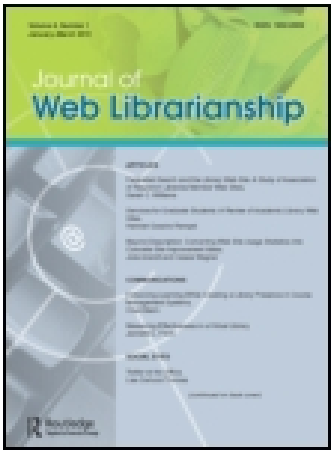

Journal of Web Librarianship
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/wjwl20

Exploring Library Discovery Positions: Are They Emerging or Converging?

Nadine P. Ellero[a]
[a] Ralph Brown Draughon Library, Auburn University, Auburn, Alabama, USA
Published online: 10 Oct 2014.

To cite this article: Nadine P. Ellero (2014) Exploring Library Discovery Positions: Are They Emerging or Converging?, Journal of Web Librarianship, 8:4, 331-348, DOI: 10.1080/19322909.2014.963778

To link to this article: http://dx.doi.org/10.1080/19322909.2014.963778

Journal of Web Librarianship, 8:331–348, 2014
Published with license by Taylor & Francis
ISSN: 1932-2909 print / 1932-2917 online
DOI: 10.1080/19322909.2014.963778

ARTICLES

Exploring Library Discovery Positions: Are They Emerging or Converging?

NADINE P. ELLERO
Ralph Brown Draughon Library, Auburn University, Auburn, Alabama, USA

Web-scale discovery service systems and platforms are continuing to evolve and become more commonly adopted in academic libraries. Functioning as more than next-generation catalogs due to their volume and associated Web services, they invite strategic inquiry and launch libraries into deeper questioning and continuous critical thinking concerning discovery system best practices. This article explores emerging library discovery positions and discovery requirements gleaned through position postings from Autocat, Code4Lib, ERIL-L, and NGC4Lib listserv e-mails, from February 2012 through July 2014, along with a 2013 scan of Association of Research Library (ARL) staff directories' Web sites. As seen through the lens of recent discovery position postings and names of discovery positions at ARL libraries, staffing solutions suggest strategic oversight and deep understanding of discovery systems, metadata, and users. This study of 36 discovery positions reveals directors or managers as comprising the highest number with ten (28 percent), systems with eight (22 percent), cataloging and metadata with seven (19 percent), acquisitions or electronic resources with five (14 percent), user experiences with three (8 percent), access services with two (6 percent), and general technical services with one (3 percent). These emerging discovery positions traverse both traditional technical and public services functions, with the majority, 26 (72 percent), from large research-level institutions.

Received 2 April 2014; accepted 5 September 2014.
Address correspondence to Nadine P. Ellero, Ralph Brown Draughon Library, Auburn University, 231 Mell St., Auburn, AL 36849-5606. E-mail: npe0003@auburn.edu

KEYWORDS Web-scale discovery services, workforce planning, staffing, personnel, job descriptions, position descriptions

INTRODUCTION

Web-scale discovery service (WSDS) systems, platforms, and tools are continuing to evolve and become more commonly adopted in academic libraries.[1] They offer fast and easy searching, and access to information resources within a unified search environment encompassing nearly all information resources owned and licensed by libraries in addition to resources that are free on the open Web. These WSDS systems function as more than next-generation catalogs as they expand to incorporate a variety and volume of information resource formats, content sources, and associated services. They invite strategic inquiry and launch libraries into deeper questioning for the direction of all system components in addition to considering what resources to include in the central index (Breeding 2014, 25; Breitbach 2012, 641, 643; Kornblau, Strudwick, and Miller 2012, 157–8; Milberg 2012, 269–70; Somerville 2013a, 236; Webster 2012, 651–4).

Reflecting upon WSDS systems' size, significant monetary costs, and resulting impact on library staff and users, this author seeks to investigate how libraries implementing WSDS systems are coping and strategizing with respect to the personnel involved in implementing, maintaining, and improving discovery tools and services. One aim of this exploration is to discover how staffing is affected with respect to those working with systems, electronic resources, and metadata. Looking at digital librarian positions, Youngok Choi and Edie Rasmussen (2009, 466) noted that "for the seamless extension and integration of the digital library with traditional systems, activities and the practice in digital libraries require the support and collaboration of all library professionals." The same can be said for WSDS implementation and maintenance. Leading this investigation are the following questions:

- Is there a distinctive discovery reference appearing in academic library positions or departments; if so, how significant or distinctive?
- What are the common desired duties and attributes?
- What are the common desired skills and experiences?

