

Academic Librarians' Educational Factors and Perceptions of Teaching Transformation: An Exploratory Examination

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Article abstract

Objective – As information literacy instruction is an increasingly important function of academic librarianship, it is relevant to consider librarians' attitudes about their teaching. More specifically, it can be instructive to consider how academic librarians with different educational backgrounds have developed their thinking about themselves as educators. Understanding the influences in how these shifts have happened can help librarians to explore the different supports and structures that enable them to experience such perspective transformation.

Methods – The author electronically distributed a modified version of King's (2009) Learning Activities Survey to academic librarians on three instruction-focused electronic mail lists. This instrument collected information on participants' demographics, occurrence of perspective transformation around teaching, and perception of the factors that influenced said perspective transformation (if applicable). The author analyzed the data for those academic librarians who had experienced perspective transformation around their teaching identities to determine if statistically significant relationships existed between their education and the factors they reported as influencing this transformation.

Results – Results demonstrated several statistically significant relationships and differences in the factors that academic librarians with different educational backgrounds cited as influential in their teaching-focused perspective transformation.

Conclusion – This research offers a starting point for considering how to support different groups of librarians as they engage in information literacy instruction. The findings suggest that addressing academic librarians' needs based on their educational levels (e.g., additional Master's degrees, PhDs, or professional degrees) may help develop productive professional learning around instruction.





Research Article

Academic Librarians' Educational Factors and Perceptions of Teaching Transformation: An Exploratory Examination

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Abstract

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Introduction

In the shifting higher education environment, academic libraries continually work to serve students and faculty in meaningful, responsive ways. Library instruction represents one area where intentional evolution has occurred: While librarians once focused on systematically presenting information on library resources, or bibliographic instruction, their instructional area has changed with the information landscape. As information resources emerged in new formats and finding sources grew more multifaceted, academic librarians shifted into information literacy instruction. Rather than focusing on presenting library resources, information literacy is grounded in developing learners' capacities to "recognize when information is needed and ... locate, evaluate, and use effectively the needed information" (American Library Association [ALA], 1989, paragraph 3). The Association of College and Research Libraries (ACRL) supported this kind of instruction by developing the *Information Literacy Competency Standards for Higher Education* (2000). This resource provided academic librarians with information literacy outcomes they could apply across varied instructional environments as the Information Age emerged in the early 21st century. However, learning needs have continued to shift since that time.

The prescriptive guidelines set forth by the *Standards* did not reflect the information ecosystem where understanding information

access, value, and power structures became more crucial and where academic librarians' instruction was situated. In 2016, ACRL sought to address these emerging needs through the *Framework for Information Literacy for Higher Education*, which focused information literacy instruction on facilitating deeper learning. This document provided threshold concepts learners need to grasp, rather than performance outcomes they can attain, to be information literate lifelong learners. In reframing instruction, the *Framework* encourages academic librarians to consider their roles as educators in more holistic ways. While the ACRL *Framework* may aim to present a new—or perhaps more nuanced—approach to information literacy, it also raised challenges for librarians. Even if the *Framework* more fully represented 21st century information dynamics, this approach was a departure from library instruction as set forth in the ACRL *Standards*. Academic librarians may need to consider how they think of themselves as educators, in response to these changes; Scott Walter (2008) referred to this self-concept as a teacher identity.

This research considered academic librarians' teacher identity and, more specifically, whether there are relationships between the experiences that shape this self-concept and their educational background. I used transformative learning theory as a framework with the Learning Activities Survey (King, 2009) to collect librarians' perception data about their experiences developing teaching identities. I conducted cross-tab and one-way analysis of

variance (ANOVA) tests to identify statistically significant relationships between librarians' education and relational, experiential, and work-related factors in developing these identities. The results show that interactions or experiences impacted academic librarians' teacher identity development differently, depending on individuals' education levels.

Other research has established that academic librarians can develop teacher identities (Walter, 2008) and that this self-concept may emerge from a perspective transformation process (Nichols Hess, 2018). This scholarship offers a way to advance this scholarly agenda by more deeply understanding the inputs academic librarians believe have influenced this component of their professional identities. Beginning to establish such understandings can help librarianship more effectively support information literacy instructors and instruction.

Literature Review

First, it is important to operationalize the idea of a teacher or teaching identity. In the most practical sense, these terms represent an individual's self-perception about his or her work as an educator (Beauchamp & Thomas, 2009). Walter (2008) applied this notion more specifically to academic librarians, identifying that their teacher identities center on how they consider their educational roles at their institutions. However, this professional self-concept is not limited to libraries; teaching identities have been explored in the literature around teacher education and preparation (Agee, 2004; Friesen & Besley, 2013; Rahmawati & Taylor, 2018, Smagorinsky, Cook, Jackson, Fry, & Moore, 2004; Stillwaggon, 2008). In the existing research, scholars have established teaching or teacher identities as multifaceted, dynamic ideas that evolve throughout an individual's career.

Since teaching identities are fluid, it is useful to consider how they may develop with a theoretical framework focused on personal

evolution and development. Jack Mezirow's (1978, 1981, 1994, 1997, 2000) transformative learning theory offers such a starting point. His work is built on the idea that adults use their experiences to make meaning of the world around them but that they can fall back onto ideas or schema adopted from others (e.g., authority figures, perceived experts, family, friends) and not personally evaluated (Mezirow, 1997). Transformation, then, happens when adults consider the environment in which they exist and establish their own beliefs and values based on biographical, social, and cultural experiences. More specifically, "perspective transformation" happens. Adults have internal cognitive "frames of reference" they use to make sense of the world, and these frames are composed of "habits of mind" (Mezirow, 1978). While frames of reference are broader ways adults view situations, groups, and interactions, habits of mind are more specifically grounded in the snap judgments or interpretations adults make (Mezirow, 1997). From these frames of reference and habits of mind, adults then present external-facing points of view (Mezirow, 1997). These frames of reference and habits of mind may change with inputs from individuals' experiences in the world (Mezirow, 1978, 1994, 2000); in such instances, external-facing points of view also shift. Having these transformative experiences leads adults to develop more authentic senses of selves.

