Perspectives on Open Access Opportunities for IS Research Publication: Potential Benefits for Researchers, Educators, and Students

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ABSTRACT

Access to current research materials, pedagogical best practices, and relevant knowledge has become problematic as journal subscription costs have increased. Increasing delays in the traditional publication timeline, coupled with high subscription costs, have resulted in a diminished ability for IS faculty and their students to access the most relevant research in a timely manner, an issue felt most acutely in developing nations. As IS educators seeks to increase the dissemination of their work and ensure that students have the most updated knowledge, one option is publishing in open-access (OA) journals. However, a lack of knowledge, inconsistent quality perceptions, the presence of predatory journals, and publication fees have negatively affected IS researchers' support for OA publishing. This study surveyed 68 IS scholars and found that IS scholars do not publish in OA journals due to concerns about fees, quality, prestige, and impact factors. This study found more similarities than differences between junior- and senior-level IS scholars, with junior faculty members placing more emphasis on the speed of publication than their senior colleagues do. By understanding the underlying reasons that IS faculty are favoring OA options, the study hopes to shed light on the reliance on traditional journal publication models that restrict the distribution of intellectual property. If the OA approach were embraced by more journals, IS faculty members and their students benefit through expeditious access to relevant content to support faculty professional development, instruction, and research.

Keywords: Open access, Information & communication technologies (ICT), Journal publishing, Accessibility

1. INTRODUCTION

In the last 20 years, the Internet's ubiquitous access to digital information has offered researchers the ability to share ideas and information in a rapid, free, and open manner within the global community. Information and communication technology (ICT) implementations have spawned numerous initiatives, with virtually every academic field pushing for increased access and faster submission-to-acceptance-to-publication of their scholarly papers, pedagogical lessons learned, and instructional cases. Meanwhile, most IS scholars continue to publish using the traditional journal model, with little use of institutional repositories (IRs) or self-archiving designed to facilitate informal distribution of this type of information. From a practical perspective, the reluctance to publish in open access (OA) journals is understandable since IS researchers are expected to publish in recognized and established traditional venues. Groenewegen (2015) contended that until promotion and tenure guidelines value and encourage publication in OA journals, IS researchers will continue to submit articles to traditional journals. Since very few of the most highly

regarded publication outlets for IS researchers offer affordable or timely OA options (Lindman, 2015), the field as a whole seems reluctant to embrace this new publishing paradigm. This reluctance makes it difficult for IS researchers, professors, and students to quickly access information to support scholarship, teaching, and learning.

For the most part, traditional IS journals do not offer convenient access to their content. That is, the most current, relevant IS research – particularly the research published in the IS field's top journals – is not openly accessible, but instead requires a significant subscription fee, typically paid through an institution's library. When funding for subscriptions is limited, IS academics may be unable to access relevant articles, which may reduce the effectiveness of professional development, instruction, and research. Professors may be unaware of recent advances, may not have access to relevant research, or may not be cognizant of the most up-to-date instructional content and methods.

While concerns about access mount, traditional publishers continue to raise subscription costs to increasingly higher levels in the U.S. and globally. These increased costs especially impact developing countries, where access to

current research is already limited. The high subscription costs and long submission-to-publication time frames of traditional publications make it difficult for IS educators and their students to achieve their academic and career goals; both professors and students need access to current research articles, recommendations for best practices in education, and other supporting classroom materials. While the lower costs associated with electronic journals could provide some relief for this barrier to access, when electronic subscriptions expire and are not renewed, students and their professors lose access to previously provided electronic materials (Lamp, 2015); thus, compounding rather than resolving the accessibility problem.

Without access to current, updated, and timely research, IS students face significant disadvantages when trying to conduct research and write academic papers. This loss of opportunity is particularly pronounced in less-developed countries, which have access to fewer resources. In the developing world, increased access through OA publishing options could potentially represent "a quantum leap" in research availability (Willinsky, 2006, p. 103). The IS field has yet to make this leap, however. Meanwhile, students in many portions of the world simply do not have access to the research and resources they need to complete assignments and earn a current and relevant IS degree. In Malawi, for instance, students tend to rely on instructor notes and library books as reference material because there is very limited access to subscription library databases (Chawinga and Zozie, 2016), and faculty members in Nigeria report that the lack of availability to current research has resulted in a "defective and outdated curriculum" (Igwe, 2013, p. 4). Undoubtedly, IS students across the world need access to current, relevant, and timely reference materials to be competitive in a global economy.

Students in the developed world are not immune to lack of access, however. One study found that approximately 70% of business students used library facilities on a regular basis and that undergraduate students who used the library had higher grades than those who did not (Nackerud et al., 2013), while another reported that 81% of senior business students often conduct research when writing papers for class (Dubicki, 2009). Further, many IS programs already require a senior design project, which typically integrates research with practical IS applications, making availability of appropriate resources essential (Kamoun and Fakhry, 2011). In fact, authors have called for the integration of more research into undergraduate IS education, due to the fast pace of new technology, programming languages, emerging security issues, etc. (Kamoun and Fakhry, 2011). With limited access to research, or availability that is difficult or expensive to acquire, IS students and professors suffer, and the increased integration of research into the undergraduate IS curriculum is unlikely.

Students need regular access to current information to explore career opportunities as well. Simply knowing how technologies are changing by reading current research helps prepare students to be the IS leaders of tomorrow. But without access, or with little access, graduates of IS programs may not be prepared for the fast-changing IS field (Chawinga and Zozie, 2016). IS researchers should consider a shift to a more accessible model, such as OA, ensuring that students and educators have the opportunity to benefit from leading-edge research and respected leaders in the field, through rapid and free, or at least low-cost, access to relevant, published research. OA promises to provide a variety of options to bridge the gap between those who have access to the most up-to-date research and those who do not.

It is clear that the understanding of and the acceptance for OA journals is discipline specific, and the IS community's perspectives on OA publishing has been under-studied. The IS discipline should look for new and innovative ways to make research more readily available to the global community of its educators and students. To do this, it is important to first understand how the IS discipline perceives OA; only then can IS researchers be encouraged to consider alternative venues that would dramatically increase research availability to IS students and educators. In order to understand the reluctance of IS researchers to publish in venues that offer faster and more accessible dissemination of findings, this study examined the following questions:

1) What are IS faculty perceptions toward open accessibility of research? Are IS scholars willing to submit articles to OA journals?
2) Are senior IS scholars different from their junior colleagues in their willingness to consider OA venues? Junior scholars often look to their senior colleagues to lead the way in any new initiative; does this also apply to OA publishing? What could this mean for the OA movement?
3) How does the IS field compare to other disciplines, some of which have already embraced OA initiatives? What does this mean for the IS discipline specifically?

2. THE BENEFITS OF "OPEN ACCESS"

2.1 Traditional versus Open Access (OA) Publishing
In the traditional publishing model, scholars submit manuscripts which are reviewed by peers in the field. An editor assesses the reviewers' evaluations and makes a determination to accept, reject, or further revise the manuscript. Prior to publication, authors of accepted works typically sign over the copyright to the publisher. The publisher then produces the article within a journal issue, bundles a collection of journals, and subsequently sells the rights for access to various institutional libraries. In effect, the author, paid by the home institution or a research or grant agency to produce the work, develops the ideas and structures the paper in a meaningful manner, and then transfers ownership to the publisher. Ironically, the publisher then sells the rights to access the article back to the institution that employs the scholar. To further compound the irony, most scholars serve on advisory boards and as reviewers and editors for journals and conferences voluntarily and without compensation (Vardi, 2009).

High costs for journal subscriptions may serve as barriers to the dissemination of scholarly work (Mann et al., 2009), particularly on a global scale and in a timely manner. Publishers, however, attempt to justify the high cost of traditional journals, pointing out that their profit margins are small and that average article processing charges are reasonable and only about $660 per article (Van Noorden, 2013).

Adding to the accessibility conundrum, submission to top IS journals can take years before being published. For instance, in 2012, *Information Systems Research*, one of the top IS journals, took an average of 75-96 days per review to assess and make recommendations regarding submitted manuscripts (Agarwal, 2012). After each review, it could take the authors months to adequately address reviewer concerns, and the manuscript could require multiple review cycles before the manuscript is accepted. Once accepted, the article must be formatted into a camera-ready state for printing and then produced in a hard-copy journal. Overall, IS's best journals have become notoriously slow to publish articles, require subscriptions to gain access, or delay free distribution for months or even years after publication.

