Impostor Phenomenon and Skills Confidence among Scholarly Communications Librarians in the United States

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Abstract

This survey-based study sought to measure the experience of impostor phenomenon among library personnel supporting scholarly communications in academic libraries in the United States. Additionally, the survey sought to assess confidence levels in key, professionally defined competencies and the factors most significantly affecting those confidence levels. Results indicated that, on average, scholarly communications librarians experience impostor phenomenon more frequently and intensely than academic librarians more broadly. The length of time spent working in libraries was negatively correlated with levels of impostor phenomenon, as were hours spent in specialized continuing education activities and number of research publications. Implications for improving training and mentoring opportunities to decrease impostor phenomenon are discussed.

Introduction

Academic librarians working in the area of scholarly communications routinely educate or assist faculty in regards to diverse issues of research data management, copyright, scholarly publishing, and research impact metrics. In many cases, these librarians are advising highly trained research scholars who have more experience with producing data and publishing scholarship. Although some of these librarians have tenure-track faculty status and their own resumes of publications, they hold Masters degrees more often than PhDs, and others may be classified as staff; thus, librarians often find themselves perceived as less credentialed and capable by traditional teaching and research faculty. Librarians may feel they are “swerving out of their lane” in portraying themselves as expert consultants on complex topics of research scholarship. As would-be experts in this area, the profession expects librarians supporting scholarly communications to bring in or develop background knowledge, technical skills, outreach and instruction skills, and team building skills; their work may encompass some or all of the following areas of emphasis (sometimes in addition to other areas of librarianship as well):

- **Institutional repositories** (collecting and preserving content, repository solutions, metadata schemata, applying publisher policies, developing repository policies, and statistics);
- **Publishing** (platforms, the publishing lifecycle, persistent identifiers, metadata schemata, technical support, system administration, and metrics);
- **Copyright** (law, the judicial environment, author's rights, orphan works, licensing, permissions requests, and campus policies);
- **Data management** (planning, description and storage, applying funder mandates, repository solutions, collecting and accessing data sets);
- **Assessment and impact metrics** (indicators and their strengths and weaknesses, emerging alternative measures of impact or "altmetrics," faculty profile systems, evaluation of journals).

Speaking of altmetrics in particular, Robin Chin Roemer noted that there exists a "hesitation to position oneself as an expert in the area when engaging with stakeholders, including researchers, vendors, and other librarians."[1] One could assume that a similar hesitation exists in other aspects of scholarly communications competencies as well, when librarians are supporting highly experienced researchers and prolific writers. Furthermore, the specialty changes rapidly as new technologies and metrics emerge, copyright laws and interpretations evolve, and researcher and publisher behaviors change; on top of that, the field addresses many questions without clearly defined answers. A librarian sometimes questioning their expertise in this broad, challenging, and rapidly changing field would be understandable.

The psychological concept of *impostor phenomenon* is defined as "an internal experience of intellectual phoniness" in which, "despite outstanding academic and professional accomplishments," a person "persist[s] in believing that they are really not bright and have fooled anyone who thinks otherwise."[2] Impostor phenomenon may be a useful lens through which to evaluate librarians'

confidence in taking on roles of leadership and expertise in scholarly communications topics and to propose mechanisms to improve job confidence. This study seeks to measure to what extent impostor phenomenon is experienced by scholarly communications librarians; in what aspects of their work they particularly lack confidence in their expertise; and what factors may affect their confidence level. Potential interventions to address feelings of impostor phenomenon and lack of confidence are then considered.

Literature Review

Impostor phenomenon was first defined in 1978 by psychologist Dr. Pauline Rose Clance.[3] This experience is sometimes also termed *impostor syndrome*, *impostor experience*, or *impostorism*, and *impostor* is sometimes instead spelled *imposter*. This paper will prefer the originally coined term *impostor phenomenon*, in keeping with the requests of Dr. Clance and the official spelling of her term.

Standardized instruments for measuring impostor phenomenon first appeared in 1981, with the Harvey Impostor Phenomenon Scale (HIPS). In 1985, the Clance Impostor Phenomenon Scale (CIPS) appeared. The Perceived Fraudulence Scale (PFS) provided another alternative in 1991, and the Leary Impostorism Scale (LIS) emerged in 2000. More recently, the State Impostor Phenomenon Scale (SIPS) was proposed in 2010.

As Kets de Vries observes, impostor phenomenon (IP) “is highly prevalent in academia and medicine, both disciplines in which the appearance of intelligence is vital to success”.[4] Hutchins and Rainbolt studied the triggers and coping mechanisms for IP among academic faculty, finding that triggering incidents were most often related to questioning expertise; scholarly productivity; comparisons to colleagues; and successes (that is, promotions, awards, or other accomplishments which caused feelings of self-doubt or insufficiency).[5] Parkman provides additional review of the literature

focused on IP in higher education generally.[6] Hutchins, Penney, and Sublett recommend active coping approaches such as training, coaching, and mentoring for addressing the experience of IP.[7]

Within the literature of professional librarianship, several authors have shared their personal experiences with IP; these personal anecdotes are informative, but do not contribute to empirical evidence regarding the prevalence or causes of the problem.[8] Other work within the library science discipline has focused on acknowledging, rather than measuring, the problem and recommending possible coping techniques and interventions, such as mentoring and education.[9] In particular, Farrell, Alabi, Whaley, and Jenda focused on the value of mentorship in combatting impostor phenomenon, while Rakestraw recommends education, mentoring, and time, along with therapy if warranted, as tools for managing IP.[10] Most recently, Barr-Walker, Werner, Kellermeyer, and Bass analyzed coping strategies among health sciences librarians, and found that, although the use of any strategy was better than none, "external coping strategies that drew on the help of another person or resource, such as education, support from colleagues, and mentorship" were generally more effective than "internal strategies like reflection, mindfulness, and recording praise."[11]

The first empirical study of IP among college and research librarians was conducted by Clark, Vardeman, and Barba using the Harvey Impostor Phenomenon Scale (HIPS); in their findings, approximately one in eight academic librarians reported above average IP scores. They found that race, gender, and employment classification were not associated with differences in IP scores, but younger and less experienced librarians reported higher rates of IP.[12] Martinez and Forrey similarly evaluated IP among librarians, though their study emphasized qualitative open-ended questions rather than quantitative Likert scales; they included public and special libraries as well as academic (though academic librarians nevertheless made up 90% of their respondents), and 85% of their participants reported having felt insecure or underqualified on at least one occasion in their careers.[13]

Bortmas surveyed "technical" librarians, within the Code4Lib, LITA, and ALCTS listserv membership, to assess impostor phenomenon among this specialized population of librarians.[14] This study used the Clance IP Scale and the Perfectionist Self Presenting Scale (PSPS); Bortmas found that just shy of 67% of participants experienced *Frequent IP* (61-80 points); percentage of participants scoring at other levels on the Clance IP Scale are not specified. The experience was less frequent among librarians with more years of experience, as well as brand-new librarians with less than 3 years of experience.

In 2019, Barr-Walker, Bass, Werner, and Kellermeyer replicated Clark's 2014 methods, using the HIPS questionnaire to assess IP among librarians specializing in the health sciences.[15] They found that one in seven health sciences librarians experienced feelings of IP, similar to Clark's findings on the rate among academic librarians more generally, but experiences were lower among those individuals who had an educational background in the health sciences.

As of yet, no studies have looked at the experience of IP among librarians specializing in scholarly communications. The present study seeks to fill that gap by gauging whether this group experiences IP at greater, lesser, or equivalent rates compared to academic librarians in general; what factors may impact confidence in professional knowledge; and whether variables such as increased training in the specialization or greater personal experience in scholarly publishing correlate to lower rates of impostor phenomenon. By increasing our understanding of the prevalence of IP and factors negatively affecting the professional confidence of scholarly communications librarians, appropriate interventions, such as hands-on training materials or mentoring programs, can be proposed.

Methodology

This study employed an online survey to ask librarians engaged in scholarly communications work about their experience of impostor phenomenon; their confidence in their knowledge of the topics identified in the NASIG Core Competencies for Scholarly Communications Librarians;[16] and factors they

see as contributing to their lack in confidence. The confidence questions and demographic questions were developed by the author, employing the NASIG Core Competencies as a suitably granular way to measure areas of strength and weakness. Other tools that were considered but rejected as models for defining areas of confidence included:

- ACRL Scholarly Communications Toolkit, in which the topics were deemed not granular enough for this purpose;[17]
- LIS-Bibliometrics Competency Model for bibliometric work, and Librarians' Competencies Profile for Research Data Management, which were both too focused on only select aspects of scholarly communications work;[18]
- Librarians' Competencies Profile for Scholarly Communication and Open Access, which shared significant overlap with NASIG Core Competencies but excluded research data management;[19]
- Jisc's summary of Scholarly Communications Competencies, which also provided the desired level of granularity but was not as formalized or stable a document as the NASIG Core Competencies.[20]

The impostor phenomenon questions were used, with permission, from the Clance Impostor Phenomenon Scale (CIPS).[21] Five instruments were originally considered for measuring impostor phenomenon (IP): the Harvey Impostor Phenomenon Scale (HIPS, 1981); the Clance Impostor Phenomenon Scale (CIPS, 1985); the Perceived Fraudulence Scale (PFS, 1991); the Leary Impostorism Scale (LIS, 2000); and the State Impostor Phenomenon Scale (SIPS, 2010).[22] Although HIPS is the longest-lived instrument and CIPS the most frequently used instrument, neither has conclusively been established as a gold standard for evaluating IP. However, far less evaluation is available for the newer tools, and they have not necessarily been proven to be more reliable instruments. The author consulted

validations, reviews, comparisons, and systematic reviews of these instruments in order to determine the most appropriate instrument to adopt in this context.[23]

The PFS was eliminated from consideration primarily because of its length: with 51 items in addition to the additional desired questions regarding confidence and demographics, the author was concerned that the time required by the survey would be significant, and the corresponding completion rate would be very low. The LIS, on the other hand, was eliminated due to its extreme concision—only 7 statements—along with a scarcity of instrument evaluation: the LIS is not even referenced in the APA Dictionary of Psychology entry on *impostor phenomenon*, which mentions the HIPS, CIPS, and PFS.[24] SIPS, too, was eliminated due to a lack of validation and studies employing the instrument, probably due to its relative newness. In the end, the author preferred the Clance IP Scale (CIPS) over the HIPS and obtained the permission of its creator, Dr. Clance, to reuse it in this study.