Researchers have applied transformative learning theory to understand how disciplinary faculty in higher education engage in developing teaching identities (Balmer & Richards, 2012; Cranton & Carusetta, 2004; Post, 2011). Neither this scholarship nor the research on K-12 teacher identities can be applied wholesale to academic librarians, though. Academic librarians' teaching practices are considerably different from either K-12 educators or subject-area faculty; thus, they may have unique needs or experiences in forming, or transforming, how they see themselves as educators. Therefore, the scholarship on academic librarians' educational experiences

influences how these transformational experiences can be understood. These may be related to their library-focused graduate education, the informal or professional learning they engage in within the field, or any other formal degree-granting programs pursued outside of librarianship. This focus area does not exist in the research literature on disciplinary faculty's teaching identity development and transformative learning, since they generally hold doctoral degrees in their subject area. The research from the library literature in this area can both consider academic librarians' unique experiences as educators and provide important context.

Researchers have established that academic librarians generally experience limited or inadequate exposure to information literacy in library school (Bailey, Jr., 2010; Corral, 2010; Sproles, Johnson, & Farison, 2008). As such, academic librarians may engage in post-graduate training or education around instructional practices and educational identity development. In fact, scholars have demonstrated that new professionals enter the field expecting to engage in this kind of job-specific training that offer opportunities to enhance their skills and gain knowledge not addressed in their academic experiences (Sare, Bales & Neville, 2012). Moreover, researchers conducting a study of 788 Canadian library staff with instructional responsibilities found that many used self-directed or self-selected postgraduate professional learning experiences (e.g., attending workshops, reviewing the literature) or informal job-based learning offerings to prepare for their teaching responsibilities (Julien & Genuis, 2011). Other scholars have focused on how librarians have used such resources, including job-embedded professional learning (Click & Walker, 2010; Nichols Hess, 2016; Shamchuk, 2015; Walter, 2006), instruction-centric institutional offerings (Hoseth, 2009; Otto, 2014), and a variety of professional mentorship relationships (James, Rayner, & Bruno, 2015; Lorenzetti & Powelson, 2015; Mavrinac, 2005) to support their own

teaching identity development. These researchers' works emphasize that academic librarians only begin to learn the pedagogical essentials after they earn Master's of Library or Information Science (MLIS) degrees.

While some academic librarians pursue ongoing informal professional development, others elect more formal educational options. Librarians who have in-depth liaison relationships with academic units may find that additional degrees—Master's, professional (e.g., JD, specialist certificates), or PhDs—offer opportunities to deepen subject knowledge and develop pedagogical competencies. While this route is not uncommon, there is not broad agreement on whether such education is necessary—or helpful—to the profession (Crowley, 2004; Ferguson, 2016; Mayer & Terrill, 2005). Researchers have demonstrated that those who had attained doctorates in subject areas felt this experience gave them credibility with faculty, expertise in their instructional disciplines, and deep research experience they could use to connect with students (Gilman & Lindquist, 2010). However, these librarians indicated that additional education was not the only route to gain advanced subject knowledge; they cited on-the-job experience and other learning undertakings as real difference-makers in developing their disciplinary understandings, not credentials or degrees.

Aims

Using the teaching identity concept, transformative learning theory, and the existing research on how academic librarians' educational experiences impact their professional identity, I investigated the following question: How do academic librarians' educational experiences (i.e., education level, additional degrees) interact with external inputs (e.g., relationships, professional experiences) to influence their teaching identity development?

This inquiry builds on research establishing that academic librarians can experience perspective transformation around their teaching identities and that different types of hands-on experiences as educators may shape these identities in different ways (Nichols Hess, 2018). This existing scholarship identified an area for inquiry around academic librarians' teaching identities and perspective transformation. This research, then, sought to advance this topic by considering whether academic attainment influenced how academic librarians' teaching identity development happened.

Methods

Research Approach

I used an exploratory perspective to further develop this research area in the library literature. I used a modified version of Kathleen P. King's (1997, 2009) Learning Activities Survey (LAS; see Appendix A) to solicit a voluntary sample from academic librarians engaged in instruction. The LAS is grounded in transformative learning theory. Respondents reflect on whether they believe they have experienced perspective transformation and indicate which inputs they believe have influenced such experiences. Although other researchers have explored librarians' teaching-based perspective transformation in qualitative ways (Walter, 2008), I chose a survey instrument to collect deductive data from a large group of academic librarians. While the exploratory study design did not generate generalizable data, it does establish a foundation on which other researchers can construct related scholarship. All appropriate regulatory approvals from my university research board were received before data collection began.

Survey Modification, Distribution, and Data Collection

King (2009) developed, copyrighted, demonstrated the reliability of, and validated the LAS. She encouraged researchers to use or

modify her instrument, gratis, so long as she was credited; other researchers have used King's LAS to examine specific populations' cognitive and behavioral transformations (see, for example, Brock, 2010; Kitchenham, 2006; Kumi-Yeboah & James, 2014). King provided specific modification guidelines to preserve the instrument's integrity (King, 2009, pp. 36-44). In this research context, I modified the LAS per King's directions to ground librarians' transformative experiences around their teaching in the broader body of research while maintaining the instrument's reliability.

Any version of the LAS has three types of questions:

1. Demographic items;
2. Items that ask respondents to indicate whether perspective transformation has occurred; and
3. Items about what inputs impacted an individual's perspective transformation process.

Questions related to whether individuals have experienced perspective transformation should not be altered except to provide relevant contextual information. Researchers must review participants' responses to generate perspective transformation index (PT-Index) groupings using a standard set of procedures (King, 2009). This baseline metric determines whether individuals report experiencing perspective transformation, and it establishes a sub-group of participants that the researcher can use for subsequent analyses. I adhered to these guidelines when examining academic librarians' experiences with perspective transformation around their teaching identities.

I built the new version of the LAS in Qualtrics and distributed the survey instrument via email to three information literacy-focused electronic mailing lists (acrframe-l, infolit-l, and lirt-l) to recruit a voluntary sample; 501 individuals responded. At the time of distribution, this figure represented between a 5.9% (total overlap

in list membership) and 8.1% (no overlap in list membership) response rate. While anyone could participate in the survey, those who indicated that library instruction or information literacy was not part of their job responsibilities were automatically directed to the end of the instrument. The survey was open from February 6 to April 6, 2017; all incomplete responses were automatically recorded when the survey closed.

Preparatory Procedures: Identifying Perspective Transformation

Per King's (2009) directions, all respondents were assigned to a PT-Index designation. This information reflects participants' responses to four items on the LAS, and it "indicates whether [learners] have experienced a perspective transformation" (King, 2009, p. 38). On this version of the LAS, those four questions were:

- Item 14: Think about your professional experiences in teaching—check off any of the following statements that apply.
- Item 15: Since you have been providing information literacy instruction, do you believe you experienced a time when you realized that your values, beliefs, opinions, or expectations (for example, how you viewed your work responsibilities or roles as an academic librarian) changed?
- Item 16: Describe what happened when you realized your values, beliefs, opinions, or expectations about your instructional responsibilities had changed.
- Item 20: Think back to when you first realized that your views or perspective had changed. What did your professional life have to do with the experience of change?