Across the globe, IS faculty members often have to email their colleagues to obtain access to the latest research, instructional content, and perspectives (Bonaccorso et al., 2014). If they are unable to acquire this information directly from the author, they and their students must rely on more readily available and possibly outdated teaching materials, thereby failing to gain access to the most relevant material. With the ability to access more current research, these developing countries could offer their students dramatically improved learning opportunities. These opportunities may be especially heralded in developing countries, such as those in Africa, the Middle East, and others. Nigeria and Kenya, for instance, face a myriad of challenges due to the lack of access to current research. They are working to establish OA initiatives to improve the availability of current research and overcome high costs of access (Igwe, 2013; Mwangangi et al., 2014). Similarly, Obeidat and Genoni (2010) noted the positive impact of the OA movement which improved availability of international research in Jordan; however, the authors worried about the lack of access to OA papers in languages other than English. The IS discipline can learn from these efforts and should seek opportunities to extend similar OA initiatives further into other developing nations and colleagues in the developed world who are struggling with regular access to current research.

Thus enters the OA opportunity. OA publishing offers multiple models for increased availability and distribution of research. However, OA is defined in different ways, depending on discipline, institution, and author perspectives. While Cerf (2013) described OA simply as "easily found and freely available" (p. 7), others break down the OA model into a spectrum of options. Groenewegen (2015) suggested that the lack of standard definitions of terms associated with OA publishing has compounded author confusion. Willinsky (2006) confounded the matter even further, categorizing ten separate types of OA publishing. Most authors, however, recognize "Green," "Gold," and "Platinum" (a.k.a. "Diamond") models of open accessibility.

Recognizing that the traditional, for-profit model of publishing restricts access and sets up barriers to sharing research (Roach and Gainer, 2013), in 2010, Harvard adopted an OA policy that strongly encourages its faculty members to resign from editorial boards of non-OA journals and instead to publish all academic papers in OA journals (Sample, 2012). Sample goes on to quote David Prosser, Executive Director of Research Libraries (UK): "Harvard has one of the richest libraries in the world. If Harvard can't afford to purchase all the journals their researchers need,

what hope do the rest of us have?" From an ethical perspective, OA publishing promotes public discussion and allows researchers to build on previous findings, particularly in countries where library subscriptions are out of reach (Parker, 2013). Further, OA publishing provides IS scholars and the students they educate with relevant, up-to-date research that can be used in the classroom.

Published articles, even in some OA publications, are not free of cost (Vardi, 2012). Someone must serve as reviewer and as editor, while someone else must ensure the article is formatted in a meaningful and consistently professional manner. The article must be stored in an accessible repository, with the underlying technology maintained and updated. Thus, different models of OA emerged.

With the "Gold" OA publishing model, a journal shifts the cost of publishing to the author. By charging an article publishing fee (APC, or simply processing fee) up front, articles can be accessed by the reader at no cost (Rizor and Holley, 2014). Gold OA is the model adopted by the high-quality, well-respected Public Library of Science's *PLoS* series of journals (http://journals.plos.org/plosmedicine/), which uses OA publishing models to allow freer and faster communication between authors and the scholarly community (Chan, Kirsop, and Arunachalam, 2011; Powell, 2016). Publishers like PLoS and BioMed Central (Gasparyan, Ayvazyan, and Kitas, 2013) have proven that high-quality OA journals are a possibility. Solomon and Björk (2012b) predicted continued growth in this type of publishing, although in 2012, Björk (2012, p. 1503) determined that Gold OA, which he called a hybrid method of access, had failed:

> …the hybrid experiment, at least in the case of the major publishers and with the current price level, has failed as a way of significantly adding to the volumes of OA articles, … and will remain a very marginal phenomenon in the scholarly publishing landscape.

The Gold OA model may improve access for readers, but it simply shifts the cost from the publisher to the author with widely ranging fees. In some journals, APCs are collected prior to review, casting doubt on the quality of research published and the motivation of the journal. This doubt has led to increased scrutiny of Gold OA publishing, with some disreputable publishers more interested in generating APCs than publishing quality work. These aptly named "predatory journals" quickly publish articles once processing fees are paid – a pay for play model. In other words, if you pay, you will be published (Zhao, 2014). Predatory journals often publish lower quality work with a poor or nonexistent peer review, along with potentially plagiarized articles (Beall, 2012). Even well intentioned OA journals may become predatory (Groenewegen, 2015; Kingsley and Kennan, 2015), possibly resulting in authors submitting lower quality papers to OA journals or avoiding them entirely.

By contrast, "Green" OA occurs when a publisher allows the author to self-archive an article in an online repository that is open to all (without a fee). Authors may be allowed to self-archive before review, after acceptance, after publication, or more than one of these options, often after an embargo period, requiring a delay of usually 6-18 months

between the article's publication date and the posting of the author's copy on a local site or in an IR (Roach and Gainer, 2013; Laakso and Björk, 2013). For example, *Communications of the ACM* (CACM) offers authors three options to increase accessibility for their articles: open-access where the author pays (Gold), an exclusive licensing agreement (Green), or traditional copyright transfer (CACM Staff, 2014). CACM calls these options bold and new, and, while they may be new to ACM's constituents, OA is already much more mature in other fields outside of IS. While the Green approach does provide readers with an option to access research at no cost, long embargo periods, along with the challenges of locating the repository containing the permitted self-archived version, do not alleviate the challenges of locating relevant and timely research, and thus do little to improve access where it is needed most.

A newer OA model has emerged, known as "Diamond" (Fuchs and Sandoval, 2013; Gowers, 2013) or "Platinum" (Crawford, 2011) publishing, whereby the journal charges neither the reader nor the author, and makes all published articles openly accessible, usually by publishing online. The costs to host the content and manage the journal are typically paid or sponsored by academic institutions or professional societies, with those working on the journal as editors and reviewers doing so as volunteers, without formal compensation other than service recognition and salaries funded by their home institutions or organizations. Applications like Digital Commons (http://www.bepress.com) and the Open Journal System (OJC; https://pkp.sfu.ca/ojs/), for instance, provide low or no cost publication frameworks and tools. Many institutions may already be using these or similar applications for faculty research support and institutional repository (IR) archiving. Researchers may be surprised to discover that these same tools can be used to create an online journal with very little overhead cost. Fuchs & Sandoval (2013) note that these types of models are increasing in both popularity and recognition and may present a valid option for the IS field.

In IS, the top journals have yet to adopt the Diamond/Platinum model, relying instead on Gold and Green models, which better support the profit motives of the journal, if, in fact, any OA approach is adopted at all. A review of the top journals in IS, as represented by the Association for Information Systems' (AIS) Senior Scholars' Basket of Journals, reveals the current state of OA in the discipline, as shown in Table 1. Most of these journals have made a move toward OA publishing. Particularly with Green OA practices, the journals have begun to adopt more universal access policies. Virtually all of these journals have specific policies that allow self-archiving or the use of IRs. However, with the exception of *JAIS*, all have at least a one-year embargo period before the author is allowed to publish a version of the article on a personal website or other IRs. *JMIS* requires an 18-month embargo, while *JSIS* requires a two-year embargo, and *MISQ*, considered by many to be the most highly respected IS journal, has a five-year embargo. As IS technology changes rapidly, forcing an author to wait one to five years after publication before being allowed to share research through self-archiving is an ineffective implementation of the Green OA model. With the exception of *MISQ* and *JAIS*, all of the other journals provide authors with the option to pay Gold OA APCs, but with fees ranging from $1,800 to $3,900 per article. *MISQ* does not offer a Gold option or any method of access (except through subscriptions) during their five-year embargo period.

With most Green OA options, journals commonly restrict posting of the manuscript to a specific version of their paper: either pre-print (the author's submitted paper without reviews or revisions) or post-print (the author's final version of the manuscript which has already been reviewed and accepted but not formatted to camera-ready). Seldom does a publisher allow the author to archive the published (print formatted) version. Authors of published articles in journals that permit Green OA self-archiving must first remember to post their papers, after reviewing and complying with all of the journal's policies, and then most likely find themselves placing the paper in a location that may be difficult for other readers to find.

Journal	Green OA practices	Gold OA practices & APC fee
European Journal of Information Systems (EJIS)	Post-print manuscript in repository allowed after 1 year embargo	Optional - $2,600
Journal of Information Technology (JIT)	Post-print manuscript in repository allowed after 1 year embargo	Optional - $2,600
Information Systems Journal (ISJ)	Pre-print manuscript with annotation Post-print after 1 year embargo with annotation – automated distribution prohibited	Optional - $3,900*
Information Systems Research (ISR)	Self-archiving of published manuscripts on personal websites allowed after 1 year embargo with annotation	Optional - $3,000
Journal of the Association for Information Systems (JAIS)	Published manuscripts on personal website with annotation	None
Journal of Management Information Systems (JMIS)	Pre- and Post-print manuscripts on personal websites freely; 18 month embargo for post-prints in repositories	Optional - $2,950
Journal of Strategic Information Systems (JSIS)	Pre- and Post-print manuscripts with annotations and a 2 year embargo	Optional - $1,800
MIS Quarterly (MISQ)	Published articles after 5 year embargo	None

Table 1. Senior Scholar's Basket of Journals' Published OA Practices
* Option for institutional purchases

Further, individual authors are unlikely to pay high Gold OA APCs to place their work into the hands of other researchers across the world. In the age of the Internet and the popularity of electronic publishing, it is difficult to understand how OA publishers with access to free or low cost publication software would still charge high APCs under the guise of open access. Since the current models of Green OA in the IS field continue to require high APCs, institutional awards to support accessibility and reduced or eliminated fees would be helpful if the discipline hopes to allow IS educators and their students to prepare for the competitive and quickly changing information technology field.