After the survey instrument and overall methodology were approved by the Institutional Review Board (IRB) at the author's institution, the survey was distributed widely through both strategic and convenience recruiting strategies. First, using the website for the Carnegie Classification of Institutions of Higher Education,[25] a list was downloaded of universities classified at the Master's and Doctoral levels. The websites of those universities' libraries were searched to identify librarians with job titles related to scholarly communication,[26] and survey invitations were emailed directly to these individuals as a form of strategic recruitment. Second, convenience recruiting was achieved by distributing a general survey invitation to a selection of relevant professional listservs.[27]

The survey was available from February 12 to March 31, 2020, on the Qualtrics survey platform (hosted by the author's university). Settings were employed to anonymize responses so that all identifying information, including computer IP addresses, was omitted from the data recording. Because of these anonymizing settings, no mechanism existed to prevent multiple responses from an individual.

Following the survey, participants had an opportunity to enter a drawing for a $25 Amazon gift card, but these optional drawing entries were submitted and stored separately from survey responses, so a respondent's contact information could not be traced back to their responses. The survey instrument is openly available online at https://shsu-ir.tdl.org/handle/20.500.11875/2866. Analysis on the data was then conducted using Microsoft Excel and IBM SPSS.

Results

Demographics

A total of 206 participants accessed and began the survey. Of those who fully completed the survey, 21 were deemed ineligible because they were not presently employed in an academic library within the United States, or because they rarely or never supported scholarly communications in their library. A total of 149 survey responses were complete and eligible for analysis; it is difficult to say whether this is a representative sample since it is not known how many librarians in the United States are practicing in roles related to scholarly communications.

Of these, 61.1% reported that scholarly communications was their primary role, while the other 38.9% indicated that scholarly communications was an important secondary responsibility in their position. Thirty-six point nine percent of respondents reported spending 76-100% of their work hours in the 2019 calendar year in duties related to supporting scholarly communications, while another 16.1% reported spending 51-75% of their work hours on these duties; this yields a total of 53% of respondents who devote more than half their time to specializing in scholarly communications. Another 20.1% commit 26-50% of their work hours to these duties, and the last 26.8% spend only 0-25% of their time in a scholarly communications capacity.

In terms of institutional demographics, 69.8% of respondents worked at public universities, while 30.2% worked at private universities. About half of responses (50.3%) came from respondents at

institutions with a Carnegie Classification of *R1: Doctoral Universities – Very high research activity*. The R2 classification, *Doctoral Universities – High research activity* accounted for another 17.5% of responses. The remaining respondents were distributed across the other classifications (see Figure 1).

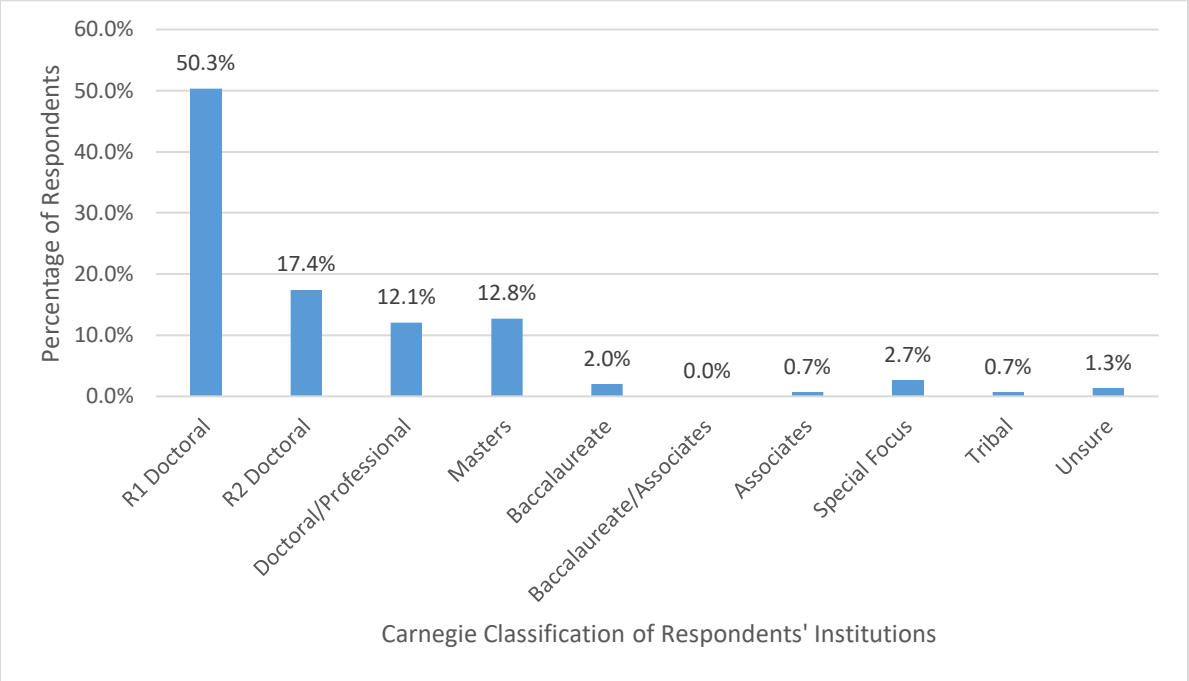

Figure 1. Distribution of respondents according to Carnegie Classification

Respondents were split almost in half between those in tenured/tenure-track faculty positions (or equivalent terminology; 48.3%) and those in non-tenure track positions (51.7%). Among the 72 respondents on tenure tracks (or the equivalent terminology), 55.6% had achieved that milestone, while 43.1% had not yet reached tenure. One respondent (1.4%) preferred not to indicate their tenure status.

Survey respondents skewed towards female (71.8%) as opposed to male (21.5%), non-binary/third gender (2.7%), self-described (0.0%), and those who preferred not to share their gender (4.0%). Participants also skewed towards those who did not personally identify as persons of color (non-POC; 84.6%), versus just 11.4% who did self-identify as POC and 4.0% who preferred not to say.

In terms of education, 17.5% of respondents were first-generation college graduates at the undergraduate level; 23.5% were the first in their families to receive graduate degrees; and the majority 57.7% did not identify as a first-generation college graduate. (Another 1.3% declined to state their first-generation status.) Most respondents held an ALA-accredited Master of Library Science or equivalent degree (93.3%), though a few did not hold an MLS (6.7%).

A little over half of respondents (53%) had been in libraries for more than 10 years, while the other 47% had less than ten years' experience in libraries (see Figure 3). However, experience significantly skewed the other direction in terms of years spent working specifically with scholarly communications in libraries: 87.2% of respondents had been working in this specialization for less than ten years, while only 12.8% had accrued more than ten years' experience (see Figure 2).

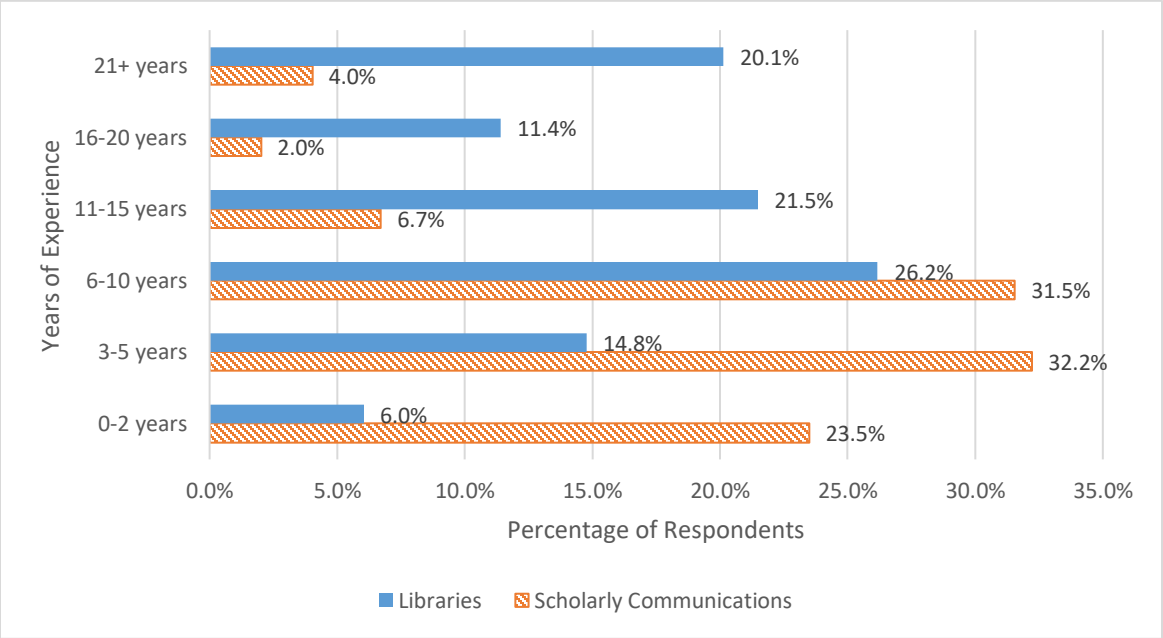

Figure 2. Respondents' years of experience in libraries and in scholarly communications

Respondents were also asked about their experience publishing academic research in the forms of peer-reviewed journal articles, book chapters, or books, whether single-authored or co-authored.