This investigation aims to answer these questions through observations of emerging discovery positions and department titles distilled from a collection of library discovery positions. Examining this collection, the author elicits common job duties, attributes, skills, and experience. Libraries continue to operate with increasing economic and digital challenges, change, and complexity. This context requires the effective stewardship of human and machine systems along with their corresponding workflows. The

author hopes that the results of this examination may illuminate key needs and work surrounding discovery system implementation and maintenance. These needs may aid in the design of discovery positions, departments, and teams, enabling libraries and librarians to navigate the discovery system age and provide optimal user experiences.

LITERATURE REVIEW

The current literature with respect to WSDS systems minimally addresses the needs, features, or types of positions required to manage a WSDS. Moreover, there are no key elements suggested to aid in discovery services staffing. The emergence of Web-scale discovery in 2007 provides the timeframe for this literature review covering 2007 through much of 2014. Both dedicated discovery positions as well as newly formed teams are briefly mentioned in the current literature but with little in-depth discussion. Hillary A. H. Richardson (2013), examining the literature from 2007 through the fall of 2012, noted that WSDS systems impact all areas of library service (15).

The systems, catalogs, and knowledge bases that libraries employ to enable users to discover and access information resources require thoughtful integration and are requiring positions to be increasingly more collaborative and multifaceted. Writing just before the introduction of WSDS systems, Lihong Zhu (2008) analyzed job advertisements for heads of cataloging positions and found descriptions expanding into other functional domains, such as systems and public services (69). While studying the evolving role of the metadata librarian, Myung-Ja Han and Patricia Hswe (2010) also noted the collaborative and cross-departmental features of emerging metadata positions (133, 137). In a more recent study of ARL cataloger librarian roles, Jeanne M. K. Boydston and Joan M. Leysen (2014) remarked on the vital need for collaboration (230). Heather Getsay and Catherine Rudowsky (2013), studying serials librarian positions, noticed changes in serial librarian position names as workflows for electronic resources involve multitasking and blurring of duties and responsibilities. They attributed this blurring to the rise and rapidly growing volume of electronic resources (375, 386–7). Looking at integrated library systems and the new cloud-based library services (e.g., Ex Libris' Alma, OCLC's WorldShare Management Service, and Innovative Interfaces' Sierra), and staffing in academic libraries, Ping Fu and Moira Fitzgerald (2013) also observed a blurring of boundaries and a potential increase in streamlining workflows and dramatically rethinking organizational structures and staffing (56–7). These studies are highlighted to show preceding shifts in library organizational structures brought about by the nature and volumes of digital information resources, which are now potentially more prevalent as libraries respond more quickly to users' needs for seamless access to these resources. Manifestations such as cross collaboration and

blurring of duties are signs of deeper and potentially more permanent ways of organizing, structuring positions, and crafting more effective workflows.

Turning to WSDS literature and organizational impact, Meris A. Mandernach and Jody Condit Fagan (2012) addressed the use of current staff. They suggested that any reformulated positions be treated like new positions (427) and that a project manager be appointed to foster communication, track accomplishments, assign tasks, and document problems for interactions with vendors (428). The project manager is a key position for discovery systems management, especially during the implementation phase.

Mary M. Somerville (2013b) described organizational restructuring at the Auraria Library (University of Colorado-Denver) and encouraged cross-functional collaboration and the formation of new teams centered on e-resource and discovery service lifecycle workflows. In her library, individual empowerment and leadership is fostered at all levels, especially with critical and strategic thinking (23–6). This distribution of leadership facilitates the commitment for conducting ongoing usability studies and refining their WSDS (Somerville 2013b, 25). Virginia Bacon and Ginny Boyer (2013) discussed the implementation of Summon at East Carolina University (ECU). Addressing multiple technical considerations, they chose to create a separate and permanent discovery position, "complete with dedicated staff to support the highly technical needs of application development and support. The Discovery Services Librarian now chairs the committee and is responsible for leading discovery efforts for ECU libraries and providing a seamless discovery experience to the ECU community" (28).