Another option is the model adopted by Springer International Publishing, which owns both *EJIS* and *JIT*, as well as numerous other journals. Springer has implemented a wide variety of OA approaches designed to provide options to authors and to encourage accessibility, with a focus on science, mathematics, and technology fields. About 100 SpringerOpen publications have adopted the Diamond/Platinum OA model, charging no fees to authors or readers since costs are covered by institutions or professional organizations (Springer, n.d.). For *EJIS* and *JIT*, however, the traditional publishing model is still the dominant approach. Green OA self-archiving is permitted with a year-long embargo. Gold OA is an available option, but the APCs are similar to other top IS journals, costing $2,600 per article. It does not appear that Diamond/Platinum OA models have made an impact within the IS discipline. This study seeks to understand why the IS field has not yet adopted OA as a publishing method of choice since there are models available that charge low fees to authors and allow wide accessibility of current and timely research.

2.2 Open Access Initiatives in the IS Community
Prior to exploring OA initiatives, it is important to understand the attitudes of the faculty members within the discipline. Xia (2013) called for more research into faculty perceptions and understanding of OA opportunities, noting that faculty attitudes are important when evaluating their intentions. Desouza et al. (2007) and others have recommended that senior scholars may lead the way with OA initiatives, a perspective that provides the impetus for such a query as part of this study. Further, the IS community should consider publishing in appropriate OA journals in an effort to make IS education across the world relevant and accessible. Other disciplines, like science and medicine, have established high-quality OA publications that allow authors to disseminate research findings, teaching tips, and case studies quickly and to a global audience. The IS academic discipline is at risk of a being late adopter of OA publishing models, or as Lindman (2015) suggested, "the late majority or even the laggards in diffusing innovation" (p. 355). If the field is going to begin to bridge the divide between those who have access to the latest research and those who do not, it needs to make strong, positive steps to level the playing field for current and future educators and students.

Even though some authors suggest that increased uses of Green OA approaches, like self-archival or IRs, may lead to the downfall of the traditional publication process (Kingsley and Kennan, 2015), other fields, such as medicine and biology, have adopted OA models without compromising quality and thereby leading the traditional publication model through a necessary paradigm shift that provides widespread access to research, regardless of the reader's or author's ability to pay. Further, despite a push for more use of self-archiving and IRs, faculty members remain unaware of these policies or do not self-publish for other reasons (Xia, 2013). Apparently, the effort required is not worth the potential gain. For instance, librarians, considered the cheerleaders of the open access effort, do not self-archive or publish their own work in IRs, even though they have the opportunity to do so (Chaudhuri and Baker, 2015).

Funding agencies have also joined the push for more OA publishing, along with the European Union (Macilwain, 2013) and the United Kingdom (Tickell, 2013). They recognize the ironies of providing grant funding for an initiative, then restricting access to the results, and forcing institutions to pay for access to federally funded research results. The National Institutes of Health (NIH), for instance, now requires that all research be available through open access (Peek, 2008), with digital copies of accepted articles provided upon acceptance and made available online no more than 12 months after publications (Cohen et al., 2013). In addition, NIH specifically allows the author to retain copyright of the work (Collins, 2011). Without similar initiatives and governmental and/or institutional support, the costs to publish in high-quality, well-respected OA journals may be impossible in parts of Eastern Europe, South America, and Central America. Such countries do not qualify for fee waivers to publish in OA journals, but their faculty members do not make a salary large enough to cover the publication fees (Bonaccorso et al., 2014).

Delman (2013), however, cautioned that the move to OA may take time to implement: "…framing this move [to OA for all] as a moral imperative and a revolution that must happen overnight, damn the consequences, is the wrong approach and quite frankly an irresponsible one at that" (p. 9). As he notes, authors and readers have also benefited from the current model, which provides high-quality outlets for scholarly endeavors and visible evidence to be used for tenure and promotion decisions. Further, scholars have differing opinions on OA, which vary by discipline (Migheli and Ramello, 2013), and getting academics to change publishing habits is difficult. Thus, investigations of scholar opinions within disciplines may provide insights on how to implement OA models. This study's exploratory research takes a step toward evaluating the perceptions of OA by the IS discipline.

Peterson, Emmett & Greenberg et al. (2013) advised that scholars must "innovate in the systematic and ethical reinvention of the scholarly communication system" (pp. 6-7). Clearly, accessibility to emerging research topics benefits all scholars and their students. Disallowing access to those who cannot afford subscription-based services leads to delays in research advances and the production of less prepared IS graduates. While the charge to adopt OA models was initially led by library science researchers, other fields have joined the discussion, actively debating the value of OA publishing models. The IS community of scholars, however, has been slow to embrace OA. Meanwhile, computer science researchers and educators have joined the debate, calling for

wider accessibility of research on a global scale, and discussing ideas in CACM, their flagship publication (Avital et al., 2009; Cerf, 2013; Hoffmann, 2012; Mann et al., 2009; Oram, 2013; Roman, 2011; Vardi, 2012). But where is the IS scholarly community? The answer, based on the discipline's most highly valued research publications, is that the IS community is not yet fully engaged in the conversation.

As described previously, there is support by IS scholars to use IRs to store research, and there is an OA repository available for the larger IS community, IS Bibliographic Repository (ISBIB) (Chua et al., 2002). Further, an entire issue of *Communications of the AIS* (CAIS) was devoted to the topic discussion in 2015. This issue could be considered a response to the 2007 article by Desouza et al. which argued that the IS community must "raise its awareness and efforts considerably with a view to address the needs of underserved communities," (p. 261) noting that senior scholars should lead the way for IS. This call to social activism has been largely ignored by the IS community; for example, Clarke (2008) described the electronic library of IS research as "fragmented and very poorly cross-linked" (p.14). Meanwhile, Coonin (2011) called for "more detailed, thoughtful investigation along discipline-related lines" (p. 207) to fully understand OA publishing trends. Xia (2013) concurred, coining "The Disciplinary Divide" to describe the different attitudes that scholars in diverse disciplines form toward IRs and other open access methods of sharing research. Further, Obeidat and Genoni (2013) described how discipline-level differences affect citation policies and decisions on where to publish. Thus, this study seeks to understand the attitudes of the IS discipline in an effort to improve accessibility.

While some research (Mann et al., 2009) has shown widespread support for OA from scholars in technology-related fields, Zhao (2014) contended that researchers need to develop "scholarly publishing literacy" (p. 13), referring to the multiple issues surrounding OA initiatives. Coonin (2011) concurred, noting that business faculty are confused about self-archiving and open access. In fact, many do not even know about OA journals (Hahn and Wyatt, 2014) or are unaware of self-publishing opportunities. Roman (2011) asserted that the academic community has failed to move as quickly as digital opportunities. In fact, with regard to

scholars in technology-related fields, only 28% use OA journals for publishing their own scholarly work. Similar to other fields, IS scholars continue to value most highly those publications that take the longest to reach the audience (Roman, 2011), contributing to access problems across the world.

3. METHODOLOGY

3.1 Attitudes Toward OA Publishing
Before it becomes acceptable and as common as non-OA publishing, IS scholars must form positive attitudes toward OA publishing (Ajzen, 2013); in effect, researchers must see the value in publishing in OA venues. The current model that rewards well-established, traditional scholarly journals is a major impediment to the OA movement (Roman, 2011).

While some previous research has shown that researchers already have a positive attitude toward OA publishing (Mann et al., 2009), a better understanding of the underlying attitudes toward OA may lead to a clearer understanding of publishing behaviors. Therefore, this study asked respondents a series of questions to measure their views of OA publishing, as shown in Table 2. The study measured attitudes by asking respondents about the overall value of OA journals, their general opinion of OA publishing, and whether they had considered submitting an article to an OA journal. It also asked respondents to describe their attitudes toward quality, prestige, and visibility of OA journals as compared to traditional subscription journals. The study distinguishes *visibility* as the extent to which a journal is read, subscribed to, or seen by faculty members, while *prestige* refers to the perceptions of esteem or worth of the journal. Thus, a journal could have a high degree of visibility if a large number of faculty publish in it or read it, yet a low level of prestige if it was not highly respected by the field. After asking their views of OA publishing, the study asked if the determination of a journal's quality has anything to do with whether the journal used an OA or a traditional publishing model, and if in general, respondents prefer to publish in OA over traditional journals. Table 2 shows a summary of the questions regarding IS scholar attitudes toward OA publishing.

