of the author's institution. It is recognized that many non-United States authors do not send their contributions to USA-based journals due to implicit/explicit barriers and in fact submit their (many times outstanding) contributions to European journals. Thus, the results presented in this paper are limited by the assumption that most academics submit their work to USA-based journals.

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