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Do Open Access Electronic Theses and Dissertations Diminish Publishing Opportunities in the Sciences?

Marisa L. Ramírez, Gail McMillan, Joan T. Dalton, Ann Hanlon, Heather S. Smith, and Chelsea Kern

In academia, there is a growing acceptance of sharing the final electronic version of graduate work, such as a thesis or dissertation, in an online university repository. Though previous studies have shown that journal editors are willing to consider manuscripts derived from electronic theses and dissertations (ETDs), faculty advisors and graduate students continue to raise concerns that online discoverability of ETDs negatively impact future opportunities to publish those findings. The current study investigated science journal policies on open access ETDs and found that more than half of the science journals responding (51.4%) reported that manuscripts derived from openly accessible ETDs are welcome for submission and an additional 29.1 percent would accept revised ETDs under certain conditions.

 In 1997, Virginia Polytechnic Institute and State University (Virginia Tech) became the first university to require electronic submission of theses and dissertations (ETDs). Since then, ETDs have become an accepted practice for universities worldwide. In fact, according to recent statistics, 60 percent (1,116) of registered institutional repositories worldwide (1,869) provide open access (OA) to ETDs, and ETDs are the second most common content available in institutional repositories.¹

Early research on ETDs predicted that students and scholarly societies would benefit the most from this technological development.² Graduate students, as future members of academe, would gain valuable electronic publishing skills. Moreover, the ETD

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submission process would provide opportunities to highlight related issues such as copyright, authors' rights, research impact and research ethics, giving students a more holistic understanding of their individual contribution to the larger scholarly record.³ Scholarly societies and commercial publishers, like Elsevier, expressed support for the nascent ETD movement because emerging scholars would gain proficiency with technology, thus mitigating "the anticipated cost of shifting to electronic publishing."⁴ Eager to establish a relationship with emerging scholars, ETDs provided an opportunity for journals to connect with authors "early in their career because they are then likely to continue to publish there."⁵

Despite scholarly societies' and publishers' early support of ETDs, students and faculty advisors raised concerns about ETDs' impact on future publishing opportunities. A 1998 survey of 13 higher-education institutions about ETDs reported that "one of the thorniest issues for many students is the possibility that their chances of getting their work accepted by a publisher is compromised by electronic availability of their work."⁶ In a 2002 article for *Science and Technology Libraries*, Susan Hall noted that

a student in chemistry may produce several chapters of the dissertation to be submitted for journal publication. A number of graduate faculty hold the view that publishers may consider the ETD a prior publication. Advisors in the humanities fields may counsel students that book contracts require extended periods of time, and that releasing the dissertation for web publication could undermine long term goals for reworking the dissertation as a book contract. These issues have great significance for the graduate student's academic career.⁷

This concern was shared by academics worldwide, including faculty and emerging scholars in Israel, India, Malaysia, and the United Kingdom.⁸

In response to those early concerns, a variety of studies on this subject emerged, with the most recent one published in 2013 on social science, arts, and humanities publishers (hereafter referred to as the 2013 SS&H study), which serves as a companion piece to the current science publisher study.⁹ Although these past studies found that manuscripts derived from OA ETDs are generally accepted by publishers, "well-meaning faculty advisors caution students against [ETD submission]... they want to protect the student's shot at future dissertation-based publications."¹⁰ While graduate students are generally supportive of the principles and practices of the OA movement, "the top deterrent [of ETD deposit in a university repository] is...the effect of deposit on later publication. Given that their doctoral research is likely to provide the raw material for their first crop of published papers, the students may feel worried about jeopardizing their chances of having a paper accepted if they 'pre-publish' it in an IR."¹¹

The objections to open access ETDs, including the 2013 American Historical Association (AHA) statement recommending up to a 6-year embargo on electronic dissertations, demonstrate that the concern persists.¹² Critics of the AHA statement, joined by others skeptical of the adverse effects of open access ETDs, suggest that anecdotes and cautionary tales, instead of data, perpetuate this concern.¹³

This study of journal publishers in the science disciplines gathers current data on the science journal editorial practices and policies, and the study is conducted in such a way that allows for statistically sound inferences to be made. Specifically, the objective of this study is to report on the editorial policies and practices of science journals for manuscripts containing work derived from ETDs.