Issues Question (response choices when needed)
What is your general opinion of OA publishing? (from 1=Very Positive to 5=Very Negative)
When submitting to a journal, how important is it that the journal is OA or not? (1=Unimportant to 5=Very important)
Have you considered submitting an article to an OA journal? (Yes, have published in OA; Yes, have an article under review at OA journal; No but would consider; No and would not consider)
OA journals are typically lower quality than subscription journals.
There is no difference between OA and subscription journals in terms of quality, prestige and visibility.
The determination of a journal's quality has nothing to do with whether they are OA or traditional publication.
In general, I prefer to publish my articles in OA journals over traditional journals.
Institutions should provide stronger support for faculty members publishing in OA journals.
Providing readers with free access to published articles makes OA journals superior to traditional journals.
OA publishing is the future of scholarly research venues.
In general, OA journals publish faster than traditional journals.
***Unless otherwise noted, the scales used are (1=Strongly Disagree to 5=Strongly Agree)**

Table 2. Attitudes toward OA Publishing

Many consider making journal publications free to all to be a social justice and ethical imperative. In previous studies, a large majority of respondents have indeed indicated that free access is an important issue when deciding whether to publish in OA journals (Dallmeier-Tiessen et al., 2011). Warlick and Vaughan (2007) reported that free access and visibility are noted incentives for publishing in OA, but they wondered if those factors were strong enough incentives for authors to choose OA over traditional journals. Therefore, this study asked respondents if they felt their OA publications should be freely available to all, and if providing readers with free access to published articles makes OA journals superior to traditional journals. It then asked if respondents feel the cost of journal subscription and audience accessibility serve as incentives (or disincentives) to OA publishing.

The timeliness of the review process and the speed of publication are noted concerns facing scholars; the current slow peer review process, in fact, is the biggest roadblock to fast publication (Roman, 2011). Coonin (2011) and Solomon and Björk (2012a) found that the timeliness of publication was an important factor when choosing a journal. In contrast, Mann et al. (2009) noted that OA journals have fast publication cycles, but researchers do not find this issue very important. Further, while OA journals enjoyed a brief surge ahead of traditional journals with fast, electronic peer review systems, traditional journals responded with similar processes, thus minimizing the advantage (Warlick and Vaughan, 2007). In the absence of agreement, the study asked respondents if they feel their submission will be reviewed quickly and if, in general, they feel that OA journals publish faster than traditional journals. It then asked if they feel the speed of publication and rapid dissemination serve as incentives (or disincentives) to publishing in OA venues.

3.2 Quality and Peer Influence
The community of IS scholars, like any community, uses subjective norms when making decisions, such as considering the opinions of peers and significant others (Ajzen, 2013). Junior scholars who are seeking tenure and/or promotion must be particularly aware of what significant others and the respected IS community think about publication opportunities and their quality levels. The reputation and quality of peer review directly contribute to the perceived quality of a journal. Coonin (2011) found that peer review is the most important factor in deciding where to publish scholarly papers. Xia (2013) concurred, finding that

peer review shaped faculty opinions about OA. Dallmeier-Tiessen et al. (2011) found similar results and reported that most respondents believed quality was important. However, many scholars believe OA journals have poor or no peer review (Carpenter, 2012; Hahn and Wyatt, 2014; Xia, 2010) as opposed to the perceived higher quality peer review in traditional journals (Mann et al., 2009). Further, authors reported dissatisfaction with the peer review and websites of some OA journals, which may indicate a diminished advantage (Butler, 2013). Over time, there has developed a general perception that OA journals lack the prestige of their traditional counterparts (Hahn and Wyatt, 2014; Warlick & Vaughan, 2007; Xia, 2010). Multiple studies have shown that journal reputation is an important factor in deciding where to publish (Coonin, 2011; Dallmeier-Tiessen et al., 2011; Solomon and Björk, 2012a); therefore, the perception of overall low-quality may decrease the type, quality, and number of submissions to OA journals. To further investigate, the study asked scholars about their perceptions of the peer review process and the level of quality of OA journals, and if those variables serve as an incentive or disincentive to publishing in them.

Departmental journal lists are a reality for researchers striving for tenure and promotion. If the department does not value OA publishing, it will be difficult to get faculty members to select OA venues. In fact, previous studies have shown that a majority of survey respondents believed publishing their work in OA journals might jeopardize their chances of promotion and tenure or future career goals (Dallmeier-Tiessen et al., 2011; Mann et al., 2009). This aversion may stem from the reality that many institutions do not count OA journal publications toward tenure and promotion decisions (Hahn and Wyatt, 2014), leading faculty members to be concerned their prestige will fall if they publish in OA journals. Mann et al. (2009) went one step further, demonstrating that performance is the most important issue for faculty when they consider whether to publish in OA journals. Therefore, the study asked if the respondents' departments value OA publishing, how much an established department journal list influences decisions to publish in OA venues, and where to publish in general. The study next asked if departments have a formal position on OA publishing and if tenure and promotion guidelines distinguish between OA and traditional publications, as shown in Table 3.

Question (response choices)
Does your department have a formal position on publishing in open access journals? (Yes, for OA; Yes, against OA; No; Don't know)
Does your institution's tenure and promotion process and/or guidelines distinguish between OA and subscription journal publishing methods? (Yes, faculty encouraged; Yes, faculty discouraged; No, no distinction; Not sure/don't know)
Is there a program at your institution to cover the costs associated with fee-based OA publishing? (Yes, covered by institution's budget; Yes, covered by institution's research fund; Yes, covered by a fund provided to me or travel, research, etc.; Yes, covered by some combination of the above; Yes, but I don't know where the funding comes from; No, if I use OA venues, I have to cover the cost myself; Other)
OA journals are typically lower quality than subscription journals. (1=Strongly Disagree to 5=Strongly Agree)

Table 3. Quality and Peer Influence

Impact factors are clearly an important consideration when deciding where to publish scholarly papers (Solomon and Björk, 2012b). However, there is a recent trend for non-elite journals to receive very high citation counts; these journals – often OA journals – make their articles available online immediately to the wider academic community, thus leading to more readership and citations (Acharya et al., 2014). Despite the high citation values of some OA publications, many researchers continue to believe that OA journals have lower impact factors than traditional journals (Mann et al., 2009; Warlick and Vaughan, 2007). Since impact is viewed as one of the most important factors in deciding whether to publish in OA journals (Coonin, 2011), faculty perceptions of low impact may be an impediment to publishing in non-elite, OA journals (Mann et al., 2009). Therefore, the study asked if respondents feel that OA journals have high impact factors, and if impact factors serve as an incentive (or disincentive) to publish in OA journals.

Anderson and McConkey (2009) described the challenges of more widespread adoption of OA venues, including the caveat that OA journals must increase their prestige levels in the future in order to seek high quality submissions. Since OA publishing is discipline-dependent, and since the IS discipline is under-studied, respondents were asked if they feel OA is the future of publishing in the IS field. Next, the study examined perceived encouragement (from all sources), asking if respondents feel that they are encouraged to publish in OA journals. Thus, to understand the relative importance of criteria when considering whether to publish in OA venues or not, the study asked respondents to rank order issues relevant to OA publication, as shown in Table 4.

$3,900 per article (Solomon and Björk, 2012b), cost is not an insignificant consideration, no matter how the author feels about OA. While researchers continue to debate the importance of fees, a majority of respondents reported that fees were important considerations when deciding whether to publish in OA journals (Dallmeier-Tiessen et al., 2011; Forgues and Liarte, 2013), although other studies (Warlick and Vaughan, 2007) found that APCs are unlikely to serve as barriers to OA publication, since some programs or grants will cover fees. As journal impact increases, fees also increase proportionately (Solomon and Björk, 2012a). Institutions that have mandates supporting OA publishing, such as CUNY, have encountered concerns from faculty members who do not wish to pay these fees (Cohen et al., 2013). To understand these concerns within the IS discipline, the study asked respondents if fees are an issue, whether there is a program to cover author fees, and whether journal fees influence the decision to submit to an OA journal. It also asked if fees and support serve as incentives or disincentives, and if respondents believe that institutions should provide stronger support for publishing in OA journals.

As noted previously, the traditional model of publishing requires authors to sign over copyrights. Frankish (2004) argued that the lack of copyright is one of the most important issues concerning the decision on whether to publish in OA journals, although Warlick and Vaughan (2007) found that copyright retention was not a motivating factor or incentive to publish in OA. To understand incentives and disincentives that serve as barriers or catalysts, specifically for IS scholars, the study asked respondents to rate OA publishing issues, as shown in Tables 5a and 5b.

Criteria
Overall Quality of Journal
Prestige of Journal
Perceived Impact Factor of Published Work
Topic of Published Work
Peer vs Editorial Review Method
Established Department Journal List
Visibility of Journal
Target Audience of the Journal
Speed of Publication
Copyright Ownership (author vs publisher)
Number of Journal Subscribers/Readers
Open Access status (OA vs Subscription)
Cost of Journal Subscription
* Force ranked on a scale of 1="Most Important" to 15="Least Important" with options to add "other" ** Assessed on a scale of "Unimportant"=1 to "Very Important"=5.