To identify the PT-Index designations of all 501 participants, I first identified individuals who had checked at least one of the affirmative statements in Item 14 or who had indicated "Yes" or "I'm not sure" in response to Item 15.

These individuals were initially classified in a YES PT-Index group. Individuals who had not selected any of the affirmative statements about transformation in Item 14 or had indicated "No" to Item 15 were categorized into a NO PT-Index group. I then reviewed respondents' free-text comments for Items 16 and 20 to affirm or modify these group assignments as needed.

While a total of 501 individuals responded, 353 survey participants were ultimately classified as YES PT-Index group members, or as individuals who had reported experiencing perspective transformation around their teaching identities in some way. Those in the NO PT-Index group were excluded from all additional analyses.

Preparatory Procedures: Identifying Transformative Constructs

The next goal was to understand what factors had influenced the respondents' perspective transformation. On Items 17 to 19 of the LAS, participants identified the relationships, experiences, or resources, and professional events they believed had influenced their teaching identity development. There were 41 potential inputs across these three items, and participants could select all that applied. Analyses between demographic categories and each of the inputs individually would not provide meaningful data. Instead, I used SPSS to conduct a principal component analysis using Varimax (orthogonal) rotation followed by a subsequent confirmatory factor analysis on participants' responses to each item to identify transformative constructs for relationship-, experience-, and professionally centric inputs. In this type of analysis, statistical tests were used to examine where participants selected common variables in response to each question separately; this process helped to identify where links existed across participants' responses to a single question.

The principal component analysis reduced 41 variables from three items into 12 transformative constructs that participants

indicated had influenced their teaching identity development process. The resulting confirmatory factor analysis was used to identify the connections and build these constructs; they each had eigenvalues greater than 1.0 and significant factor criterion of at least 0.4. I used the inputs within each construct to determine the terms used to describe each construct's core ideas.

In response to item 17 on the LAS, the relationship-centric constructs that influenced participants' teaching identity development were:

- Supportive interpersonal relationships, which was comprised of six inputs related to the positive relationships participants developed laterally—such as with colleagues and disciplinary faculty—as well as their interactions with students
- Motivating leaders, which was comprised of four inputs related to the relationships participants had with their work mentors, supervisors, and administrators in more of a top-down structure
- Challenging colleagues, which was comprised of three inputs related to participants' negative interactions (e.g., criticism, negative feedback, comments on issues with instruction) with colleagues, other librarians, and disciplinary faculty
- Other important relationships, which was comprised of other relationship-centric inputs participants could include

In response to item 18 on the LAS, the experience-centric constructs that influenced teaching participants' identity development were:

- Professional learning, which was comprised of seven inputs related to participants engaging with diverse readings on teaching, attending

professional development workshops, and observing other librarians' instruction

- Writing and technology-rich teaching, which was comprised of four inputs related to participants' experiences teaching online or in hybrid environments and writing about teaching practices for publication
- External feedback, which was comprised of three inputs related to participants' experiences observing disciplinary faculty's teaching, receiving comments from students, and getting feedback from disciplinary faculty
- Library-centric input, which was comprised of three experiential inputs related to participants' library school coursework, engaging in discussion with other librarians about their instructional practices, and completing teaching self-reflections
- Self-reflection and other experiences, which was comprised of two inputs related to participants' use of reflection journals, and other experience-centric inputs participants could include

In response to item 19 on the LAS, professionally centric constructs that influenced teaching participants' identity development were:

- Completing graduate education, which was comprised of two inputs related to participants' library and non-library program graduation (that is, not their education level itself—but that the experience of completing an educational program had impacted these participants' senses of themselves as educators)
- Changing job statuses, which was comprised of three inputs related to participants' first professional job, changes in professional jobs, or job losses

- Other shifting responsibilities, which was comprised of two inputs related to participants' changing work duties and other work-centric inputs participants could include

Because there is overlap between relationship-, experience-, and professionally centric inputs, there are some similarities between the resulting constructs. However, each of the original inputs aligned with only one transformative construct. One experience-centric input—teaching face-to-face—did not align with a specific transformative construct. This outlier existed because 179 respondents (of the 353 individuals in the YES PT-Index group) selected this input as an influence in shaping their teaching identity. Face-to-face teaching, then, influenced teaching identity transformation across participants' other experiences rather than aligning as part of a particular construct. This input was maintained in subsequent data analysis.

Preparatory Procedures: Transforming Participants' Responses to Z-Scores

I transformed participants' ($n = 353$) combined responses for the inputs in each of the 12 transformative constructs into composite scores. This data transformation allowed for the analysis of perceptions of how the 12 constructs had influenced perspective transformation around teaching identities. SPSS was used to generate these responses into standardized Z-scores, and this process allowed for comparison of how constructs composed of diverse numbers of inputs influenced participants across demographic items. In these Z-scores, 0 is the mean, and one unit indicates a standard deviation in the sample. The probability of a score occurring within a normal distribution from these standard scores could then be calculated.

The preparatory procedures involved considerable data-related work, but the values

generated in these processes (i.e., eigenvalues/factors associated with 12 transformative constructs) were not used in any subsequent analyses. Rather, these steps allowed for cleaning the data as a prerequisite step to examining whether differences existed among how librarians across educational experiences experienced perspective transformation related to their teaching. These distinctions between the preparatory procedures and data analysis process are represented in Figure 1.

Data Analysis: Crosstab Analysis and One-Way ANOVA

After establishing the following:

- which participants believed they had experienced perspective transformation around their teaching ($n = 353$),
- the 12 transformative constructs and one input that impacted these transformative processes, and
- participants' composite Z-scores that reflected their responses to the 12 transformative constructs,

I analyzed whether different constructs or one input affected participants' teaching identity transformation processes in relation to their education levels.

In the instance of the one remaining input—teaching face-to-face—I used SPSS to run cross-tabulation analysis with a chi-square test statistic to consider its relationship to librarians' teaching identity development. This type of analysis determines whether statistically significant relationships exist between categorical independent variables (e.g., education level, education beyond an MLIS) and categorical dependent variables (i.e., whether teaching face-to-face had influenced perspective transformation). Librarians' responses to this item were analyzed this way because this input did not align with a single transformative construct. The standard alpha level of .05 was used to argue for significance for this analysis.