Methods

Survey Instrument

The survey instrument from the 2013 SS&H study was reviewed and updated for this current study.¹⁴ To increase the likelihood of response, the survey was abridged to focus on the primary research question (“Manuscripts which are revisions derived from openly accessible ETDs are...”) and relevant demographics, and it was reformatted so that the primary research question appeared earlier. After receiving Institutional Review Board approval to move forward with distributing this new survey instrument, it was pretested with the editors-in-chief of eight high-impact journals within the sampling frame. Based on the feedback from the pretest, it was determined that the editors-in-chief were the most suitable individuals to receive this survey; that the primary research question was clear; and that the rest of the survey needed to be brief. While there was no optimum time to contact the editors-in-chief (in other words, summer versus academic year), we learned that the busiest of editors would be motivated to respond if there was emphasis on the research value of the study, if the results of the study were provided afterward to the respondents, and if multiple reminders were sent to respondents to complete the survey. After incorporating the pretest feedback, the survey instrument was finalized. (See Appendix A)

Sample Design

Unlike the 2013 SS&H study, which used a census approach to contact respondents, the current study sampled a subset of the science journal population.¹⁵ This study used a sample, as opposed to a census, because it presented several advantages over the 2013 SS&H study survey methodology. First, when there is a large sampling frame, the accepted survey research practice is to implement a probability-based sampling plan as opposed to attempting a census. Second, sampling allows researchers to use demographic variables to study subpopulations independently. Using a stratified sample design improves the “representativeness” of the findings from the sample, so that statements can be made about the larger population. This is in contrast to the 2013 SS&H study, which used a census approach and required retroactive nonresponse analysis of the data to determine if there were detectable differences between the respondents and nonrespondents. Third, the sample methodology allows for a more manageable size of the study, given the resources available to the researchers. For example, a sample allows researchers to conduct nonresponse follow-up activities, including personal contact with the nonrespondents, to increase the overall response rate. Fourth, this approach integrated safeguards against nonresponse bias into the research method. Finally, sampling methods used in this survey improved the research team’s ability to produce statistically confident inferences about science journal publishers as a whole.

To create the sampling frame, the study used data from the 2005–2009 Thompson Reuter’s Journal Performance Indicators (JPI) data including 16,455 high-impact journals within 171 science disciplines. By sorting the data on the relative impact factor (a JPI-assigned measure that is used to determine journal importance within its discipline), the top five journal titles were identified for each of the 171 science disciplines, for a total of 855 journals. After removing defunct journals, duplicate entries, and pretested journals, the final sampling frame consisted of 715 publication titles in 171 JPI disciplines. The 171 JPI disciplines were condensed into fourteen canonical subject groupings developed by the research team. This ensured that a stratified sampling method (a sample taken within each of the groups) would render meaningful results and would allow for statistically sound inferences by “subject.”

TABLE 1
Canonical Subject Groupings

| Subject | Number of Journals* | Removed Due to Pretest Participation | Final Sampling Frame |
|--|----------------------------|---|-----------------------------|
| Agriculture | 24 | -1 | 23 |
| Biology | 122 | | 122 |
| Business & Economics | 17 | | 17 |
| Chemistry | 71 | | 71 |
| Engineering | 91 | -2 | 89 |
| Environmental Science | 74 | -1 | 73 |
| Math | 13 | -1 | 12 |
| Medical | 214 | -2 | 212 |
| Nutrition | 5 | | 5 |
| Ocean Science | 25 | | 25 |
| Physics | 53 | -1 | 52 |
| Psychology | 5 | | 5 |
| Transportation | 5 | | 5 |
| Veterinary | 4 | | 4 |
| Total | 723 | (8) | 715 |
| *Sampling frame after removing defunct journals and duplicate entries. | | | |

It was determined that a sample of 300 journals from among the 715 in the sampling frame would provide the research team with an optimal balance of statistical precision and available resources. A randomized systematic sampling procedure was used to select the journal titles within each of the fourteen canonical subject groupings, with about 40 percent of the journals in each of the strata selected for the sample.