Table 4. Ranking of Issues Relevant to OA Publication

3.3 Incentives and Disincentives of OA Publishing

Researchers will evaluate whether or not to publish in a particular venue based in part on to the ease of submitting an article to a journal and getting it accepted, or the perceived behavioral control they have over the activity (Ajzen, 2013). Beyond the ease of publication, authors have to consider the financial repercussions of submitting to a journal. Since some OA journals charge APCs that may cost as much as

Please rate the following as incentives for you to publish in open access venues:
Audience accessibility
Broad exposure
Copyright retention
High quality publication
Institution/college/department covers author's fees
Publication respect
Rapid dissemination
Speed of publication
Whether the OA venue was fee-based or non-fee-based
Other
Scales: 1=Not at all important, 2=Somewhat important, 3=Important, 4=Very important, 5=Extremely important

Table 5a. Incentives to Publish in OA Journals

Please rate the following as disincentives for you to publish in open access venues:
Concerns for lack of reach of published articles
Cost of publishing for fee-based OA venues
Lack of quality of OA publication venues
Lack of OA support from institution
Lower impact factor than traditional venues
Peer perceptions of OA venues
Other
Scales: 1=Not at all important, 2=Somewhat important, 3=Important, 4=Very important, 5=Extremely important

Table 5b. Disincentives to Publish in OA Journals

3.4 Senior-level versus Junior-level IS Scholars

The IS field depends upon senior leaders to establish guidelines and expectations for their less experienced colleagues. Dallmeier-Tiessen et al. (2011) noted this importance when deciding where to publish, with over half of the respondents indicating that recommendations from colleagues would make them consider submitting to OA journals. Therefore, the study asked respondents if they feel that senior scholars believe they should publish in OA journals. While senior scholar perception is important when deciding where to publish, other peers may also influence the decision to publish in OA journals. Peer use and credibility of OA journals in the eyes of academic colleagues and potential employers have been identified as important determinants of the likelihood of publishing in OA journals (Carpenter, 2012; Mann et al., 2009). Therefore, the study asked respondents if they believe that their peers value OA journals; to further understand the perceptions of potential OA adopters, the study also asked how much the target audience, journal's visibility, number of subscribers or readers, peer perceptions, and publication respect level influence the decision of whether to publish in OA journals.

Another way to assess willingness to publish in OA journals is through the tenure status of the authors. In fact, Macilwain (2013) found that academic rank influenced OA publishing and that OA publishing was most popular among tenured faculty and those who are "young and don't care" (p. 8); Park (2009) agreed that choosing an OA publication venue has different levels of significance depending on tenure status. Chan, Kirsop, and Arunachalam (2011) correctly point out that young faculty members, who are not tenured, have little incentive to publish in OA journals. Hess and Hoerndlein (2015) called on established researchers to look for ways to support different publishing options for their less experienced colleagues, thus leading the way to a more open and accessible model of sharing information. Nonetheless, those researchers who had little to no awareness of OA – no matter their rank – were less confident of publishing in OA journals than their more experienced peers (Park, 2009).

To measure senior and junior-level status, the study gathered data on academic rank and tenure-status. Respondent rank options were Lecturer, Senior Lecturer, Assistant Professor, Associate Professor, and Full Professor (Instructor and Senior Instructor were originally included as ranks but, as no respondents with those ranks completed the survey, they were removed from analysis). Tenure options included tenure-track, tenured, or non-tenure track. Building on previous research that has recommended that senior scholars should lead the way in OA initiatives, the study theorized the senior and junior-level colleagues will have different perceptions about OA publishing, as follows:

> Hypothesis 1: *IS scholars of different ranks will have different perceptions about OA.*
> Hypothesis 2: *IS scholars of different tenure status will have different perceptions about OA.*

3.5 Previous Publishing Experience and Intention to Publish in OA Journals

The study asked respondents about their previous experience with publishing in OA and traditional journals and if they intend to publish (or have already published) in an OA journal, as shown in Table 6.

Question
Approximately how many journal articles have you published in your professional career?
Approximately how many journal articles have you published in Open Access venues in your professional career?
Approximately how many of the journal articles you have published in Open Access venues were in fee-based OA venues?
Do you plan to publish in an OA journal in the near future?
Response choices for first three questions = None; 1-5; 6-10; 11-20; 21-30; 31-50; 50 or more
Response choices for last question = Yes; No; Uncertain

Table 6. Previous Publishing Experience

3.6 Survey Administration

To facilitate respondents' answers to the above questions, a survey was created and processed through standard Institutional Review Board approvals. The survey questions, focusing on the areas of interest described previously, were adapted from a number of sources including Warlick and Vaughan (2007), Schroter and Tite (2006), Dallmeier-Tiessen et al. (2011) and Coonin (2011). The questions were organized into groups associated with demographics, general publishing perspectives, and specific opinions on OA publishing. The survey was promoted to IS scholars through internal email lists and the AISWorld list server and administered using an online survey. Follow-up emails were sent every two weeks over the three-month period the survey was active. A total of 108 respondents accessed the survey. However, just under half of the respondents failed to provide an answer to a single question. Those respondents were omitted from the analysis, resulting in 68 usable responses. Some of these 68 responses had missing data. Wherever there was missing data, respondents were also excluded from the analysis for the question(s) they did not answer. Thus, the final sample size (n) for the questions ranged from 58-68.

4. RESULTS AND DISCUSSION

4.1 Participants

Of the 68 usable responses, just over one-third (24) are from outside the United States: Australia (9), Canada (3), New Zealand (3), Norway (2), South Africa (2), and Zimbabwe (2). The remainder were single responses from China, Denmark, Finland, Germany, Hong Kong, Indonesia, Ireland, Korea, Spain, Sri Lanka, Libya, Sweden, and the United Kingdom; eight responses didn't specify. The scholars' primary area of expertise includes Information Systems (65%), Information Security (21.7%), and Information Technology (8.3%). The remaining 4.4% self-report as "MIS" or "Information Science and Technology." Most are employed at public institutions (78%), with 20% employed at private institutions, and 1.7% at "hybrid public/private" institutions. This compares favorably with AACSB (2016b) reports, which showed that a majority (about 60%) of CIS/MIS faculty members are employed at public institutions, with just over 40% at private institutions.
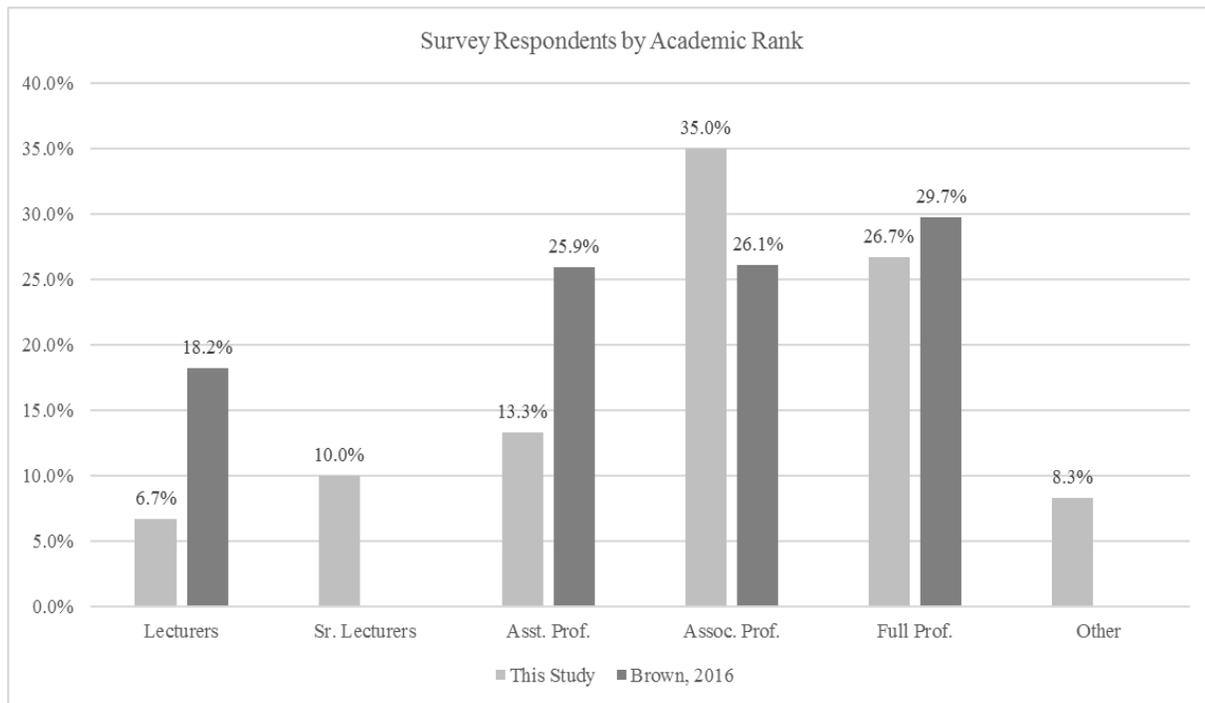
Figure 1. Percentage of Respondents by Rank

Figure 1 provides a breakdown of respondents by academic rank. Brown (2016) reported relatively similar distributions of ranks of AACSB business faculty members, with 18.2% at the Lecturer level (no senior lecturer rank was reported in Brown's study; combining tallies of lecturers and senior lecturer respondents to 16.7% in this study). Brown's findings are shown comparatively in Figure 1. This study had fewer Assistant and more Associate Professors, with similar levels of Lecturers and Full Professors; thus, this sample may have been slightly more experienced than typical AACSB distributions.