Quantity of publications ranged from 0 (18.8%) to 65 (0.7%, or one participant). The largest group of respondents (43.0%) had published between 3 and 10 items (see Figure 3).

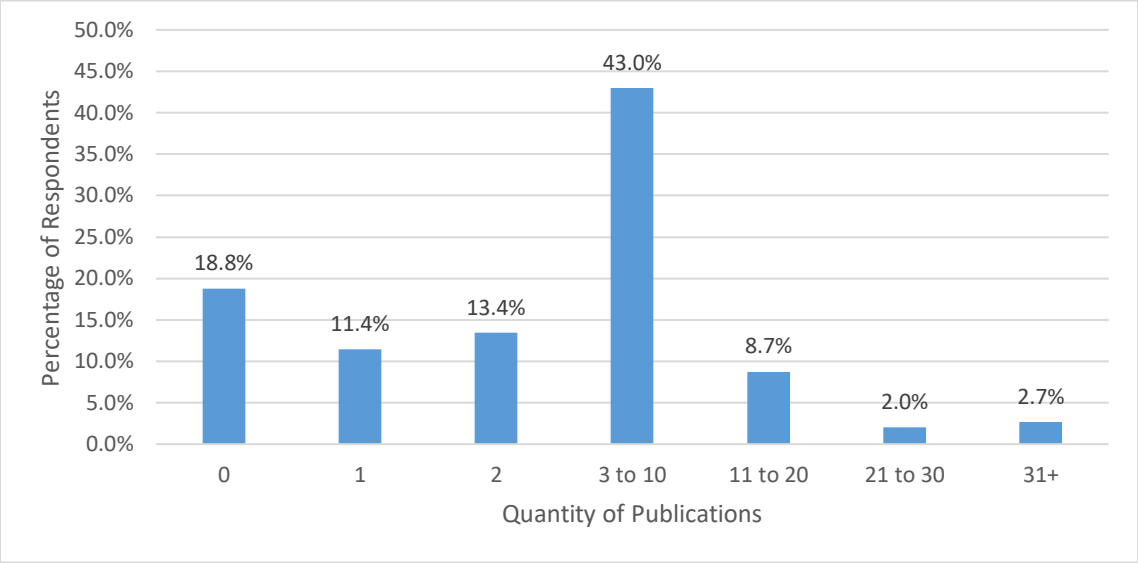

Figure 3. Distribution of respondents by quantity of publications

Finally, respondents were asked how many hours of continuing education or professional development related to scholarly communications they accrued during the 2019 calendar year. Individual answers ranged from 0 to 600 hours, with the majority (53.0%) of respondents reporting 0-20 hours (see Figure 4).

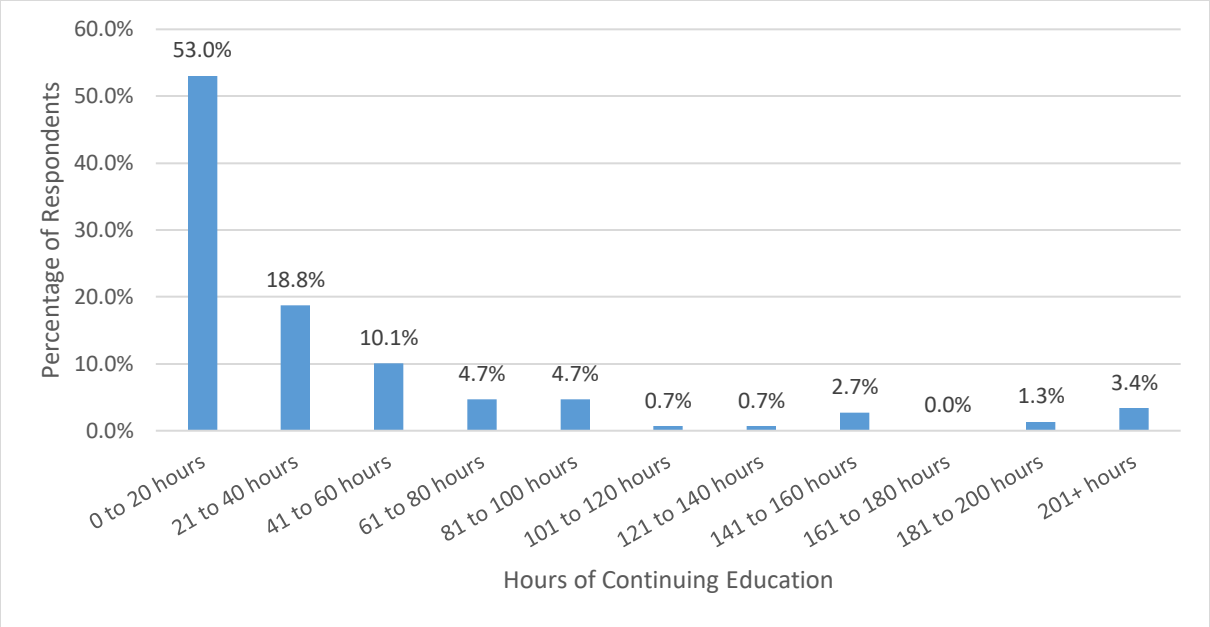

Figure 4. Hours spent in 2019 in continuing education related to scholarly communications

CIPS Scores

The instructions for scoring the Clance Impostor Phenomenon Scale (CIPS) group scores into four ranges: 40 points or less, *Few Imposter Characteristics*; 41-60 points, *Moderate IP Experiences*; 61-80 points, *Frequent Imposter Characteristics*; and more than 80 points, *Intense IP Experiences*. Respondents' answers were totaled and divided into these ranges according to the CIPS scoring instructions; as the instructions explain, "The higher the score, the more frequently and seriously the Impostor Phenomenon interferes in a person's life."[28] The resulting distribution of scores resembled a fairly classic bell curve, with a slight skew towards greater experience of impostor phenomenon, as depicted in Figure 5. The average CIPS score in this study was 61.6, which just barely crosses the threshold from *Moderate* to *Frequent* experience of IP. The median score was 62, and the mode was 43. Both extreme ends of the spectrum—*Few Impostor Characteristics* and *Intense IP Experiences*—included 10.7% of respondents. The majority of participants (78.5%) fell under the bell curve, with 36.9% scoring *Moderate IP Experiences*, and the remaining 41.6% scoring *Frequent Impostor Characteristics.*

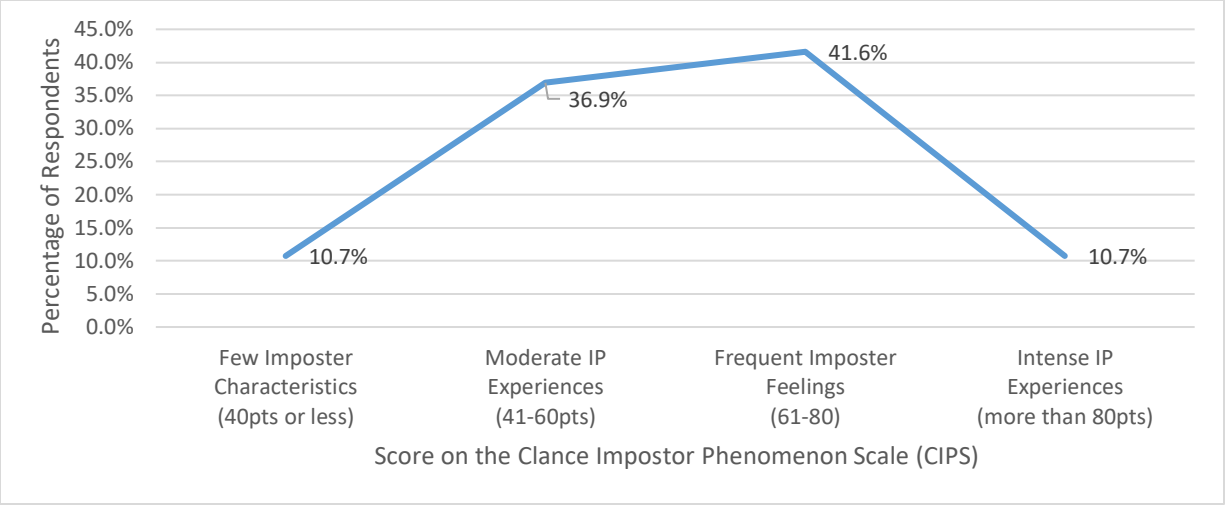

Figure 5. Distribution of participants by CIPS scoring categories

NASIG Core Competencies Confidence Levels

Participants rated their own confidence in different areas identified by the NASIG Core Competencies for Scholarly Communications Librarians. The NASIG document describes 5 areas of emphasis, namely, Institutional Repository Management, Publishing Services, Copyright Services, Data Management Services, and Assessment & Impact Metrics. Confidence was reported on a 5-point Likert scale ranging from 1 (no confidence at all) to 5 (a great deal of confidence). Some professional positions do not expect a librarian to practice in all of these areas, so participants had the option to mark individual competencies as *Not applicable or not part of my job description*. The supplemental materials include detailed graphs for all areas of emphasis, if they are not presented here in the narrative (https://shsu-ir.tdl.org/handle/20.500.11875/2866).