The survey was distributed to the editors of 300 journals in the sample via e-mail using online survey software on August 9, 2012. Subsequent e-mail reminders were distributed to nonresponders on August 14 and August 21. Based on new information learned after issuing the survey, 10 journals were removed from the sample because they only published solicited literature reviews by established scholars and thus were deemed out of scope for this study.

The online survey was closed on August 27, 2012, with 44 completed survey responses. A random sample of 100 nonrespondents received follow-up phone calls between September 7 and 14. Six call attempts per contact were spread out across days of the week and times of day (between 8 a.m. and 5 p.m. respondents' local time), to increase the response rate. As a result, an additional 28 journal editors responded to the survey after being contacted by phone. Out of 290 eligible journals sampled, this study received 72 valid responses for a response rate of 24.8 percent, with 67 responses to our main research question, Q2, *"Manuscripts which are revisions derived from openly accessible electronic theses or dissertations (ETDs) are.../Always welcome for submission/Considered on a case-by-case basis/Considered ONLY IF the contents and conclusions in the manuscript are substantially different from the ETD/Considered ONLY IF the ETD has access limited to the campus or institution where it was completed/Not considered under any circumstances."*

The researchers are confident that the respondents are similar to the nonrespondents regarding their acceptance of ETDs, so generalization of the results to the larger popu-

| TABLE 2 Summary of Stratified Sampling & Respondents | | | | | | |
|---|----------------------------|-------------|--------------------------|----------------------|------------------------|------------------------------|
| Stratum | Journals in Sampling Frame | Sample Size | Probability of Selection | Removed Due to Scope | Respondents by Stratum | % of Respondents by Stratum* |
| Agriculture | 23 | 10 | 0.417 | | 2 | 20.0% |
| Biology | 122 | 47 | 0.385 | −3 | 8 | 18.2% |
| Business & Economics | 17 | 7 | 0.412 | | 3 | 42.9% |
| Chemistry | 71 | 28 | 0.394 | −1 | 9 | 33.3% |
| Engineering | 89 | 35 | 0.385 | −1 | 14 | 41.2% |
| Environmental Science | 73 | 29 | 0.392 | −1 | 8 | 28.6% |
| Math | 12 | 5 | 0.385 | | 2 | 40.0% |
| Medical | 212 | 83 | 0.388 | −2 | 15 | 18.5% |
| Nutrition | 5 | 2 | 0.400 | | 0 | 0.0% |
| Ocean Science | 25 | 10 | 0.400 | | 3 | 30.0% |
| Physics | 52 | 21 | 0.396 | −2 | 6 | 31.6% |
| Psychology | 5 | 2 | 0.400 | | 2 | 100% |
| Transportation | 5 | 2 | 0.400 | | 0 | 0.0% |
| Veterinary | 4 | 2 | 0.500 | | 0 | 0.0% |
| Total | 715 | 300 | — | (10) | 72 | 24.8% |
| * % of Respondents by Stratum was calculated by subtracting Out of Scope Respondents from Sample Size and dividing the difference into Respondents by Stratum | | | | | | |

lation from the sample is justified. While a response rate of 24.8 percent is not high, it does enable the research team to make unbiased inferences about the proportion of journals in the larger population that welcome ETDs to within ± 11.5 percent margin of error with 95 percent confidence interval. With the current margin of error of 11.5

| TABLE 3 Journals by Country of Origin | |
|--|-----------|
| Country | # (%) |
| Australia | 1 (1%) |
| Denmark | 1 (1%) |
| Germany | 2 (3%) |
| Netherlands | 10 (14%) |
| Sweden | 1 (1%) |
| United Kingdom | 9 (12%) |
| United States | 45 (63%) |
| No Answer | 3 (4%) |
| Total | 72 (100%) |

percent, the actual percentage of science journals that would “always welcome” ETDs could be as high as 62.9 percent and as low as 39.9 percent (51.4% ± 11.5%). A larger number of respondents would have allowed for a smaller margin of error, which in turn would improve precision.