Figure 2. Respondents by Tenure Status

For academic status, Figure 2 provides a breakdown by tenure status, which compare favorably with Nelson (2016). Those indicating an "Other" option indicated they were a "researcher," "research fellow," or "Ph.D. fellow." The tenured status is very similar to AACSB International's (2016a) report.

Prior to completing further analysis, respondents were examined by rank to ensure that all ranks reported some scholarly or research expectations. If Lecturers reported no scholarly expectations, for instance, then their attitudes toward OA publishing might not be relevant. However, all ranks did report scholarly expectations within their workload models, with Lecturers and Senior Lecturers reporting a range of 20-29% of their responsibilities include research expectations, while Assistant through Full Professor ranks reported a range of 31-36%. Similarly, respondents were examined by tenure status for research expectations. Non-tenure-track, tenure-track, tenured, and others report average research expectations ranging from 30% to 40%, confirming their inclusion in the analysis. Even though the sample size is relatively small, it is, however, representative of the population at large, based on rank, tenure status, type of institution, and research expectations.
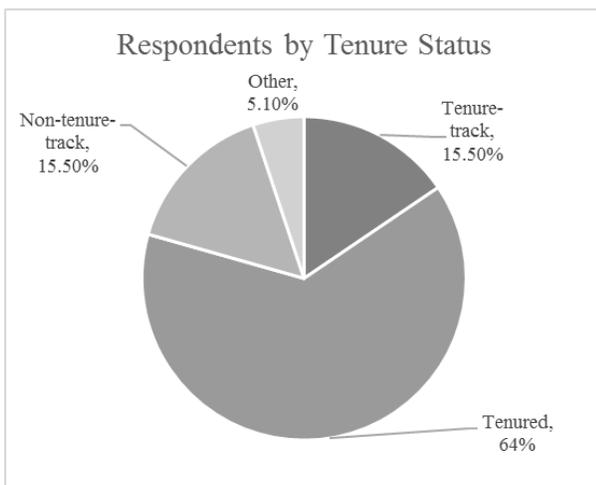
4.2 Publishing Productivity
Responses to questions regarding publication productivity and expectations were examined next. Over 85% of respondents indicated that they are required to publish journal articles, with the majority equally divided between those required to publish one or fewer articles per year (42.4%) and those required to publish two articles per year (42.4%) on average. As shown in Figure 3, almost 30% of respondents indicated they had published 20 or more articles
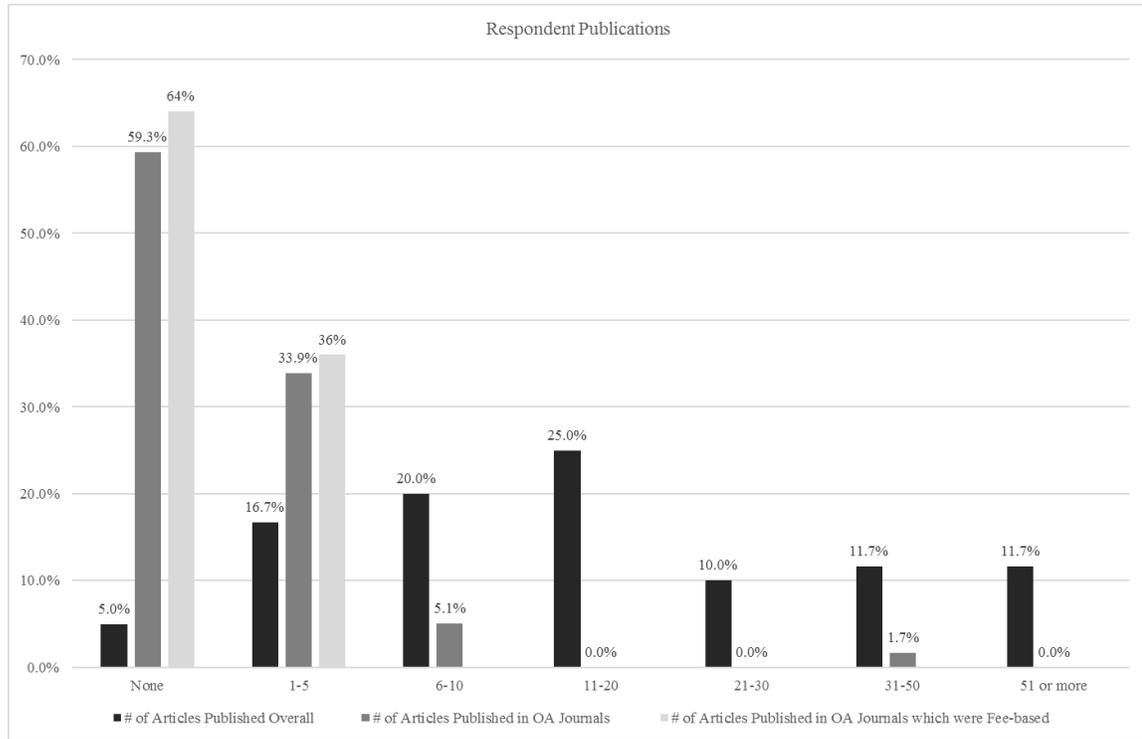
Figure 3. Respondent Publications by Tenure Status

in their career. Even with significant publishing experience, more than half of the respondents (59%) had never published an article in an OA journal. Approximately one-third (34%) had published between one and five articles in OA venues, and only about 6% had published six or more articles in OA journals. Of those respondents who had published in OA journals, 64% (16) indicated that they paid fees to publish their work (Gold OA), and 36% (9) did not (Diamond/Platinum OA).

4.3 OA Publishing Venues

Figure 4. Respondent General Perception of OA Publishing

Next, respondents' overall opinions of OA publishing were assessed. As shown in Figure 4, just over 43% of respondents had a very positive or positive attitude, while about 23% had a negative or very negative attitude toward OA. About one-third of the study's respondents fell in the middle, having no positive or negative opinions. The mean score of 2.71 (n=66, SD=1.17) on the five-point scale (where 5=Very Positive) shows that respondents had on average just under middle-of-the-road opinions about OA publishing opportunities, with a midpoint of 3.0.

Next, how important it was if the journal was OA or not was asked. With a mean response of 2.76 (n=66, SD=1.14), only 10.4% of respondents felt it was "Unimportant," while almost 40% felt it was "Of little importance." Just over 40% felt it was "Moderately important" or "Important," but only 9% felt it was "Very important." In sum, about half felt the open access status of a journal was important, while the other half felt it was of little importance.

Over 80% of respondents had published in OA journals or would consider doing so, indicating generally positive perceptions of OA. Of the 68 respondents, 30.3% had published in an OA journal, while 1.5% currently had an article under review. A little over half, 51.5%, had not submitted an article but would consider doing so. Another 16.7% would not consider publishing in OA journals.

While some previous researchers noted that fees are not a concern to researchers, this study found almost half (45.6%) of respondents said that fees would influence their decision to publish in OA journals. These results indicate fees are a possible barrier to publishing in OA journals for the IS discipline. Clearly, more research is needed in this

area. Many authors may not have direct financial support to cover the costs of publishing in fee-based venues, and in such cases, cost could be a hindrance. Costs may be even more of a burden to scholars in developing countries. A follow-up question asked if respondents had institutional support to help pay OA journal fees, with just over half (55%) indicating that they paid the fees themselves.

Respondents were subsequently asked if their home departments had a formal position on publishing in OA journals, with 10.5% indicating their department had a formal position in favor of OA journals. A minority of respondents (8.8%) indicated a formal position against OA journals, while the majority (63.2%) indicated their department did not have a position. The final 19.5% of respondents indicated they did not know if their department had a formal position. These results illustrate that departments should consider a formal policy on OA publishing and give faculty members a full understanding of their position on OA so that they will be well prepared to meet tenure and promotion guidelines.