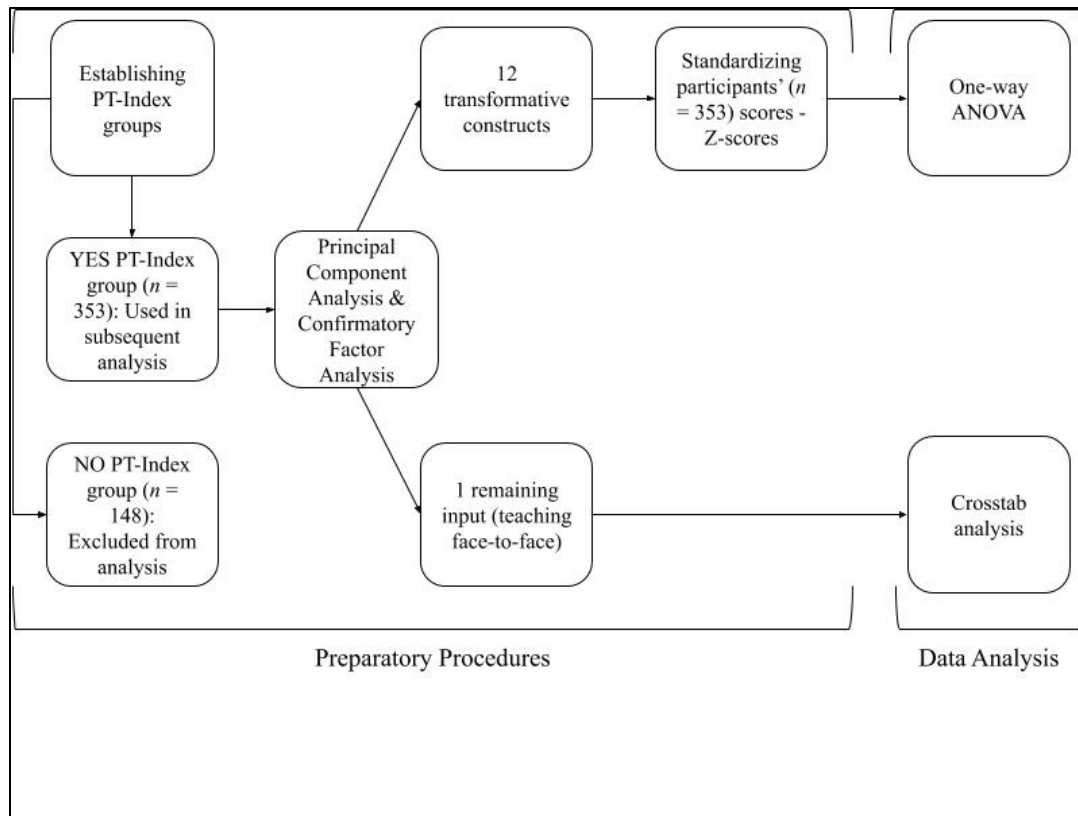


Figure 1

A visual representation of the data preparatory and analysis processes.

SPSS was used to conduct ANOVA tests and explore whether there were statistically significant relationships between librarians' education levels and the 12 transformative constructs. When comparing multiple groups within a population, the one-way ANOVA compares means in relation to a single variable (e.g., a transformative construct). One-way ANOVA is appropriate when the independent variable is categorical (i.e., mutually exclusive options) and the dependent variables are continuous (i.e., points on a fixed scale). In this research, participants' responses to the demographic questions about their education levels and additional education beyond the MLIS—the independent variables—were categorical. The compiled data for the 12 transformative constructs are continuous data because participants' responses were transformed into Z-scores. One-way ANOVA, then, is the most useful way to examine whether

librarians with different educational or work-related backgrounds felt that different transformative constructs influenced their teaching identity development. Since one-way ANOVA only identifies whether differences exist between groups, Fisher's Least Significant Distance (LSD) post-hoc comparison tests were used to examine where those differences existed between groups to more fully understand the statistical results. I used the standard alpha level of .05 to argue for significance for this analysis.

Results

Overall Education Level

Participants who had experienced perspective transformation around their teaching identities ($n = 353$) were largely homogeneous in their overall education level. Of these respondents, 324 held Master's degrees, followed by 16 who