Results

Most of the respondents (63%) reported that their journals were affiliated with the United States, followed by Netherlands (14%), and the United Kingdom (12%). English was the primary language of their journals.

The majority of respondents were affiliated with journals published by a commercial entity (57.1%), followed by an academic society (27.0%), a university press (11.1%), or some other entity (4.8%).

| TABLE 4 Journal Publishing Entity | |
|--------------------------------------|------------|
| Publishing Entity | # (%) |
| A Commercial Publishing Company | 36 (57.1%) |
| An Academic Society | 17 (27.0%) |
| A University Press | 7 (11.1%) |
| Other | 3 (4.8%) |
| Total | 63 (100%) |

Most of our respondents held the role of editor-in-chief (68.6%), followed by managing editor (12.9%), editorial board member (7.1%), assistant editor (5.7%), or other (5.7%). Acceptance policies and criteria were typically determined by the editor-in-chief (47.2%). Nonetheless, 15.3 percent of respondents described policy development as a shared responsibility between many different entities affiliated with the journal (publisher, editorial board, professional society, editor-in-chief, editorial director, publications committee).

Because respondents often included detailed responses in the “free text” sections of the survey, their “commentaries” were translated to “answers” in existing or new categories. This was implemented to prepare the data from the main research question (Q2, “*Manuscripts, which are revisions derived from openly accessible electronic theses or dissertations, are [considered]...*”) for analysis. This same protocol was implemented retroactively on the 2013 SS&H study data to allow for fairer comparisons to be made with the science journals. For example, some respondents left the main research question blank, but wrote “always welcome” in the free-text comment area of the survey so we imputed their answer for the main research question from “blank” to “always welcome.” We also created new categories such as “not encountered” if the journal editor reported no experience with ETDs, “don’t know” when the respondent did not know the answer, and “not applicable” when the main research question was outside the scope of the journal’s manuscript solicitation model.

After preparing the data, we investigated whether there was evidence that the reported ETD policies were statistically different between the online survey respondents and the telephone respondents. Even though there were differences between the answers of the online respondents and the answers of the phone respondents, these differences were not large enough to be statistically significant (*p*-value of 0.101) and thus indicated that there was not evidence of response bias in this study.

TABLE 5
ETD Science Journal Survey Responses

| | Always Welcome | Case-by- Case | Only if Different | Only if Limited Access | Never Accepted | Not Encountered | Don't Know | Not Applicable | Total | |
|--------------------|-------------------|------------------|----------------------|---------------------------|-------------------|--------------------|---------------|-------------------|-----------|--|
| | | | | | | | | | | |
| Online Respondents | 26 (59.0%) | 8 (18.2%) | 3 (6.8%) | 1 (2.3%) | 5 (11.4%) | 1 (2.3%) | 0 (0.0%) | 0 (0.0%) | 44 (100%) | |
| Phone Respondents | 11 (39.3%) | 6 (21.4%) | 3 (10.7%) | 0 (0.0%) | 4 (14.3%) | 1 (3.6%) | 1 (3.6%) | 2 (7.1%) | 28 (100%) | |

TABLE 6
Science Journal ETD Policies

| ETD Policy | Count | Percent |
|---|--------------|----------------|
| Always Welcome | 37 | 51.4% |
| Case-by-Case | 14 | 19.4% |
| Only if Different | 6 | 8.3% |
| Only if Limited Access | 1 | 1.4% |
| Never | 9 | 12.5% |
| Not Encountered/Don't Know/Not Applicable | 5 | 6.9% |
| Total | 72 | 100% |

When taken as a whole, a slim majority of science journals (51.4%) reported that manuscripts derived from openly accessible ETDs are always welcome for submission, and an additional 19.4 percent of science journals would accept revised ETDs on a case-by-case basis. A handful of journals (8.3%) would consider a manuscript only if the contents and conclusions in the manuscript were substantially different from the ETD, and another 1.4 percent would consider the manuscript if access to the original ETD was limited to the university where the work was completed. Strikingly, only 12.5 percent of respondents would not consider an ETD-derived manuscript under any circumstances.