In the first area of emphasis, Institutional Repository Management, NASIG identifies six key competencies. Among these, respondents indicated the highest confidence in *Knowledge of and ability to apply publisher policies on archiving*: 33.6% indicated a great deal of confidence. The lowest level of confidence was in *Knowledge of and ability to apply metadata schemata*, for which 28.8% of

respondents indicated little or no confidence. The competencies of (1) *Collecting, storing, and preserving faculty, staff, and student intellectual output* and (2) *Knowledge of and ability to apply metadata schema* were the most likely to be outside the scope of respondent' job descriptions, though still at relatively low rates (16.8% and 15.4% respectively).

In the second area, Publishing Services, NASIG identifies seven competencies. Only in one of these, *Knowledge of and experience with the full life cycle of publishing*, did more than 20% of respondents indicate a great deal of confidence. On the other hand, five competencies in this area saw more than 20% of participants with only a little confidence; when little and no confidence responses were combined, two of those increase past 30%, and two others soar past 40%. The competency most likely to fall outside the scope of job descriptions, at 24.8%, was *Perform system administration and programming*.

Seven competencies make up the area of Copyright Services. *Understanding of authors' rights* was an area of high confidence, with 38.9% participants indicating a great deal of confidence in that competency; in fact, zero participants indicated no confidence at all in this competency, as well as in *Knowledge of pertinent national copyright law*. However, *Awareness of the judicial environment* had the largest rate of both no confidence (8.1%) and a little confidence (25.5%). The competency least in scope of participant positions (16.8%) was *Performing license services*.

Data Management Services, which included six competencies, saw generally lower confidence across the board: all competencies achieved 10.1% or less of respondents reporting a great deal of confidence, with the highest response to *Knowledge of and experience with open source and hosted data repository solutions* and *Knowledge of and ability to apply funder mandates related to data storage, access, and retention*. The majority of respondents reported a moderate or little amount of confidence in all six competencies. *Knowledge of text and data mining* received the greatest response

(16.8%) for respondents with no confidence at all, followed by *Collection development, organization of, and access to third party data sets* (12.1%), which was also the competency most reported as outside the scope of job duties (18.8%). Figure 6 illustrates the confidence levels in Data Management.

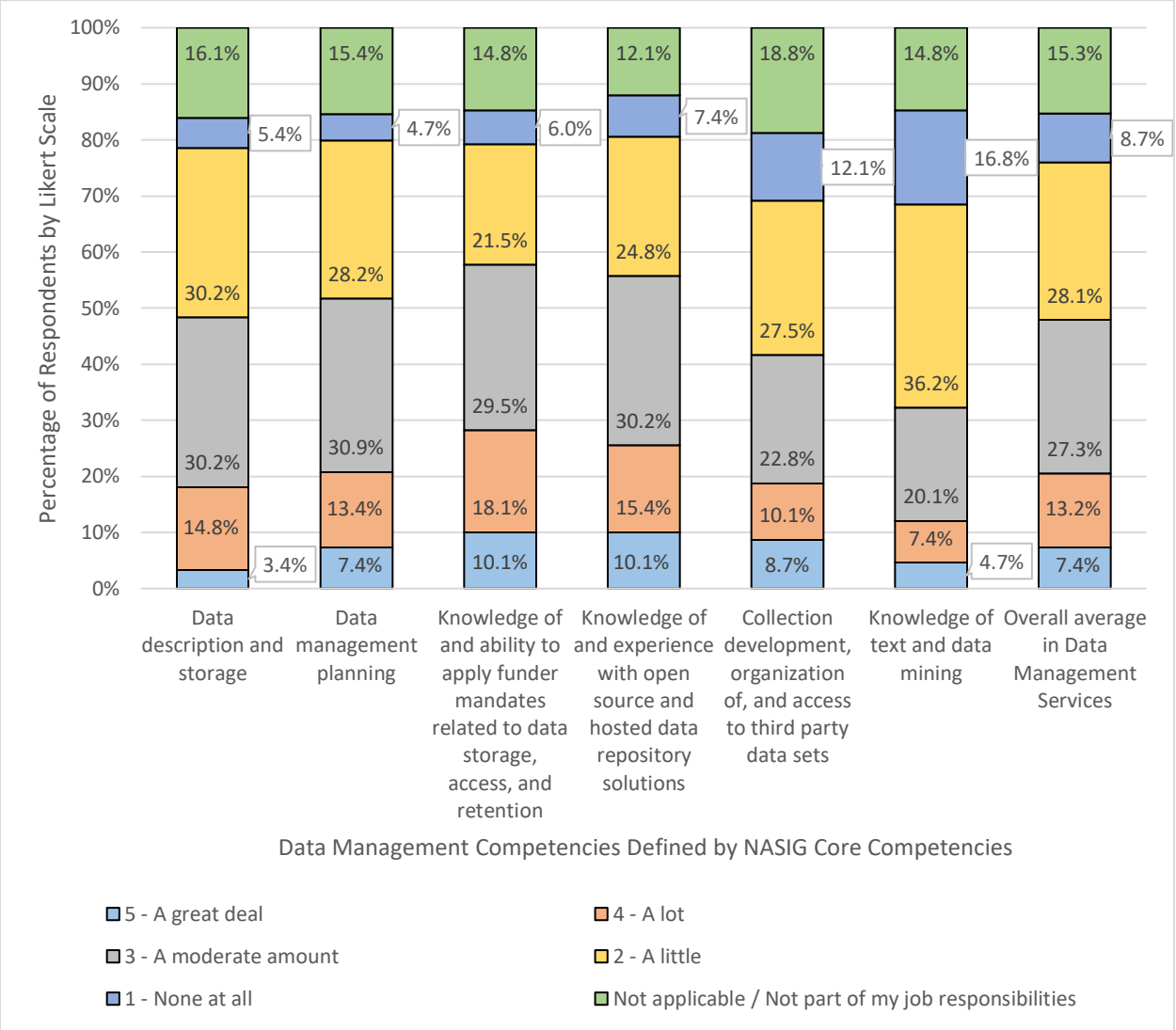

Figure 6. Confidence levels in Data Management Services competencies

In the area of Assessment and Impact Metrics, five competencies were included. Respondents felt a great deal of confidence in *Evaluation of journals (open access and traditional)*, at 35.6%, and all competencies saw very low rates of no confidence at all. This area of emphasis also appeared the most

likely to be included in all job descriptions, as no competency rated more than 7.4% of respondents saying it was outside their duties.

Although respondents showed variable levels of confidence in the technical skills areas, they reported significantly and consistently greater confidence in their possession of the Key Strengths defined by NASIG (see Figure 7). All strengths saw more than 37% of participants reporting a great deal of confidence, with *Communication skills (oral and written)* rating the most confidence at 49%. When a great deal of confidence and a lot of confidence were combined, this jumped to 87.9% of respondents showing high confidence in their communication. Meanwhile, 82.6% had a great deal or a lot of confidence in their collaboration skills, and 78.5% felt a great deal or a lot of confidence about being personable. Less than 1.5% of respondents reported no confidence at all in any key strength; these numbers ranged from 0.7% to 1.3%. Only *Generalist* received any reports of the strength being outside the scope of a participant's job description (2.0%).