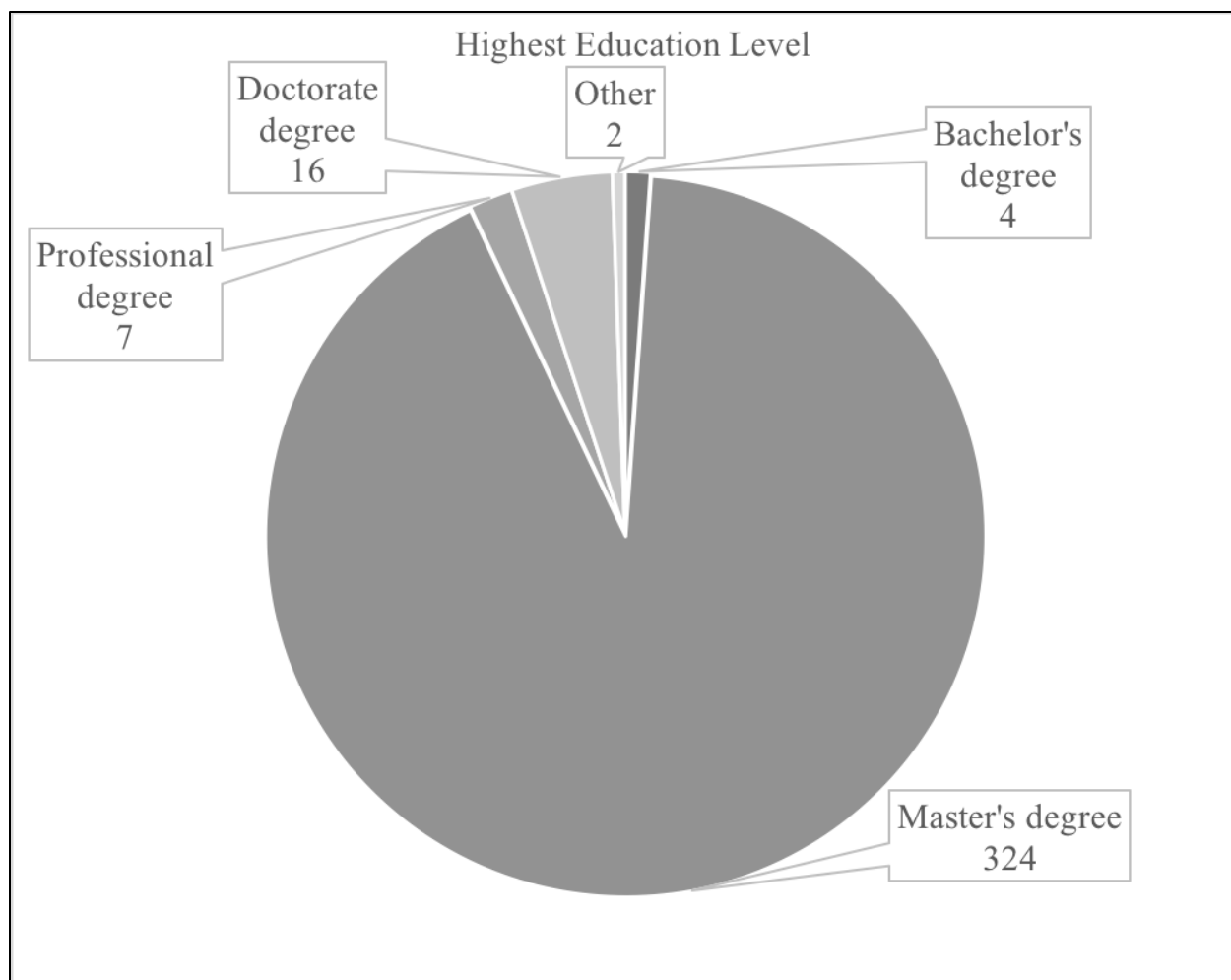


Figure 2
Participants' ($n = 353$) highest education levels.

had earned doctorate degrees. Seven participants held professional degrees (e.g., MBA, JD), while four held bachelor's degrees and two respondents had some other level of education (see Figure 2).

No statistically significant differences existed between participants' highest education levels and whether they believed any of the 12 transformative constructs or teaching face-to-face had influenced their teaching identity development. These constructs and input, then, seemed to similarly impact librarians' teaching

identities across overall education levels. However, participants' overall education level did not represent the granularity of their graduate learning experiences—for instance, the Master's degree demographic group included those with an MLIS, those with additional Master's degrees in other subject areas, and potentially those currently in graduate programs (Master's, professional, or doctorate). Therefore, I considered these components in greater detail to more fully understand academic librarians' educational experiences and the impacts that affected their teaching identity development.

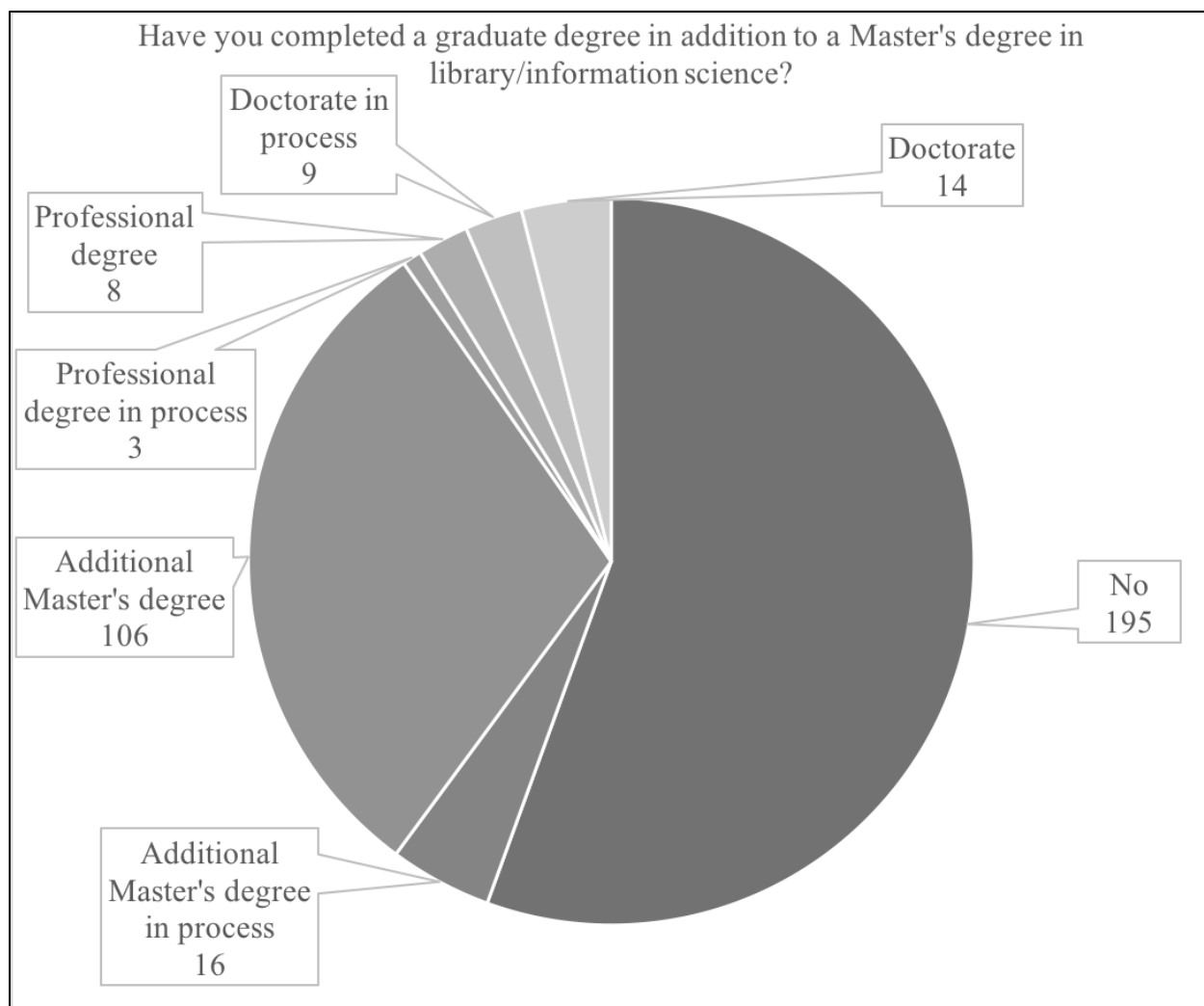


Figure 3
Participants' ($n = 352$) additional degrees.