TABLE 7
ETD Policy by Discipline*

| Subject | Always Welcome | Some Restrictions | Never Welcome | Not Encountered/Don't Know/Not Applicable |
|-----------------------|-----------------------|--------------------------|----------------------|--|
| | # (%) | # (%) | # (%) | # |
| Agriculture | 1 (50.0%) | 1 (50.0%) | 0 (0.0%) | 0 |
| Biology | 4 (50.0%) | 3 (37.5%) | 1 (12.5%) | 0 |
| Business & Economics | 1 (50.0%) | 1 (50.0%) | 0 (0.0%) | 1 |
| Chemistry | 4 (44.4%) | 5 (55.6%) | 0 (0.0%) | 1 |
| Engineering | 12 (85.7%) | 1 (7.1%) | 1 (7.1%) | 0 |
| Environmental Science | 5 (62.5%) | 3 (37.5%) | 0 (0.0%) | 0 |
| Math | 0 (0.0%) | 1 (50.0%) | 1 (50.0%) | 0 |
| Medical | 3 (25.0%) | 5 (41.7%) | 4 (33.3%) | 2 |
| Nutrition | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 |
| Ocean | 1 (50.0%) | 0 (0.0%) | 1 (50.0%) | 1 |
| Physics | 5 (71.4%) | 1 (14.3%) | 1 (14.3%) | 0 |
| Psychology | 1 (50.0%) | 1 (50.0%) | 0 (0.0%) | 0 |
| Transportation | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 |
| Veterinary | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 |
| Total | 37 | 21 | 9 | 5 |

*Note that the percentage calculations do not include respondents from the "not encountered/don't know/not applicable" column.

TABLE 8
ETD Policy by Respondent Affiliation*

| Affiliation type | Always Welcome | Some Restrictions | Never Welcome | Not encountered/Don't Know/Not Applicable |
|-------------------------|-----------------------|--------------------------|----------------------|--|
| | # (%) | # (%) | # (%) | # |
| Editor-in-chief | 28 (60.9%) | 14 (30.4%) | 4 (8.7%) | 2 |
| Managing Editor | 3 (42.9%) | 3(42.9%) | 1 (14.3%) | 2 |
| Assistant Editor | 0 (0.0%) | 2 (50.0%) | 2 (50.0%) | 0 |
| Editorial Board Member | 3 (75.0%) | 1 (25.0%) | 0 (0.0%) | 1 |
| Other | 1 (25.0%) | 1 (25.0%) | 2 (50.0%) | 0 |
| Total | 35 (53.8%) | 21 (32.3%) | 9 (13.8%) | 5 |

*Note that the percentage calculations do not include respondents from the "not encountered/don't know/not applicable" column.

To get a better sense of variations by discipline, we organized the response data into three categories: "always welcome," "some restrictions," "never." The "some restrictions" category indicates that the journal's ETD policy was something other than "always welcome" or "not considered under any circumstances." "Some restrictions" is a result of collapsing and combining the categories "Considered on a case-by-case basis," "Considered ONLY IF the contents and conclusions in the manuscript are substantially different from the ETD," and "Considered ONLY IF the ETD has access limited to the campus or institution where it was completed."

Of disciplines that were represented by at least 10 respondents, Engineering had a high percentage of respondents (85.7%) who stated that they always welcome submission of ETD-derived manuscripts, while the Medical discipline had the lowest percentage of respondents (25.0%) who stated they welcome submission of ETD-derived manuscripts.