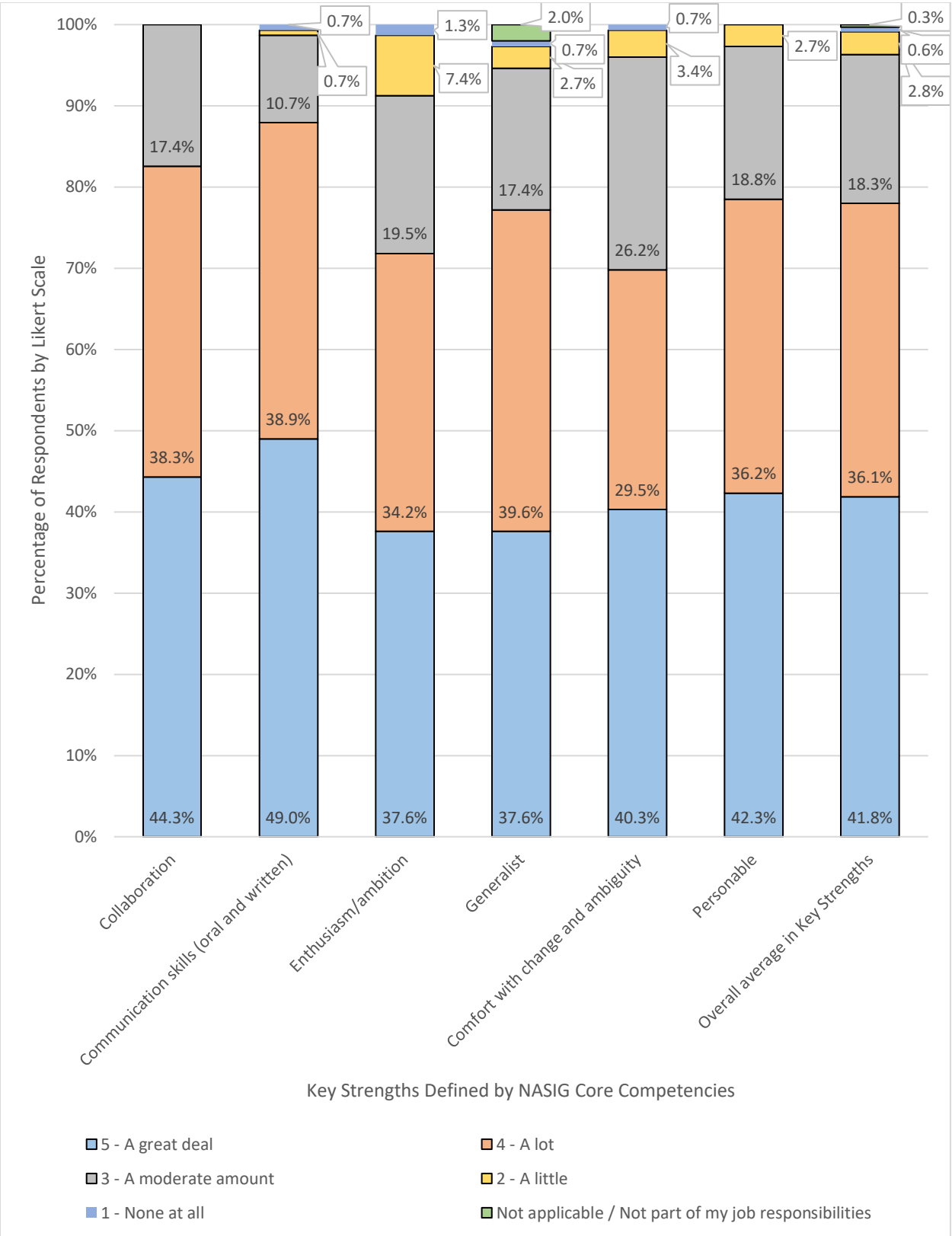

Figure 7. Confidence in Key Strengths

Factors Affecting Confidence

Users who indicated Moderate, Little, or No confidence on any competencies in an area were then asked to consider factors affecting their confidence level. Users could select multiple suggested factors and could also write in other influences. For the convenience of reporting, the full-sentence factors suggested to survey participants have been assigned short descriptive names (see Table 1).

Short Name for Reporting	**Full Response Seen and Selected by Respondents**
Need More Time and Experience	I am still new to working with the topic(s) and need more time/experience.
Too Many Responsibilities	I have too many responsibilities and have not been able to devote enough time to the topic(s).
Lack of Training Completed	I have not completed enough training on the topic(s).
Lack of Training Found	I have not found enough training available on the topic(s).
Lack of Hands-on Training	Although conceptual training is available for the topic(s), I need practical / hands-on training that I have been unable to find.
Lack of Practice and Demand	I have insufficient practice with the topic(s) due to lack of user demand in my environment.
I Feel Like I Don't Get It	I have an insufficient personal understanding of the key concepts of the topic(s); I feel like I "don't get it."
Rapid Change	The information, standards, and/or practices in the topic(s) change too rapidly to keep up.

Inappropriate User Demands	The requests/demands of my users or university administrators do not fit with our profession's recommended best practices (for example, wanting to use impact metrics in inappropriate ways).

Table 1. Short names assigned to factors impacting confidence

Across all five areas of emphasis, one factor was most cited as negatively impacting respondents' confidence levels: *Too Many Responsibilities*. This made up nearly one quarter (24.0%) of all factors selected for all areas of competency. High impact was also attributed to three other factors: *Need More Time and Experience* (18.4%); *Lack of Training Completed* (18.3%); and *Lack of Practice and Demand* (17.6%). All other factors averaged below 8% (see Figure 8).

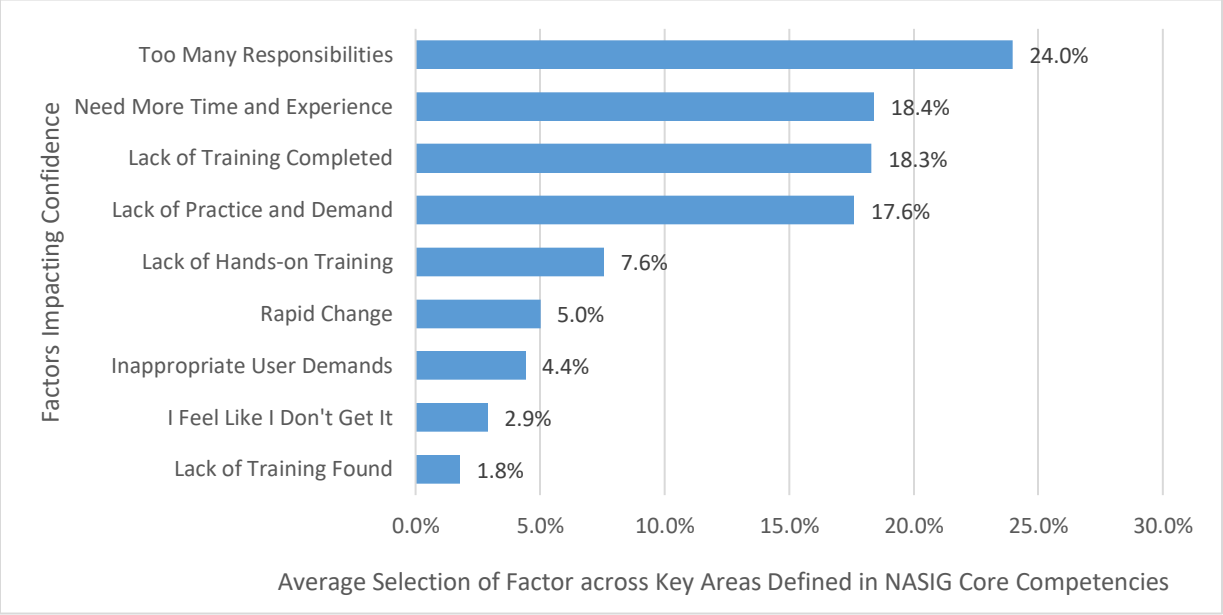

Figure 8. Factors impacting confidence, averaged across all areas of emphasis

When each area of emphasis was evaluated individually, instead of in aggregate, a few other observations surfaced. Data Management Services saw a higher rate of respondents selecting *Lack of Hands-On Training* (9.4%), and *Rapid Change* had a greater impact on confidence in Copyright Services

than in other areas (7.4%)—although these admittedly represent small percentages of the overall population, they still represent differences of greater than one standard deviation from the mean. Additional factors written in by participants included lack of funding for training; management of publishing services or institutional repositories by a consortium, which centrally handles more of the technical aspects; and the belief that "a lot of the concepts around metrics are bulls**t so I ignore them."

Relationships between CIPS Scores and Other Variables

When the relationships between CIPS score and other variables were evaluated statistically, mean CIPS scores differed significantly between librarians grouped by years of experience. Specifically, those with 3-5 years of experience in libraries had significantly higher CIPS scores than those with 21+ years of experience in libraries. The sample of librarians with 0-2 years of experience was very small compared to the other groups; with a larger number of respondents in that group, a significant difference might also have appeared between 0-2 years and 21+ years. No other differences by years of experience were statistically significant.

Although years of experience in libraries was meaningful, years of experience specifically in scholarly communications revealed no statistically significant difference in mean CIPS scores. Additionally, statistical tests did not find significant differences between groups based on gender, first-generation college status, Carnegie classification of the participant's employing institution, or tenure eligibility and status. Significant differences also did not manifest between people of color (POC) and non-POC; library personnel holding an MLS or equivalent degree and non-MLS personnel; or librarians working at publicly controlled versus privately controlled educational institutions.

A small but statistically significant negative correlation existed between CIPS score and number of publications, as well as a small negative correlation between CIPS score and hours of continuing

education in scholarly communications. According to these negative correlations, as publications or hours of continuing education increase, CIPS scores tend to decrease. No significant correlation existed between CIPS score and percentage of work hours spent in scholarly communications. For readers interested in more detail, the supplemental materials include more details of the statistical tests conducted and their associated p-values (https://shsu-ir.tdl.org/handle/20.500.11875/2866).