With regard to their institution's tenure and promotion distinction between OA and non-OA journals, only 1.7% of respondents indicated that their institution encouraged faculty to publish in OA venues while 17.0% indicated their institution discouraged it. The majority indicated there was no distinction in their tenure and promotion guidelines (61.0%). The remainder of respondents did not know (20.3%) – again showing uncertainty of how OA publication might affect promotion and/or tenure.

Respondents indicated middle-of-the-road general perspectives of OA venues, with averages of 2.7 (out of 5). Clearly, the IS discipline has yet to form opinions on many of the issues associated with OA publishing, such as quality levels, institutional support for publishing in OA venues, and the importance of free access to journal articles, as opposed to the traditional scholarly model of closed-access. When asked if they plan to publish in an OA journal in the near future, 26.7% said "Yes," 33.3% said "No," and 40% were "Uncertain." With less than 30% of respondents intending to publish in an OA journal in the future, as a discipline IS has some work to do if the field wants to make a significant move toward more open publishing.

4.4 Quality of Publications
The remaining questions evaluated why respondents selected publication venues and general perceptions of the quality level of OA publications. First, respondents were asked to rank a provided list of criteria by sequencing them from 1 (Most Important) to 13 (Least important). While respondents were provided with an "Other" option to write in different criteria, no "Other" criterion was mentioned more than once. Thus, no modifications to the list were made. Points were then assigned based on the position of the criterion ranging from one point for a first place position to 15 points for a last place position (taking into account the two "Other" categories). Lower average scores indicate more important criteria than higher scores. *Overall quality*, with an average score of 3.46, was rated as the most important criteria when

deciding where to publish research, while *Cost of journal subscription* and *Open access status* were ranked as the least important.

As a follow-up, the same criteria were provided with Likert-type rating scales to provide a "rating" basis for comparison, based on values of 1=Very Important to 5=Unimportant. The option to write in two "Other" criteria was provided, but no item was mentioned more than once and was therefore not included in the final results. *Overall quality of journal* again received the highest rating by respondents, indicating that they felt this characteristic is most important.

A combined value was then created by multiplying the means for the ranking and rating data, following the method employed by Whitman, Zafar, and Mattord (2013) and Whitman and Mattord (2012). The combined value was calculated after adjusting the rating means to account for the difference in non-response (Carlson and Williams, 2001; Hazelwood, Mach, and Wolken, 2007; ReStore, 2009). Non-response weights were calculated by dividing the number of actual responses (N) by the maximum number of response (N_{max}), which was 68. The weight was then calculated as $1 / (N/N_{max})$. The rating means were then multiplied by the weight normalizing the results, and reducing some of the bias of the disparate responses (ReStore, 2009). As each criterion in the Rankings data contained the maximum number of responses, weighting was not necessary for that data. Table 6 presents the rankings and rating results, along with the combined score. The products of the means (P) are provided in the final column, labeled "Combined." As both combined data sets were organized such that a value of 1 corresponded to the most important criterion, combined scores were similarly interpreted and Table 6 sorted from lowest to highest.

Overall Quality of the Journal, Prestige of Journal and *Perceived Impact Factor of Published Work* proved to be the top values of the individual assessments, as well as the combined value. Most IS faculty use previous ratings and assessments of journal quality based on published lists like the AIS MIS Journal Rankings (http://aisnet.org/?JournalRankings) and the AIS Senior Scholars' Basket of Journals (http://aisnet.org/?SeniorScholarBasket). As discussed earlier, while these lists may contain journals with imbedded OA options, most may have an implicit bias against non-traditional publishing through OA with high APCs and long embargo periods.

Criteria	Rankings Results*			Rating Results**			Combined
	N	$\overline{X}$	$\sigma_{\overline{x}}$	N	$\overline{X}$	$\sigma_{\overline{x}}$	$P(\overline{X}$***$)$
Overall Quality of Journal	68	3.46	2.13	67	1.60	0.92	5.62
Prestige of Journal	68	4.26	2.99	66	1.76	0.88	7.72
Perceived Impact Factor of Published Work	68	5.47	2.71	66	1.77	0.91	9.98
Topic of Published Work	68	5.87	3.95	66	1.98	0.92	11.97
Peer vs Editorial Review Method	68	6.69	3.57	66	1.98	1.03	13.65
Established Department Journal List	68	5.90	4.44	67	2.48	1.56	14.85
Visibility of Journal	68	6.93	3.29	62	2.18	0.93	16.57
Target Audience of the Journal	68	7.79	3.29	66	2.44	0.95	19.58
Speed of Publication	68	7.93	2.80	66	2.45	0.96	20.02
Copyright Ownership (author vs publisher)	68	8.03	3.51	68	3.26	1.23	26.18
Number of Journal Subscribers/Readers	68	9.46	2.34	66	3.33	1.00	32.46
Open Access status (OA vs Subscription)	68	9.74	2.75	67	3.54	1.12	34.99
Cost of Journal Subscription	68	10.69	2.98	66	4.06	1.09	44.72

Table 6. Rankings, Ratings, and Combined Values for Publishing Venue Selection Criteria
* Force ranked on a scale of 1="Most Important" to 15="Least Important" with options to add "other"
** Assessed on a scale of "Unimportant"=5 to "Very Important"=1.
*** Product of the Means includes the means of the Rankings and the weighted mean of the Ratings to account for disparate N's.

4.5 Differences between Senior-level and Junior-level Scholars

Researchers and librarians touting the benefits of OA versus the traditional publishing model often say that senior scholars need to lead the way (Desouza et al., 2007). Thus the study analyzed responses provided by junior and senior-level IS scholars to determine if perceptions were different among the groups. Differences based on Academic Rank and Tenure Status were tested to serve as surrogates for junior- and senior-level faculty members:

> Hypothesis 1: *IS scholars of different ranks will have different perceptions about OA.*
> Hypothesis 2: *IS scholars of different tenure status will have different perceptions about OA.*

Prior to analyzing the survey responses, each comparison data set was first tested for normality. Using Shapiro-Wilk's test with resulting values of p<0.05 for virtually all variables, it was determined the data was not normally distributed. Therefore, the non-parametric Kruskal-Wallis analysis of variance was used to assess potential differences between groups for academic ranks of interest (Lecturer vs. Assistant Professor vs. Associate Professor vs. Full Professor) and academic tenure status (Non-Tenure Track vs. Tenure Track vs. Tenured). If a faculty member did not include a rank and/or did not include a tenure status, they were omitted from the analysis, resulting in usable sample sizes of 41 for Rank and 51 for Tenure status. Of all of the 44 variables tested, only *Speed of publication* as an incentive for publishing in OA proved to be statistically significant between the respondent categories, and interestingly enough

it was significant for both academic rank and tenure status. On all other questions the groups' responses were not statistically significantly different at the p<.05 level, as shown in Tables 7a and 7b. Therefore, Hypotheses 1 and 2 were only partially supported, showing very few differences between junior- and senior-level IS scholars.

What is your academic rank? (Kruskal-Wallis)		Speed of Publication
Chi-Square		13.913
Df		3
Asymp. Sig.		0.003
Means by Rank		
Assistant Professor	Mean	4.38
	N	8
	Std. Deviation	0.518
Associate Professor	Mean	3.05
	N	19
	Std. Deviation	0.911
Full Professor	Mean	2.86
	N	14
	Std. Deviation	0.864
Total	Mean	3.24
	N	41
	Std. Deviation	0.994

Table 7a. Differences between Ranks for Speed of Publication

What is your academic tenure status? (Kruskal-Wallis)		Speed of Publication
Chi-Square		7.211
Df		2
Asymp. Sig.		0.027
Means by Rank		
Non-tenure track	Mean	3.44
	N	9
	Std. Deviation	1.236
Tenure-track	Mean	4.13
	N	8
	Std. Deviation	0.641
Tenured	Mean	3.09
	N	34
	Std. Deviation	0.965
Total	Mean	3.31
	N	51
	Std. Deviation	1.029

Table 7b. Differences between Tenure Status for Speed of Publication

The data would support the assertion that speed of publication in OA venues was more important to Assistant professors than to Associates and to Associates than to Full professors. This result seems logical as the lower ranks are under increased time pressure to get a significant body of research published prior to any tenure and promotion decisions. Similarly, when testing for differences between tenure status, those under a tenure clock appear to be more concerned with the speed of publication than those who are not.

5. LIMITATIONS

This study has several limitations. First, respondents self-selected to participate in the survey, which may lead to bias. Those who elected to participate in the survey may have known or been familiar with OA, may have already formed an opinion about OA, or may be completely uninformed about OA publishing models. Thus, the study had non-probabilistic respondents who may not have been representative of the population of IS scholars as a whole. However, this limitation is true of most online surveys. After examining average demographic data from AACSB, the sample compared favorably, arguing for the representativeness of the respondents to IS scholars in general.