We found that the majority of editors-in-chief (60.9%) and editorial board members (75%) reported that their journal "always welcomed" ETD-derived manuscripts;

TABLE 9
ETD Policy by Publishing Entity*

| Publishing Entity | Always Welcome | Some Restrictions | Never Welcome | Not Encountered/Don't Know/Not Applicable |
|-------------------------------|-----------------------|--------------------------|----------------------|--|
| | # (%) | # (%) | # (%) | # |
| Commercial Publishing Company | 17 (47.2%) | 15 (41.7%) | 4 (11.1%) | 5 |
| Academic Society | 9 (52.9%) | 4 (23.5%) | 4 (23.5%) | 0 |
| University Press | 6 (85.7%) | 1 (14.3%) | 0 (0.0%) | 0 |
| Other | 2 (66.7%) | 1 (33.3%) | 0 (0.0%) | 0 |
| Total | 34 (54.0%) | 21 (33.3%) | 8 (12.7%) | 5 |

*Note that the percentage calculations do not include respondents from the "not encountered/don't know/not applicable" column.

TABLE 10
**ETD Policy Comparison between Current Science Journal Study and
 Previous Social Science and Humanities Journal Study**

| Publication Type | Always Welcome # (%) | Some Restrictions | | | Never # (%) | Total # (%) |
|---|----------------------|--------------------|-------------------------|------------------------------|--------------|---------------|
| | | Case-by-Case # (%) | Only if Different # (%) | Only if Limited Access # (%) | | |
| Science Journals | 37 (55.2%) | 14 (20.9%) | 6 (9.0%) | 1 (1.5%) | 9 (13.4%) | 67 (100%) |
| Social Science and Humanities Journals* | 53 (47.7%) | 29 (26.1%) | 21 (18.9%) | 3 (2.7%) | 5 (4.5%) | 111 (100%) |

*Because respondents often included detailed responses in the “free text” sections of the survey, their “commentary” were translated to “answers” in existing or new categories. This was implemented to prepare the data from the main research question for analysis. This same protocol was implemented retroactively for the SSH study data in order to allow for fair comparisons to be made with the science survey results.

nonetheless, we did not find convincing evidence that ETD policies were statistically different by the respondent’s affiliation type (Pearson Chi-Squared p -value of 0.11).

When comparing the ETD policies within each publishing entity, we found that the majority of commercial publishing entities (47.2%), academic societies (52.9%), and university presses (85.7%) “always welcomed” ETDs. However, when comparing the proportions between publishing entities, a greater proportion of university presses were likely to “always welcome” manuscripts derived from ETDs (85.7%), commercial publishers were more likely to require some access restrictions to ETDs (41.7%), and academic societies had the biggest proportion of respondents who “never welcome” manuscripts derived from ETDs (23.5%).

After conducting a Pearson Chi-Squared test (p -value of 0.175), our data do not provide convincing evidence of a detectable difference in ETD policies by publishing entity. In other words, the data appear to indicate that ETD policies do not vary between commercial entities, academic societies, university presses, and other publishing entities.

The results of this study were compared with the 2013 SS&H study. The responses of “not encountered,” “don’t know,” and “not applicable” were excluded from the comparison. A Pearson Chi-Squared test was conducted to determine if the ETD policies between the current study of science journals and the 2013 SS&H study were statistically different. We obtained a p -value of 0.025, which indicates, at a 5 percent confidence interval, that the ETD policies *do indeed differ* between the science journals and the social science and humanities journals. Specifically, the results from our sample suggest that science journals are *more likely to never accept ETD-derived manuscripts* than social science and humanities journals. After reviewing the data by discipline, it appears that the medical journals are driving this difference. However, the data sample is not large enough to offer confirmation.