Additional Education beyond the MLIS

While the MLIS is considered the terminal degree in the field (Association of College and Research Libraries [ACRL], 2018), participants who had experienced perspective transformation around their teaching identities also shared information about additional graduate experiences. Of the participant sub-group who responded to this item ($n = 352$; one person did not respond), 195 had no additional degree. Those participants who already held additional degrees included 106 with additional Master's degrees, 14 with doctorates, and eight with professional degrees. Some participants

had degrees in process: 16 respondents were working to complete additional Master's degrees, while nine were completing doctorates and three were completing professional degrees (see Figure 3).

A chi-square test of independence was used to examine whether there were statistically significant relationships between respondents' additional education and the impact of teaching face-to-face on teaching identity transformation. The relation between these variables was not significant, $X^2(7, n = 352) = 3.40, p > .05$. These data suggest that the impact of teaching face-to-face does not influence librarians' teaching

Table 1

Impact of the Motivating Leaders Construct on Teaching Identity Transformation for Academic Librarians with Education beyond an MLIS

Additional Education	Significantly Different from:	Mean as a Z-score	Standard Deviation
Professional degree ($n = 8$)	Professional degree in process*	-0.34	0.56
Additional Master's ($n = 106$)	Professional degree in process* Doctorate in process*	-0.20	0.85
Doctorate ($n = 14$)	Professional degree in process*	-0.19	0.77
No additional degree ($n = 195$)	Professional degree in process*	0.06	1.30
Additional Master's in process ($n = 6$)	No other educational level	0.28	1.27
Doctorate in process ($n = 9$)	Additional Master's*	0.71	1.82
Professional degree in process ($n = 3$)	No additional education* Additional Master's* Professional degree* Doctorate*	1.44	2.72

* $p < .05$

identity transformation differently across additional degree levels.

Based on librarians' reported education in addition to an MLIS, I observed differences in the role that motivating leaders ($F [6, 344] = 2.214, p = .041$), writing and technology-rich teaching ($F [6, 344] = 4.219, p < .001$), and library-centric input ($F [6, 344] = 4.184, p = .005$) played in their perspective transformation around teaching identities. Tables 1 to 3 illustrate the differences observed for these three components. The first column lists participants' education levels; in the second column, the groups where differences occurred are presented, along with the appropriate p values. The third column presents the means (represented as Z-scores) organized in

ascending order, and the fourth column contains standard deviations.

In the case of motivating leaders, those librarians pursuing doctorate and professional degrees were more likely to cite this construct as a component in their teaching identity transformation 0.71 and 1.44 standard deviations *above* the mean, respectively (see Table 1). In contrast, those respondents with professional, additional Master's, and doctorate degrees cited motivating supervisors 0.34, 0.20, and 0.19 standard deviations *below* the mean, respectively. These data suggest that those participants with additional graduate degrees did not believe that motivation from supervisors had influenced their perspective transformation around their teaching identities, while those

Table 2

Impact of the Writing and Technology-Rich Teaching Construct on Teaching Identity Transformation for Academic Librarians with Education beyond an MLIS

Additional Education	Significantly Different from:	Mean as a Z-score	Standard Deviation
Professional degree ($n = 8$)	Professional degree in process* Doctorate in process*	-0.24	0.87
No additional degree ($n = 195$)	Professional degree in process* Doctorate in process**	-0.01	1.03
Additional Master's in process ($n = 6$)	Professional degree in process* Doctorate in process*	-0.01	1.03
Additional Master's ($n = 106$)	Professional degree in process* Doctorate in process**	0.16	1.16
Doctorate ($n = 14$)	Doctorate in process*	0.26	1.42
Professional degree in process ($n = 3$)	No additional education* Additional Master's in process* Additional Master's* Professional degree*	1.61	2.01
Doctorate in process ($n = 9$)	Additional Master's in process* Additional Master's** Professional degree* Doctorate*	1.62	1.78

* $p < .05$

** $p < .001$

with degrees in process may have held different perceptions.

Similarly, those respondents pursuing professional or doctorate degrees were more likely to indicate that writing and technology-rich teaching had influenced their transformation around their teaching identities (see Table 2). These individuals cited the influence of writing and technology-rich teaching in their teaching identity development processes 1.61 (professional degree in process) and 1.62 (doctorate in process) standard deviations *above* the mean. These results suggest that these groups of academic librarians may be more likely to report having experienced teaching-related perspective transformation because of writing and technology-rich teaching than their colleagues with different educational backgrounds.

Those individuals who held professional degrees or were earning doctorates were more likely to report having experienced a shift in their perspectives based on library-centric input rather than external feedback (see Table 3). Individuals with these degrees reported that this construct had influenced their teaching identity development 1.12 and 1.33 standard deviations above the mean, respectively. Interestingly, though, respondents with doctorates were less likely—0.32 standard deviations below the mean—to cite library-centric input as having played a role in their perspective transformation. These data suggest there are differences in how library-centric feedback impacts librarians' teaching identity development across educational backgrounds.

Table 3

Impact of the Library-Centric Input Construct on Teaching Identity Transformation for Academic Librarians with Education beyond an MLIS

Additional Education	Statistically Different from:	Mean as a Z-score	Standard Deviation
Doctorate ($n = 14$)	Professional degree* Doctorate in process*	-0.32	0.96
Professional degree in process ($n = 3$)	No other educational level	-0.22	0.43
Additional Master's ($n = 106$)	Professional degree* Doctorate in process*	-0.09	1.02
Additional Master's in process ($n = 16$)	Professional degree* Doctorate in process*	0.03	1.01
No additional degree ($n = 195$)	Professional degree* Doctorate in process*	0.15	1.19
Professional degree ($n = 8$)	No additional education* Additional Master's in process* Additional Master's* Doctorate*	1.12	1.76
Doctorate in process ($n = 9$)	Additional Master's in process** Additional Master's** Doctorate*	1.33	1.77

* $p < .05$

** $p < .001$

Discussion

When viewed through the transformative learning theoretical framework as well as existing literature on academic librarians' educational experiences, these results suggest several relevant, practical takeaways. While elsewhere I have established that academic librarians believe they experience perspective transformation around their teaching identities (Nichols Hess, 2018), these data suggest how education-related inputs differently impact academic librarians' experiences in forming teaching identities. Furthermore, they build on other teaching identity-related research to better understand how academic librarians develop this facet of their self-concept (Julien & Genuis, 2011; Shamchuk, 2015; Walter, 2006, 2008). These findings also reinforce Mezirow's (1994, 1997, 2000) assertion that external experiences,

relationships, and environments affect individuals' self-concepts in different ways. While this study's conclusions are exploratory and suggestive, the statistically significant differences present ideas for individual librarians and library leaders to consider for ongoing teaching identity development.