Relationships between CIPS Scores and NASIG Core Competencies Confidence Levels

Comparing NASIG Core Competencies confidence levels between the highest and lowest brackets of CIPS scores reveals some interesting relationships. Equal numbers of participants (n=16) had CIPS scores classified as *Few Imposter Characteristics* (scoring 40 points or less, henceforth termed "low CIPS") and *Intense IP Experiences* (scoring more than 80 points, henceforth terms "high CIPS"). For context, the two groups did differ somewhat in experience levels (see Figure 9). While 68.8% of the low-CIPS group had more than 10 years of experience in libraries generally, 31.3% had more than 10 years of experience in scholarly communications specifically. Zero members of the low-CIPS group had two or fewer years in libraries, and only 6.3% had two or fewer years in scholarly communications. In contrast, in the high-CIPS group, 31.3% had more than 10 years of experience in libraries and 0% had more than 10 years in scholarly communications; 18.8% had two or fewer years in libraries, and 31.2% had two or fewer years in scholarly communications. However, the high-CIPS group also contained a significant number of mid-career individuals: 50.0% had between three and 10 years of experience in libraries, and 68.8% had between three and 10 years of experience in scholarly communications.

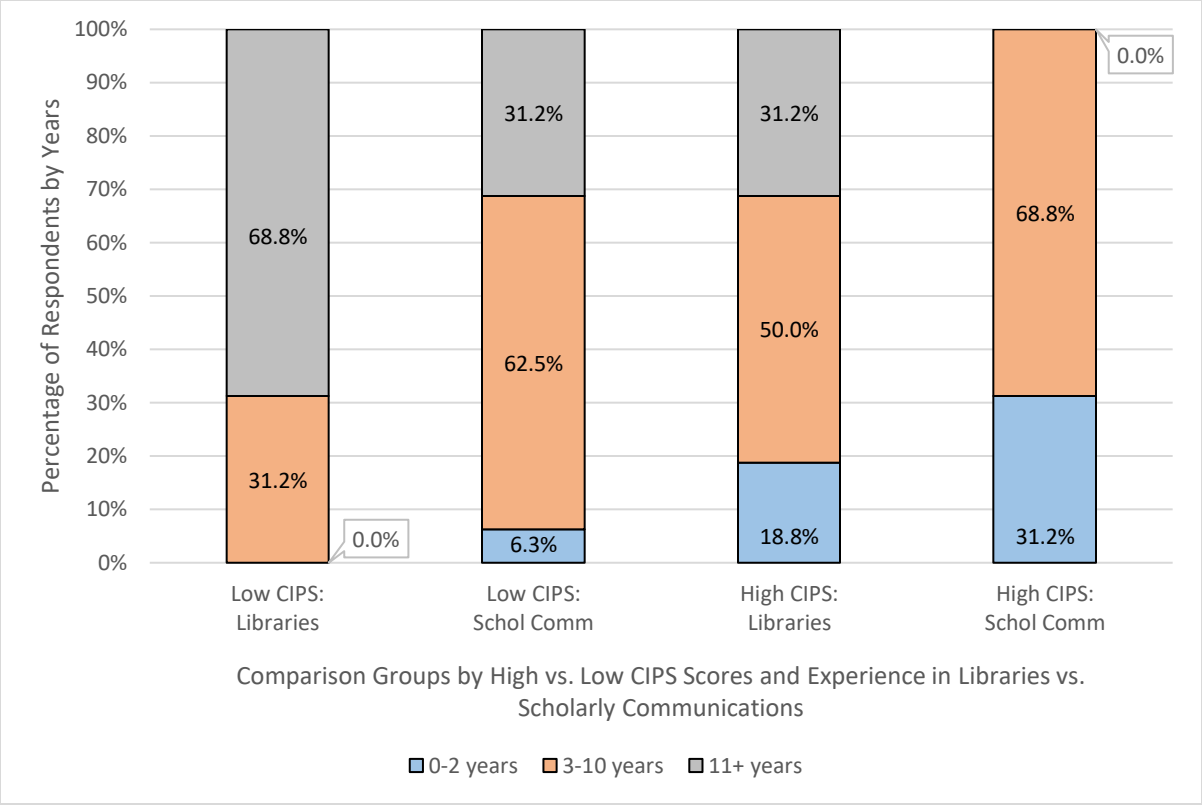

Figure 9. Years of experience of low-CIPS vs. high-CIPS respondents in libraries and scholarly communications

When asked to rate their confidence in key competencies, the difference between the low-CIPS and high-CIPS groups was significant. (The supplemental materials include graphs for all key areas, if not presented here: https://shsu-ir.tdl.org/handle/20.500.11875/2866). For example, in the area of Institutional Repository Management, whereas 50.0% of low-CIPS participants felt a great deal of confidence (5 on the Likert scale) in their *Knowledge of and ability to apply publisher policies on archiving*, only 18.8% of high-CIPS respondents felt a great deal of confidence in this area (see Figure 10). While even low-CIPS individuals seemed less confident in their *Knowledge of and ability to apply metadata schema*, with only 18.8% reporting a great deal of confidence, not a single high-CIPS individual rated their confidence on this competency at a 5.

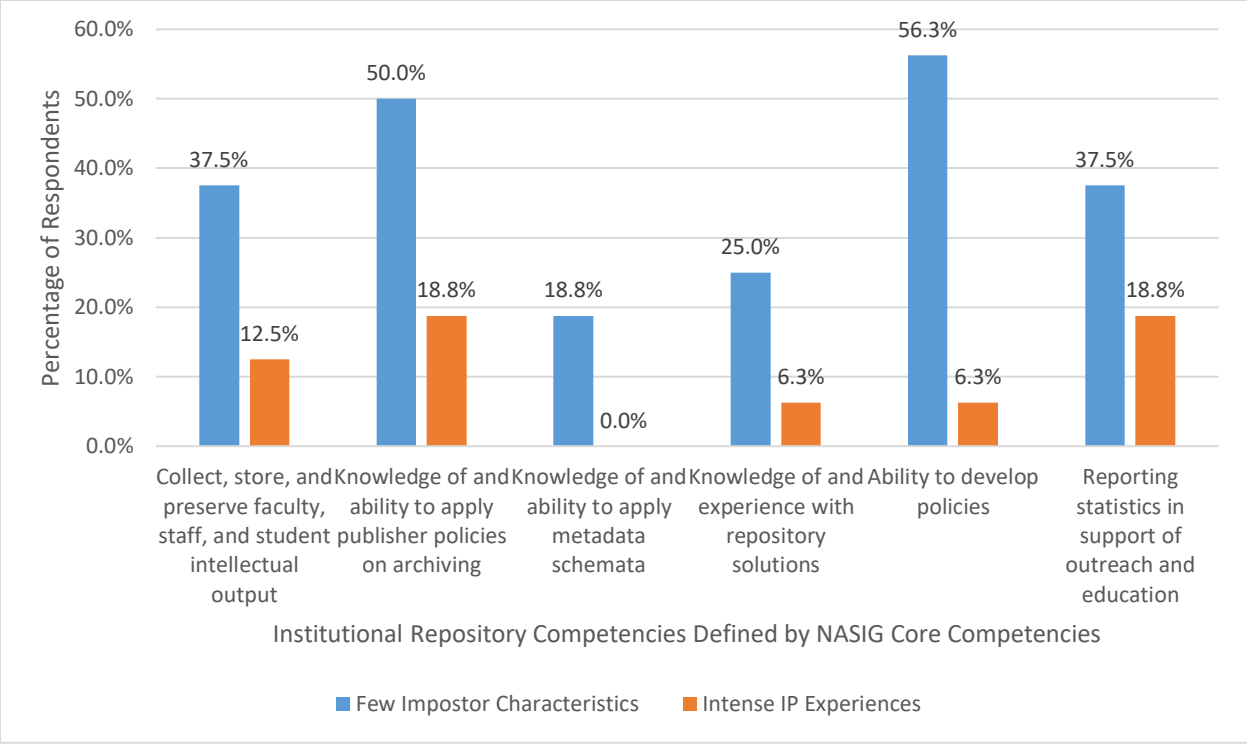

Figure 10. IR Management: Percent of low-CIPS vs. high-CIPS respondents with a great deal of confidence

The negative correlation between CIPS and confidence level held true in the areas of Publishing and Copyright, as well as in the Key Strengths defined by NASIG. For example, zero high-CIPS participants reported a great deal of confidence in five of the seven competencies in the Publishing area, and the only two competencies with any such ratings were vastly lower compared to low-CIPS individuals: 12.5% versus 56.3% in *Knowledge of and experience with the full life cycle of publishing*, and 6.3% versus 25.0% in *Collect and disseminate assessment metrics*.

Competencies in Copyright, too, saw a stark difference in confidence between low-CIPS and high-CIPS participants. For example, 68.8% of low-CIPS individuals felt a great deal of confidence concerning *Campus copyright policies*, compared to 12.5% of high-CIPS individuals. An equivalent 68.8% of low-CIPS individuals felt a great deal of confidence in *Handling permission requests*, compared to 25.0% of high-CIPS respondents.

However, this pattern saw a reversal in the area of Research Data Management (RDM). In these competencies, high-CIPS respondents were equally likely or more likely than low-CIPS respondents to feel a great deal of confidence in their skills. For example, 18.8% of high-CIPS individuals reported a great deal of confidence in *Knowledge of text and data mining*, whereas zero low-CIPS individuals reported the same confidence (see Figure 11). However, it is also worth noting that confidence in both groups was much lower in this area's competencies across the board, with no competency surpassing 18.8% reporting a great deal of confidence.