Discussion

In the same way the 2013 SS&H study provided encouragement to graduate students seeking publishing opportunities in the social sciences, arts, and humanities, the results of this study offer promising news for graduate students in the sciences. According to the survey results, 51.4 percent of the science journal reported always welcoming

manuscripts based on ETDs, and an additional 29.1 percent of science journals would consider ETD-based manuscripts under certain conditions. These results can be projected on the population of science journals with a 95 percent confidence interval and 11.5 percent margin of error. It is important to acknowledge that, while publishers are willing to review work that was derived from an ETD, the willingness to review should not be confused with a publication rate.¹⁶

When looking at the differences in journal policies by science subject, we found that engineering journals were the most welcoming of manuscripts derived from ETDs and medical journals were the least likely to do so based on ETD-derived content. Perhaps the engineering ETD policies are reflective of the progressive policies adopted by engineering scholarly societies like IEEE. In 2007, IEEE took a leadership position in the not-for-profit publishing domain with their "Principles on Scholarly Publishing," which is a guiding document acknowledging the value of open access and emphasizing the value of "experimenting with alternative business models, including forms of open access that are financially sustainable."¹⁷ Graduate students who plan to publish work in the medical field may encounter resistance when attempting to publish research derived from their open access ETDs.

Journal editors provided additionally insightful comments on ETDs and publication:

"It is our job to archive and publish the best research. Thus we are quite happy to publish material which otherwise would sit languishing on an online archive."

"Work which has not been published in archival peer reviewed journals is considered appropriate for submission, even if it is accessible elsewhere."

"Our journal has essentially ignored any potential conflict arising from publication of ETDs, because the situation is really not different from the days of hard copy thesis holdings by University libraries. They ... are simply more easily available now... thesis without peer review in an open access format will never be considered 'double publishing.'"

"While we recognise theses as legitimate and [sic]citeable publications, they are considered gray literature because they do not go through blind external peer review and are not published in a recognized peer reviewed outlet. They are not considered prepublication..."

"Work which has not been published in archival peer reviewed journals is considered appropriate for submission, even if it is accessible elsewhere."

"An important consideration is whether the electronic thesis has been assigned a citable DOI, citations to which may reduce citations to the version published in the journal."

We were curious as to whether ETD policies differed by affiliation type (examples: editor-in-chief, managing editor, assistant editor, member of editorial board) perhaps as a function of authority or degree of engagement in the field. However, our data did not surface statistically detectable differences in ETD policies based on affiliation type. Moreover, we did not detect any statistical differences in policies between commercial publishing enterprises and not-for-profits. Our data do not support the common assumption that commercial enterprises are more likely to reject manuscripts derived from open access source materials.

Some common themes emerge when comparing the results from the current survey to those of the companion 2013 SS&H study. While some respondents express concern about the online availability of ETDs, the source of that anxiety differs. The SS&H editors worry over the potential impact of ETDs on their own ability to market a product, while science editors fear that the availability of original data in an ETD will negatively impact the citation rate of the subsequently published article. In both studies, editors assert that theses and dissertations require revision to be published, citing key considerations such as audience, quality, currency, and relevance. Additionally, there were editors from both studies who took a broad view, reflecting on the scholarly communication system as a whole. To wit:

"A peer-reviewed publication that comes out of a dissertation or thesis should not only be encouraged but is crucially important for the scholar's development and the advancement of scientific knowledge." [science journal editor]

"A PDF of an unpublished work is still an unpublished work. It simply can't work to have a scientific model where work-in-progress is disqualified for publication if it's been posted on a web server." [SS&H editor]

Finally, respondents from both studies point to the essential role of academic publishers in the scholarly model. Both the science and SS&H respondents share the belief that the peer-review and professional editorial input are the defining characteristic of a "published" work.

Conclusion

Other than the surveys reported here and those conducted a decade ago, there are few empirical data on publishers' attitudes and policies on open access ETDs. Most of the information on this topic relies on anecdotal evidence and *perceptions* of publishers' attitudes.¹⁸ Since those first studies, more than a decade's worth of ETDs have been deposited into open access repositories, enriching the research landscape. The results from this current study are congruent with previous findings; that is, publisher attitudes and policies are, on the whole, accepting of manuscripts containing work derived from ETDs. This should continue to offer graduate students a measure of confidence and comfort in the decision to deposit their ETDs in OA repositories.