There were several areas where academic librarians' educational experiences influenced the transformative constructs important to their teaching identities. For example, the author's data analysis suggested that those with education beyond an MLIS experienced shifts in their thinking about their teaching in different ways from their peers who held the terminal degree. Individuals who pursued professional or doctorate degrees indicated that transformation around their teaching identities had been influenced more by motivating

leaders. Perhaps this top-down motivation for instructional identity development came from supervisors' beliefs that these academic librarians were instructional leaders or their desire to see these individuals act as pedagogical champions. Academic librarians' professional or doctoral education, then, may have outwardly manifested their developing teaching identities to those in leadership roles in different ways.

In addition to leadership's top-down influence in shaping their teaching identities, those academic librarians with doctorates indicated that library-based feedback was less influential in their transformative experiences than many of their peers. This kind of feedback included comments from other librarians—both at and outside of their institutions—and from library school faculty. This demographic group was relatively small, but they may have also interacted with both colleagues and faculty outside of librarianship in different ways. As such, it makes sense that those instructional librarians with doctorate-level education would find instructional communities outside of the library, including with disciplinary faculty, to be useful in developing their teaching identities.

Moreover, several groups of librarians with education beyond an MLIS, including those with doctorates and additional Master's degrees, indicated that writing and technology-rich teaching had positive impacts on their teaching-related perspective transformations. Librarians with these educational backgrounds may find it useful to pursue these kinds of experiences more intentionally as they seek to further hone their instructional identities. For instance, academic librarians may find it instructive to embed in online or hybrid courses more intentionally. There are myriad ways to make such connections, including being embedded in a learning management system, offering synchronous online instructional support, and developing freestanding e-learning modules. Librarians with doctorates or additional Master's degrees may find these experiences

help them consider their teaching identities in new ways. Also, librarians with experience with data collection and analysis in Master's or doctoral programs should seek opportunities to apply these experiences to writing about their instructional practices. Such additions to information literacy-centric scholarship would deepen the field's research corpus, could inspire other academic librarians to develop their teaching identities, and may engage those librarians with additional Master's or doctorates in more fully considering their educational expertise.

Similarly, library leaders may also want to investigate how they can provide these kinds of opportunities to their academic librarians with additional degrees. At a broader level, though, it may be worth considering whether these academic librarians feel more equipped or have more frequent opportunities to engage in writing and technology-rich teaching. If so, academic librarians may find it useful to consider what experiences from these kinds of degree-granting programs could benefit individuals in MLIS programs or on-the-job learning experiences.

Limitations

While this research identified statistically significant differences in academic librarians' education, work experiences, and transformative inputs in developing teaching identities, there are several important limitations to consider. This research is suggestive only; it does not present, or attempt to present, any causal relationships. Moreover, the size of these groups may have impacted the effect size. And it is important to consider when individuals earned any additional graduate training. The timing of additional degrees (e.g., before or after an MLIS, earned well before working as an academic librarian) may influence individuals' experiences. However, this version of the LAS did not ask participants for such information. Future research that can mitigate these

constraints would help to better contextualize the author's findings in this study.

Implications for Instructional Practice

There are several practical takeaways for academic librarians and library leaders who support teaching identity development. Individuals' responses to this survey highlighted that librarians with different academic backgrounds may find different supports beneficial for perspective transformation around teaching. Since instruction librarians have a variety of educational backgrounds—including additional Master's degrees, professional degrees, and doctorates—it is useful for the profession to acknowledge that learning, development, and motivation experiences impact academic librarians in different ways. Acknowledging these differences is the first step to providing the appropriate support for academic librarians' teaching identity development, and it can help librarians, supervisors, and library administrators to develop personalized or focused plans for individuals' professional development. For example, those with advanced education may find supervisor-based mentorship useful, either within the library or at their institution more broadly. These librarians may also find it helpful to pursue supportive interpersonal relationships outside of librarianship, whether at their institutions (e.g., workshops at teaching and learning centers) or in other environments (e.g., teaching conferences, social media, teaching-focused electronic mailing lists). Conversely, those academic librarians who hold an MLIS may find it most beneficial to develop library-centric relationships, both within their own institutions and across the profession, that focus on teaching approaches, instructional practices, and education-centered reflection. These kinds of experiences may help these professionals to more intentionally develop their teaching identities.

More intentional research with those academic librarians who hold doctorates, work in instruction, and have experienced transformation around their teaching identities may be useful in this case. And more broadly, academic library administrators who work with librarians who hold education beyond an MLIS should investigate how they can support these individuals' perspective transformation around teaching. Doing so may benefit both those librarians' practices and the libraries' broader information literacy instruction programs.

Conclusion

In this study, I analyzed data from academic librarians who indicated they had experienced perspective transformation around their teaching identity to determine if there were relationships to individuals' educational backgrounds and transformative inputs. I used one-way ANOVA with 12 transformative constructs and cross-tab analysis with one categorical input to identify where differences existed between these demographic categories. The results show that there are some statistically significant differences between academic librarians' educational levels and the inputs they believe have influenced their perspective transformation processes.

Researchers can conduct additional, focused scholarship to determine how to best understand and act on these relationships. For example, survey research with librarians with additional Master's, professional, or doctorate degrees may help frame how they experience shifts in their thinking and practices around their instructional identities. Moreover, interviews with an intentional sampling of librarians from these groups may provide more in-depth insight into how librarians' educational backgrounds influence the effects of different transformative inputs on their senses of themselves as educators. These kinds of follow-up studies may help us to both better understand different academic librarians' instruction-driven perspective transformation

experiences and provide opportunities that promote such shifts in thinking.

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Appendix A

Survey Instrument

1. Do you agree to participate in this study?

- Yes, I agree to participate in this study.
- No, I do not agree to participate in this study.