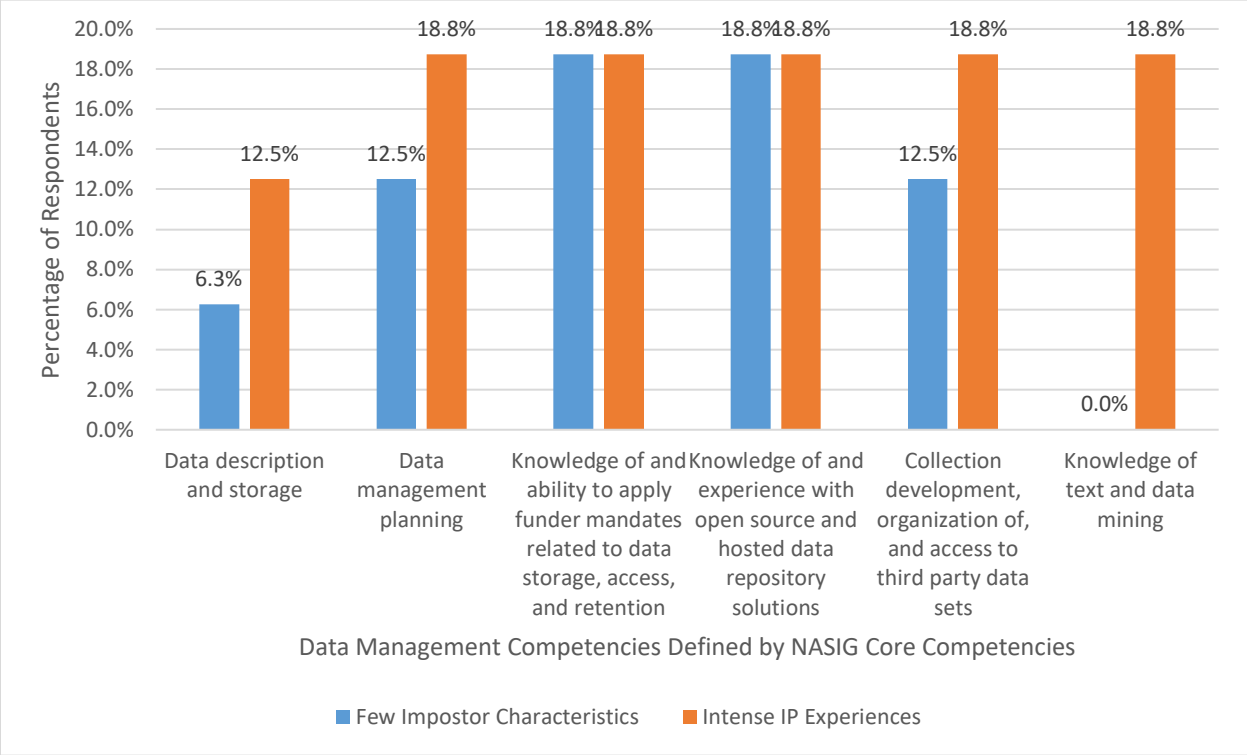

Figure 11. Research Data Management: Percent of low-CIPS vs. high-CIPS respondents with a great deal of confidence

In addition to competencies, individuals with lower incidence of impostor phenomenon also demonstrated greater confidence in their Key Strengths, compared to individuals with intense impostor experiences. While 81.3% of low-CIPS individuals reported a great deal of confidence in the *Personable*

trait, only 43.8% of high-CIPS individuals shared that confidence (see Figure 12). The lowest confidence for low-CIPS individuals occurred for the strength of *Generalist*, 43.8%, compared to just 12.5% among high-CIPS individuals.

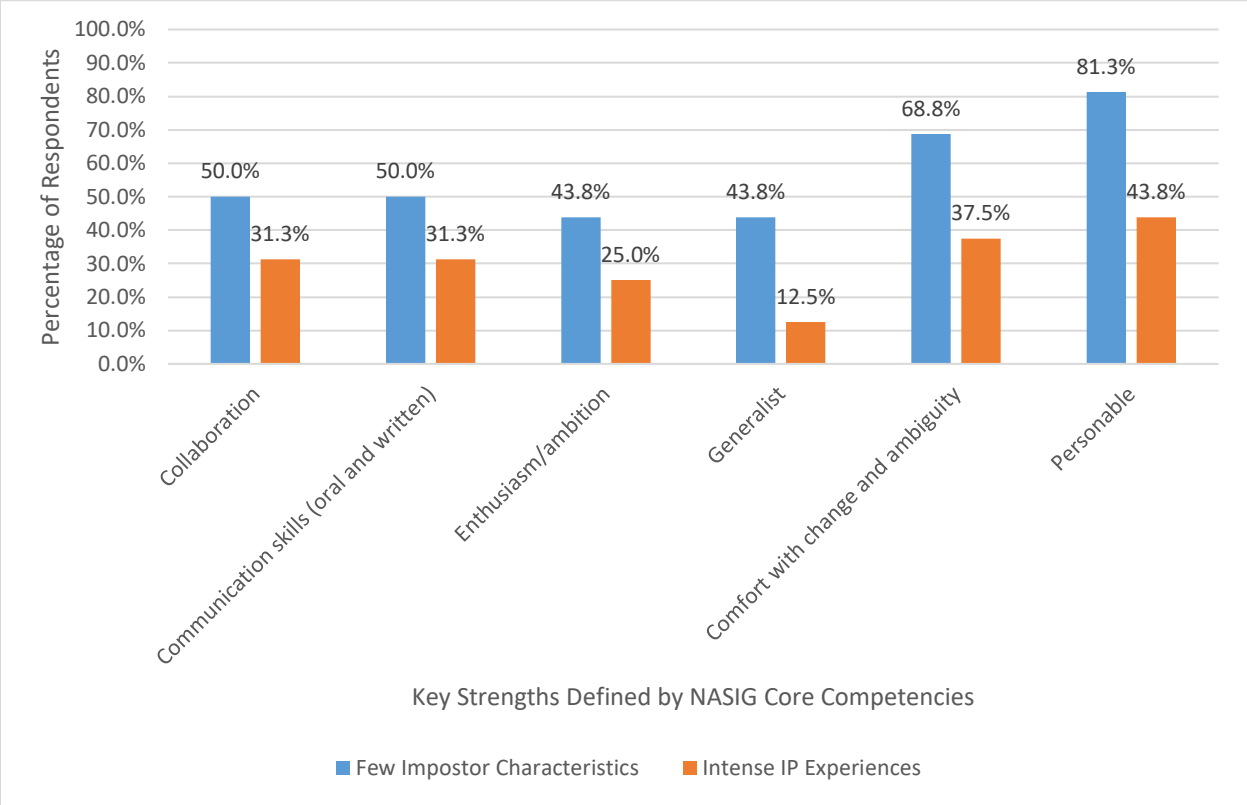

Figure 12. Key Strengths: Percent of low-CIPS vs. high-CIPS respondents with a great deal of confidence

Discussion

A direct comparison of these results with the findings of previous studies by Clark, Vardeman, & Barba and Barr-Walker, Bass, Werner, & Kellermeyer is not possible, since their studies employed the Harvey Impostor Phenomenon Scale (HIPS) rather than the Clance Impostor Phenomenon Scale (CIPS).[29] For example, Clark, Vardeman, & Barba reported that one in eight college librarians reported "above average" IP scores, based on the researchers' chosen benchmark of a score of 42. However, we cannot clearly crosswalk a 42 on the Harvey scale to a score on the Clance scale. That being said, if we consider

Moderate IP Experiences to be the "average" zone on the Clance scale, then 52.3% of scholarly communications librarians reported scores above that average, in the zones of *Frequent* or *Intense* IP experience. That would indicate that the frequency of IP among scholarly communications librarians is closer to one in two—much higher than among college librarians more broadly, and higher even than what Barr-Walker, Bass, Werner, & Kellermeyer reported among health sciences librarians. If, instead, we assumed a benchmark score of 50—halfway up the Clance scale, similar to Clark et al.'s benchmark on the Harvey scale—then the picture becomes even bleaker, with three in four, or 75% of, librarians reporting above-average feelings of impostorism.

What factors seem to affect this greater rate of impostor phenomenon among librarians specializing in scholarly communications? This study validates Clark's 2014 findings about academic librarians more broadly, that factors such as gender identity, race, and employment classification (in this case, tenured, tenure-track, and non-tenure track) are not significant factors in increasing IP. Additionally, although the researcher had anticipated a possible difference between participants holding or lacking the MLS or equivalent professional degree, this also lacked any noteworthy effect on IP scores—however, since non-MLS personnel made up less than 7% of respondents, this study may not represent the most conclusive finding on the impact of the degree on IP. Scores were consistent between librarians at public and private institutions and across Carnegie classifications—so, librarians supporting scholarly communications at R1 research institutions are no more or less likely to feel like impostors than librarians at Master's or Baccalaureate institutions. Taken together, these findings are encouraging on one level: librarians are not inherently disadvantaged by personal traits such as race or gender, nor by characteristics of employment such as institutional size.

On the other hand, years of experience in libraries did have a significant effect on the IP scores of scholarly communications librarians. This also validates Clark's 2014 findings about college librarians, that younger and less experienced individuals experienced more IP. This suggests that time and

experience are some of the best means to resolve intense feelings of IP. The relationship between these variables and CIPS scores is further reinforced by participants' responses regarding confidence factors—insufficient time to focus on a particular competency and insufficient experience in applying knowledge accounted for the most significant areas of lacking confidence, and these factors boil down to time and experience.