The results of this study are intended to help students and advisors approach ETDs from a more informed and less fraught position. Using the data from this study, we recommend that students inform themselves about the specific policies of the journals where they expect to publish. Faculty advisors should continue to explore the differences between a dissertation and publishing an article or a book. Publication implies a wider intended audience, the scrutiny of peer or editorial review, and changes in format and quality. Even critics of open access ETDs agree that the publication process is different from the thesis or dissertation defense, stating that "most scholarly peer review is blind, or ideally double blind, whereas dissertation committees always know whose work they're reading. Dissertation committees assess whether a student's work has fulfilled program outcomes and requires, not whether it's ready for publication or even widespread release. Dissertation review certifies the student's capabilities within the context of the discipline and the institution."¹⁹

As ETDs become the norm in higher education, it is important for scholars to be aware of journal publication policies. More discussion and education is necessary on the university policies for ETD repositories, the publication process, authors' rights, and the benefits of sharing research. This is the case not only within disciplinary communi-

ties, but across disciplines, as we have begun to see in the area of digital humanities. Further studies are needed to fully assess the variety of university policies governing ETDs. A deeper examination of university motivations and measures taken to better inform students and faculty about scholarly communication issues would also be of great benefit.

The ETD is an early step in participating in, and contributing to, a community of research. Just as a student should be inculcated with the foundational elements of their chosen discipline, so too should they be educated about the implications of related institutional policies. The library, in addition to faculty advisors and graduate schools, must play a role in educating emerging scholars about copyright, author rights, and other scholarly communication issues, particularly because these future scholars will, someday, have an opportunity to shape the future of their discipline and will have the authority to steer the discussion.

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Appendix A— Survey Questions

An increasing number of higher education institutions worldwide are requiring electronic theses and dissertations (ETDs) and are making them publicly available in open access repositories. Some faculty advisors and graduate students are concerned that open access to their electronic thesis or dissertation could diminish future publishing opportunities.

You have been invited to complete this brief survey based on your affiliation with a high-impact research journal in the sciences. There are two sections: 1) the primary research query and 2) several brief demographic questions.

Section 1: Primary Research Query

1. **I am voluntarily participating in this survey.** (required question)
 - Yes
2. **Which of the following statements best reflects the editorial policy or practice governing your journal: (Please select one response.)** (required question)

“Manuscripts which are revisions derived from openly accessible electronic theses or dissertations (ETDs) are...”

 - Always welcome for submission
 - Considered on a case-by-case basis
 - Considered ONLY IF the contents and conclusions in the manuscript are substantially different from the ETD
 - Considered ONLY IF the ETD has access limited to the campus or institution where it was completed
 - Not considered under any circumstances
 - Other (please elaborate):

3. **At what level are acceptance policies and criteria set for the journal? (Please select one response.)** (required question)
- Publisher
 - Editorial Board
 - Professional Organization or Society (Board or Council)
 - Editor-in-Chief
 - Editorial Director
 - Publications Committee
 - Don't know
 - Other (please specify):

Section 2: Demographic Questions

4. **My journal is published by: (Please select one response.)**
- Commercial publishing company
 - Academic society
 - University press
 - Other (please describe):
5. **My affiliation with the journal is: (Please select one response.)**
- Editor-in-chief
 - Managing editor
 - Assistant editor
 - Member of editorial board
 - Other (please specify):
6. **In what country is the journal based? (Please select one response.)**
7. **What is the primary language of the journal? (Please select one response.)**
8. **Please share any additional comments or observations on the primary research question below.**

Primary Research Question: Which of the following statements best reflects the editorial policy or practice governing your journal: "Manuscripts which are revisions derived from openly accessible electronic theses or dissertations (ETDs) are..."

- *Always welcome for submission*
- *Considered on a case-by-case basis*
- *Considered ONLY IF the contents and conclusions in the manuscript are substantially different from the ETD*
- *Considered ONLY IF the ETD has access limited to the campus or institution where it was completed*
- *Not considered under any circumstances*

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