2. Is information literacy instruction part of your current work responsibilities?

- Yes
- No

3. Gender

- Prefer not to say
- Male
- Female

4. Ethnicity

- White / Caucasian
- Hispanic or Latinx
- Black or African American
- Native American or American Indian
- Asian / Pacific Islander
- Other
- Multiracial
- Prefer not to answer

5. Age group

- Under 25
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or over

6. What is the highest level of education you have completed?

- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree
- Other

7. Have you completed a graduate degree **in addition to** a Master's degree in library/information science?

- No
- No, but I am in the process of completing an additional Master's degree
- No, but I am in the process of completing a professional degree
- No, but I am in the process of completing a doctoral degree
- Yes, I have an additional Master's degree

- Yes, I have a professional degree
- Yes, I have a doctoral degree
- Other

8. When did you graduate from library school?

- I did not attend library school
- I am currently in library school
- Within the last year
- 1-3 years ago
- 4-6 years ago
- 7-9 years ago
- 10+ years ago

9. At what kind of institution do you work?

- I am not currently employed
- Community or junior college
- Four-year college
- Master's-granting university
- Doctoral/research university
- Other

10. How long have you worked at your current institution?

- Less than one year
- 1-3 years
- 4-6 years
- 7-9 years
- 10+ years

11. How long has instruction been a part of your work responsibilities?

- Less than one year
- 1-3 years
- 4-6 years
- 7-9 years
- 10+ years

12. What kinds of instruction are part of your work responsibilities? Select all that apply.

- Face-to-face instruction
- Online instruction
- Blended / hybrid instruction

13. On average, how frequently do you engage in classroom instruction?

Once a year

- 1-3 times a semester
- 4-6 times a semester
- 7-9 times a semester
- 10+ times a semester

14. Think about your professional experiences in teaching—check off any of the following statements that apply.

- I had an experience that caused me to question the way I normally teach.
- I had an experience that caused me to question my ideas about professional roles (Examples of professional roles include the kinds of instructional responsibilities an academic librarian should take on.)
- As I questioned my ideas, I realized I no longer agreed with my some or all of my previous beliefs or role expectations.
- As I questioned my ideas, I realized I still agreed with some or all of my beliefs or role expectations.
- I realized that other people also questioned their beliefs about their instructional roles or responsibilities.
- I thought about acting in a different way from my usual teaching beliefs and roles.
- I felt uncomfortable with professional expectations (for example, what my job responsibilities or work roles were) around teaching and instruction.
- I tried out new teaching roles so I would become more comfortable and confident in them.
- I tried to figure out a way to adopt these new ways of acting.
- I gathered the information I needed to adopt these new ways of acting.
- I began to think about the reactions and feedback from my new professional behavior.
- I took action and adopted these new ways of acting.
- I do not identify with any of the statements above.

15. Since you have been providing information literacy instruction, do you believe you experienced a time when you realized that your values, beliefs, opinions, or expectations (for example, how you viewed your work responsibilities or roles as an academic librarian) changed?

- Yes
- No
- I'm not sure

16. Describe what happened when you realized your values, beliefs, opinions, or expectations about your instructional responsibilities had changed.

17. Did any of the following individuals influence this change? Check all that apply.

- Interaction with a student or students
- Support from a colleague
- A challenge from a colleague
- Support from another librarian
- A challenge from another librarian
- Support from a subject area faculty member
- A challenge from a subject area faculty member
- Support from a mentor
- A challenge from a mentor
- Support from a supervisor
- A challenge from a supervisor
- Support from my library/institution's administration
- A challenge from my library/institution's administration
- Other: _____
- No individual influenced my experience of change

18. Did any specific learning experience or resource influence this change? If so, check all that apply.

- Taking a class or classes in library school
- Taking a class or classes in another graduate program
- Teaching in a face-to-face course
- Teaching in an online course
- Teaching in a blended/hybrid course
- Observing other academic librarians' instructional practices
- Receiving feedback from other academic librarians on your teaching practices
- Observing subject area faculty's instructional practices
- Receiving feedback from subject area faculty on your teaching practices
- Receiving feedback from students who participated in your instruction
- Completing a self-assessment of your teaching practices
- Writing about your teaching practices in a reflection journal or other personal format
- Writing about your teaching practices for publication
- Attending meetings, workshops, or trainings within your normal working environment
- Attending professional meetings, conferences, or workshops outside of your normal working environment
- Participating in online webinars or seminars
- Reviewing guidelines, standards, or other documents from professional organizations
- Reading scholarly literature on information literacy instruction
- Reading scholarly literature on the scholarship of teaching and learning
- Other _____
- No experience influenced the change I experienced

19. Did any significant professional event influence the change? If so, check all that apply.

- Completion of library graduate program
- Completion of other graduate program
- First professional job after graduate school
- Change of job
- Loss of job
- Change in job responsibility or duties
- Other _____
- No professional event influenced the change I experienced

20. Think back to when you first realized that your views or perspective had changed. What did your professional life have to do with the experience of change? [Free response]

21. Would you characterize yourself as someone who usually thinks back over previous decisions or past behavior?

- Yes
- No

22. Would you characterize yourself as someone who reflects upon the meaning of your professional experiences for your own purposes?

- Yes
- No

23. Which of the following factors have been a part of your instructional work as an academic librarian?
Please select all that apply.

- Interaction with a student or students
- Support from a colleague
- A challenge from a colleague
- Support from another librarian
- A challenge from another librarian
- Support from a subject area faculty member
- A challenge from a faculty member
- Support from a mentor
- A challenge from a mentor
- Support from a supervisor
- A challenge from a supervisor
- Taking a class or classes in library school
- Taking a class or classes in another graduate program
- Teaching a face-to-face class session
- Teaching or providing instruction for an online course
- Observing other academic librarians' instructional practices
- Receiving feedback from other academic librarians on your teaching practices
- Observing subject area faculty's instructional practices
- Receiving feedback from subject area faculty on your teaching practices
- Receiving feedback from students who participated in your instruction
- Completing a self-assessment of your teaching practices
- Writing about your teaching practices in a reflection journal or other personal format
- Writing about your teaching practices for publication
- Attending professional meetings, conferences, or workshops outside of your normal working environment
- Attending meetings, workshops, or trainings within your normal working environment
- Participating in online webinars or seminars
- Reviewing guidelines, standards, or other documents from professional organizations
- Reading the scholarly literature on information literacy instruction
- Reading the scholarly literature on the scholarship of teaching and learning
- Other _____
- None of these have been factors of my instructional work as a librarian

Complete this survey

Thank you for completing this survey! Would you be willing to participate in a virtual follow-up interview? If so, please include your first and last name as well as an email address where you can be reached during the summer months.

Name _____

Email address _____

Individuals who qualify to participate in the follow-up interviews will be selected at random.

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King (1997, 2009) retains the copyright to the original Learning Activities Survey.