Second, while the study had 108 initial responses, just under half had significant missing data and could not be used in the analysis. The majority of the responses were discarded since many respondents simply opened the survey and then decided not to continue. When evaluating the 68 usable responses, they compare favorably to AACSB averages, which argues for the validity of the study's sample. In addition, although there have been many surveys about OA journals in other fields, there have been few such studies conducted of the IS discipline. Multiple studies have noted the importance of studying OA perceptions by discipline. This study provides an initial analysis upon which others can build. An exploratory survey such as this one, however, should be validated and refined with future data. Due to the small sample size, most of the statistics reported were descriptive. Nonetheless, the study used a previously tested combined ranking method to illustrate the relative importance of various OA-related issues and tested for differences between rank and tenure status using appropriate statistical analyses after adjusting for non-normal data. Future studies should further investigate these important issues in the IS discipline for OA publishing, building upon this and other research in order to discover the network of associations around beliefs, attitudes, intentions, and behaviors, and the direction and strength of those relationships. Then the IS field can begin to determine which factors influence OA publishing behaviors. A larger sample of additional demographic data, such as gender and ethnicity, may also yield richer data and better analysis of factors that could influence decisions of IS scholars to publish in OA outlets. Finally, a detailed citation analysis may provide further evidence of attitudes toward OA, discovering whether senior (or junior) IS scholars have begun to embrace this method. Citation analysis would also offer additional insights into the impact of OA journals, perhaps stimulating renewed discussions among IS scholars about the value of a move to OA publishing models based on social justice arguments.

Finally, while this discussion focused on activities that will allow IS scholars to access materials to provide a more relevant and updated educational experience, it did not look at the student perspective. IS students likely have different views on the ability to acquire up-to-date, relevant research for their classroom assignments. Student perspectives may add to the discussion of the importance of OA initiatives. Scholars may choose to investigate other methods of providing accessible, relevant, and timely materials at the practical, applied level, and from the student perspective, while meeting the challenges of reduced institutional funding by state-sponsored and governmental initiatives.

6. CONCLUSIONS

As journal subscription costs continue to rise, rapid access to relevant and timely IS research has become difficult, owing to the traditional publishing model and the need for acquiring costly journal subscriptions to access the latest research in the field. While the problem is more pronounced in developing nations, even better funded institutions in developed nations have begun to feel the pinch of reduced funding and expectations to do more with less. For the lesser developed world, however, there is much more limited access. IS scholars and students in these areas struggle to get the resources they need to do effective research and complete professional development. As a result, they are less prepared in the classroom and unable to provide students with a rigorous IS education that includes state of the art research. In the IS discipline specifically, scholars should consider methods of publication that enable a quicker and more efficient sharing of research and, in return, reach a wider, more diverse audience. Self-archiving and IR options, such as Google Scholar, could provide faster methods of disseminating research across the world, if scholars and journals could be convinced to use these kinds of avenues;

however, IS scholars and educators have not widely used these options in the past. The consideration of more permissive OA models, like Diamond/Platinum, coupled with increased support from institutions and professional societies may provide the most value. In future studies, development and validation of a structural model that shows the direction and impact of different variables on intention to publish in OA, would add clarity to the calls for action.

While this research shows that IS scholars in general are not opposed to open-access opportunities, the community is not excited about it either. About half of respondents had never submitted to an OA journal before. On the positive side though, most said they would consider submitting to an OA journal in the future, although only about a fourth planned to submit an article to an OA journal in the near future. These middle-of-the-road perceptions mirror the minimal impact that OA journals have seen so far in the IS field. Interestingly, while previous research has been inconclusive on the impact of fees on publication in OA venues, this study's results suggest that the decisions of IS scholars may be affected by fees charged, with almost half saying that fees would influence their decision to publish in OA venues; however, almost half reported that the institution or other sources funded their projects, so the IS field may be making progress toward accessibility. As increased OA publishing opportunities are established and supported for the IS discipline, universities, government funding agencies, and professional societies should be sensitive to concerns about APCs. Researchers, professors, and students should appeal to their institutions and professional societies to provide funding for costs associated with establishing low- or no-cost OA journals and appeal to publishers to provide subsidies for researchers in less developed nations. Libraries may facilitate the transition to more OA sponsored journals by placing increased pressure on publishers to provide more low-cost options and even to divert subscription budgets to sponsor OA journal software for their institution.

In this exploratory study, the results suggest that *quality*, *prestige*, and *impact factors* outweigh issues of access and social justice when IS scholars decide where to publish their research, teaching tips, and case studies. These three variables were more important than *cost of journal subscriptions, OA status of the journal,* and *copyright ownership*. The perception of low-quality may be the biggest hurdle that OA journals need to overcome if they want to be considered as a publication of choice among IS scholars. In fact, quality is at or near the top of the list for multiple disciplines, from medicine to the sciences to IS. It may be determined that high quality transcends disciplines. If so, researchers and faculty members know what they need to do to encourage OA publishing across multiple disciplines. Of course, future studies should analyze OA practices and perceptions among multiple disciplines before making any broad-based conclusions.

The focus on high quality demonstrates the tight link between publishing activity, department journal lists, and institutional tenure and promotion guidelines. Clearly, there is much work to do in this crucial area, both within peer groups and with academic librarians and administrators. Moreover, while previous studies have suggested using senior scholars to lead the way on OA initiatives, this study found that there were no statistically significant differences among junior- and senior-level respondents, except for their perceptions on *speed of publication*; that is to say, more junior-level IS scholars prefer faster publication than their tenured and higher ranked colleagues. The study's results suggest that junior- and senior-level IS scholars are much more similar than different. Even more to the point, as digital natives, junior-level researchers may be more likely to try new methods of dissemination of their work – if the speed of publication is fast enough. Thus, junior-level colleagues may be better positioned to use ICT to improve access; they may be "young and don't care," as Macilwain (2013, p. 8) suggested.

Senior scholars could lead the way in the department, however, by encouraging either 1) including OA journals on departmental lists or 2) including a statement that OA journals will be evaluated like all other journals. These statements would make the value of OA clear to the almost two-thirds of respondents who reported that their departments had no formal position on OA publishing. Until departmental (and university) tenure and promotion guidelines and journal lists value OA journals, IS can expect little change.

The survey also showed that there is not one clear answer to the question of improving accessibility to current IS research. IS as a field has to work to change the attitudes of senior scholars, as well as attitudes of the newer generation of scholars. Library scientists, university administrators, and senior scholars must all work together to bring about large-scale change in the publishing habits of IS scholars. Non-profit organizations and leaders in the field of IS education, including this journal, *Journal of Information Systems Education*, could help change the culture by making the articles published openly accessible, similar to the recommendations Crowston (2015) made to AIS and others. Partnerships with current leading publishers also present an intriguing opportunity. Much in the way iTunes embraced the paradigm shift to digital music, and Amazon embraced the paradigm shift to digital books, publishers have a vested interest in becoming involved in OA. Publishers should consider embracing this shift in method of delivery, or perhaps see their business model at some point experience a sharp downward spike. High-quality OA initiatives such as those undertaken by Springer Publishing offer opportunities for the future. These options are Diamond or Platinum access models, where fees are paid by universities or professional organizations, and there are no APCs paid by the author.

Institutions and individuals in the IS scholarly community should consider joining, contributing to, and actively leading the discussion on open access opportunities in IS. The IS field provides opportunities to perhaps establish new open access journals in emerging fields, such as healthcare informatics, cybersecurity, biotechnology, and other interdisciplinary fields which may be under-served by current journals. Thus, one suggestion is for IS scholars to develop new journals along with considering OA initiatives. New journals are typically viewed as low-quality – just like OA – but as time passes, they do build reputation, respect, visibility, and quality. OA provides one method of addressing the disparity in access to research between the developing and developed world. As residents of the global community, IS should consider the issue of social justice. Of course, access is not the only issue for developing countries,

where infrastructure needs are unmet, broadband access may be limited, and those using technology may not have minimum levels of digital literacy, to practically benefit from OA initiatives. Those issues are beyond the scope of this paper, but should be considered in future research endeavors. As Burton (2009) argued:

> Open Access is more than a new model for scholarly publishing; it is the only ethical move available to scholars who take their own work seriously enough to believe its value lies in how well it engages many publics and not just a few peers (para. 7).

It should be noted that the authors of this paper are following the same path as their peers – seeking to publish high-quality research in outlets recognized by tenure and promotion guidelines and departmental journal lists. Even though the authors would be considered "senior" scholars due to their rank and tenure, they continue to follow the traditional publishing model, much like their junior colleagues. However, due to a recent change in policy and publishing, in January of this year, the Board of Directors elected to convert *JISE* to a 100% online and free journal – becoming a Platinum/Diamond model OA journal. The authors applaud the board and editors for this inspiring and benevolent decision, and are pleased to publish this article in Platinum/Diamond format. The authors will also post permitted copies in their institution's Digital Measures repository and on ResearchGate (https://www.researchgate.net/), in accordance with *JISE* policies, in an effort to disseminate this research as quickly as possible. The full survey is available upon request to the authors.

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