Curiously, the number of years spent working in scholarly communications specifically was not significantly correlated to CIPS scores; a librarian does not necessarily feel more like an impostor when they are new to the specialization if they have accumulated enough experience in the broader profession itself. This may have implications regarding the transferability of general librarianship skills to scholarly communications duties, or it may simply reflect an increase in general self-confidence as any new skills are developed over time in the profession. More research may be warranted on how the skills of generalist librarianship or past specializations impact the experience of impostor phenomenon when first entering a new specialization.

While waiting for time and experience to accrue, academic librarians working in scholarly communications may also be able to take proactive steps to help alleviate their feelings of IP. The negative correlation between CIPS score and hours of continuing education suggests that an individual is unlikely to go amiss by taking advantage of more training and development. This is further supported by the third-highest rated factor affecting confidence, *Lack of Training Completed*, and this also fits with recommendations found in existing literature; for instance, Rakestraw explains: "Individuals who suffer from Imposter Syndrome often mistake being *inexperienced* with being *unqualified*… Imposter victims can take control of their inexperience by educating themselves in their professions."[30]

However, librarians must also be cautious of allowing professional development to become a crutch or a barrier to skills application. Literature has noted that over-preparing is a common coping

mechanism for those suffering from IP.[31] If impostor phenomenon is stemming, as Rakestraw asserts, from misidentifying a lack of experience as a lack of qualification, then even significant education, if absent of skills application, may not convince a would-be impostor that their qualification level has changed. This may lead to over-preparing in the form of over-training: that is, pursuing excessive quantities of professional development. In extreme cases, this may become a method of procrastinating and putting off action, which the impostor fears could result in failure. As Ackerman & Gross note, "fear is an emotion that can produce a paralyzing effect," and Urwin further states that "Some individuals experiencing IP feel that tasks facing them are insurmountable and so delay starting, as they do not believe they can finish."[32]

This may be further tied up with the complex relationship between procrastination and perfectionism. For example, Onwuegbuzie (2000) observes that "overall academic procrastination appears to be related significantly to socially prescribed perfectionism," and "one possible explanation of the finding is that perfectionism leads to academic procrastination"; Sirois further clarifies that "trait procrastination and perfectionistic concerns may be characterised by similar negative self-evaluation tendencies that interfere with effective self-regulation and goal achievement."[33] Burka sums it up concisely with one of the statements in her Procrastinator's Code: "There is a right answer, and I'll wait until I find it."[34]

In order to maximize the benefits of professional development and minimize the risks of procrastinating via over-preparing or over-training, further exploration may be warranted regarding the exact nature of continuing education opportunities within scholarly communications. The ability to define and understand complex concepts such as copyright, licensing, and research metrics may not immediately translate into the ability to apply these concepts in context; more hands-on training opportunities may be needed to advance genuine confidence in applying new concepts and skills. This is at least partially supported by the fourth- and fifth-highest rated factors affecting confidence, *Lack of*

Practice and Demand, and *Lack of Hands-on Training*; if one has not yet received sufficient user demand to accumulate practice, one might benefit by gaining that practice via hands-on training instead.

In terms of other correlations, the negative correlation between CIPS scores and number of research publications suggests another logical way that librarians can increase their confidence in counseling faculty on the scholarly communications process. Librarians can gain first-hand experience with the entire scholarly cycle by conducting their own research, identifying and evaluating journals, negotiating their author rights, publishing their own article, promoting their publication, and gathering their own post-publication altmetrics and citations. This increased experience could reasonably be expected to boost a librarian's confidence that they understand and can practice what they are teaching to faculty.

Previous literature has recommended mentoring as one critical approach to help combat the experience of impostor phenomenon in librarianship.[35] The current study's findings do not dispute that, but they do add potential nuance: there is an opportunity to encourage mentorship in the research and publication process specifically. Academic librarians more experienced in publishing can and should invite less experienced peers to collaborate and guide them through the process. This could potentially have a dual positive effect on impostor phenomenon by simultaneously providing both professional mentorship and first-hand experience in the scholarly communications process.

On another note, one must contemplate the significance of the leading reason for participants' lack in confidence: *Too Many Responsibilities*. One survey participant commented, "The NASIG competencies are ridiculously broad. No one can maintain top skills in all of the areas. Even maintaining top expertise in one of the areas is difficult in the faster-evolving areas." Indeed, we see that some large or strategically oriented libraries are able to employ teams of librarians to share the responsibilities of

scholarly communication; in still other libraries, the primary librarians are supported by the secondary efforts of subject liaison librarians.

However, a number of academic libraries still have only one librarian, or perhaps two, bearing the vast majority of responsibility in this specialized area—this became anecdotally apparent when the author surveyed library directories, job titles, and LibGuides for survey recruitment, and the field might benefit from research into better understanding the weight of responsibilities placed on lone librarians supporting scholarly communications. Library directors should consider how the sheer scope of a scholarly communications librarian's responsibilities may impact the manifestation of impostor phenomenon and a librarian's lack of confidence in key skills areas. Even when an individual feels motivated to tackle all these duties, the urge to master them all can sometimes inhibit forward progress: as Burka observes of the would-be Renaissance Man, "the need to be well-versed in *everything* often prevents from pursuing *anything*."[36] Creative ways to spread out responsibilities, train "assistant" librarians to provide backup in key areas such as copyright, or develop team-based support structures may help to alleviate the burden of expectations placed on a single individual and thus decrease the issues that may arise from an excessive experience of IP.

Identifying the negative correlation between CIPS scores and confidence in core competencies is illuminating. To some extent, this may still be the result of different levels of experience, since the low CIPS group did tend to have more years of experience than the high CIPS group in both libraries generally and in scholarly communications. However, both the low CIPS and high CIPS groups contained a sizeable amount of mid-career librarians with 3-10 years of experience, implying that other personal factors may be in play besides simple years of experience in the field. Even with comparable years of experience, some librarians experience less impostor phenomenon, negatively correlated with greater degrees of confidence in their skills, while other librarians experience more impostor phenomenon, negatively correlated to lower confidence in skills.

This relationship suggests that librarians experiencing IP are unlikely to be objective judges of their own competencies. Their own biased judgement of themselves may negatively impact these librarians' productivity--for example, recalling the earlier discussion of procrastination, if they are constantly trying to compensate for a perceived lack of competence by engaging in ever more professional development. Their subjective lack of confidence may also hinder their pursuit of opportunities such as jobs, grants, or projects for which they may feel they are lacking sufficient mastery of necessary competencies. The development of objective, empirical competency tests in scholarly communications skills areas could help these experts to more accurately assess their own competency levels. Not only could this remove obstacles standing in the way of substantive professional pursuits but receiving unbiased evidence of one's own capacity would potentially help to reduce the experience of IP itself.

Limitations and Further Research

This study was geographically limited to the United States. Given the extensive international diversity in access to information, open-access mandates, and open-access philosophy more broadly, the author judged that analysis of comparing confidence levels in approaching these scholarly communications topics would be too complex across international borders. Further research could similarly survey librarians in other countries to provide comparative findings.

Because this study is based on voluntary survey responses, the participant pool may suffer from self-selection bias. Invitees who read the survey topic and related to the experience of impostor phenomenon may have been more likely to respond than those invitees who had not experienced or were not strongly affected by feelings of IP. Conversely, some invitees who felt strong emotions about their IP experiences may have avoided the study or withdrawn before completing if the questions caused discomfort. The participant pool may also have been small, but it is difficult to judge without

having evidence to state the total population of scholarly communications librarians in the United States.

Additionally, the structure of the survey instrument itself may have presented some limitations. Participants were first asked to indicate areas of lower confidence in scholarly communications competencies, then follow-up questions asked them to consider factors affecting their confidence level. However, because the survey did not include a button to navigate back to previous pages, participants were limited in their ability to refer back to the specific competencies and confidence levels they had previously marked. This may have affected the precision with which respondents answered the follow-up questions about contributing factors.

Another limitation of the study is that the NASIG Core Competencies did not explicitly include Open Educational Resources (OER), a topic which nevertheless often falls under the broad umbrella of scholarly communications work in academic libraries. Integrating additional competencies into the survey might have contributed additional insight into librarian confidence regarding OER competencies.

Another opportunity for future research might be to longitudinally survey a cohort of librarians about IP and confidence as they enter the scholarly communications specialization and again at various points over the next several years of their careers. By limiting the focus to the same participants over time, certain variables between individuals could be controlled, while the impact of interventions such as continuing education, mentoring, hands-on experience, and so forth could be more fully evaluated. However, the logistics of identifying and enrolling such a population could prove rather challenging.

Additionally, because the factor of *Too Many Responsibilities* significantly affected confidence, further research could investigate whether employer expectations on average are too high for librarians in this specialty. A future project could analyze library job descriptions in scholarly communications,

comparing listed duties to the NASIG Core Competencies to determine how comprehensively professionals are expected to support the specialty.

Conclusions

Academic librarians specializing in scholarly communications work seem to experience intense impostor phenomenon at a higher rate than academic librarians more broadly. Their confidence in their skills varies across an array of professionally defined competencies, but across the board, the factors having the greatest negative impact on confidence are a surplus of professional responsibilities and a lack of applied practice. With the insight provided by this study, the LIS profession can better understand the experience of these specialists, better support them in developing greater job competence and confidence, and perhaps direct more energy to developing novel interventions such as more hands-on applied training opportunities.

Acknowledgements

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