Considering WSDS implementation and maintenance by library consortia, the Bridge Consortium of Carleton and St. Olaf Colleges in Minnesota formed a permanent Virtual Experience Team to oversee implementation, maintenance, and development. This team is comprised of three reference and instruction librarians, two technical services librarians, one systems and Web services librarian, and one archives and technology librarian (Leebaw et al. 2013, 173, 185). For user testing, they formed a special task force representing staff from each college. They did not specify the particular staff positions assigned to this special task force. However, they did assert that "improving discovery is an ongoing project" (181). Representing a larger consortium in North Carolina is the NC-PALS (North Carolina-Piedmont Automated Library System) Consortium, which includes Bennett College, Greensboro College, Guilford College, and Salem College and Academy. They discussed their implementation of the Primo discovery service, which also utilized a team approach with representatives from each library. This team was comprised of three library directors, two reference and instruction librarians, one technical services librarian, and one consortial systems librarian (Mortimore et al. 2012, 353). Their experience was complicated by simultaneously implementing a new link resolver and a new cloud-based catalog without adequate documentation for integration with Primo (360). In

summary, they concluded that "implementing a discovery service has proved to entail a major investment in human resources that likely will continue for the foreseeable future. In this quickly evolving marketplace where the interoperability of products and integration of vendor resources are still on very shaky ground, this is not for the faint of heart" (363). By nature and necessity, libraries working in consortial arrangements seem to favor a team approach as teams and task forces offer variety and flexibility.

Jackie Wrosch and colleagues from Eastern Michigan University (2012, 368–9) and Shaundra Walker and Iyanna L. Sims from Fort Valley State University in Georgia and North Carolina A&T State University (2012, 316) described the experience of medium- and large-sized libraries. They also utilized teams for implementation and development. Wrosch and colleagues (2012) appointed the electronic resources and serials librarian as the project manager for their Summon implementation, which was originally financed with one-time funds and included measures to monitor their investment for continuation (383).[2] Amy I. Kornblau and colleagues (2012) employed an implementation team for Summon at Florida Atlantic University Libraries for their initial setup and appointed the "electronic resources librarian to maintain the Serials Solutions environment, communicate with the Technical Services Department regarding the addition of electronic resources to the catalog and changes to the MARC mapping, and work with the Reference and Instructional Services Department regarding interface and access updates" (154–5).

The literature review clearly reveals that WSDS implementation and maintenance imposes a significant impact on staffing. Some libraries favor a team approach for continual review and development, while others employ a single dedicated discovery position functioning as a project manager or person responsible for the oversight or collaboration of key persons or departments. Kornblau and colleagues (2012) presented questions to consider when embarking on a WSDS plan. With respect to staffing, they suggested organizing staff around workflows that best manage access to information resources that are largely electronic. They pointed out that this reorganization may break down previously established departmental or unit divisions (156).

METHODS

This exploration of library discovery positions and departments uses a content analysis of job descriptions to determine the impact WSDS implementation and maintenance have on actual library positions. Data were collected from library discovery job advertisements and discovery position names and department titles found in ARL staff directory Web sites. The rationale for choosing these two collection methods was to obtain a snapshot of both the

desired and actual discovery positions supported by academic libraries. In order to determine if academic libraries are employing dedicated discovery positions or departments, the author searched ARL Web site staff directories for the presence of discovery positions or departments. The appearance of a named *discovery* department suggests a potential need or best practice for instituting a permanent team structure. The selection criterion used for both the job advertisements and the ARL staff directories' Web sites scan was the presence of the word *discovery* in the position name or department title. Only full-time permanent positions were collected, and this designation was assumed as the default, unless otherwise indicated. Among the exclusions were two Canadian institutions, whose Web sites were only in French (the author lacked sufficient French translation skills), and four duplicate position postings. Job advertisements from Autocat, Code4Lib, ERIL-L, and NGC4Lib e-mails were collected from February 2012 through July 2014. Complete or fuller job descriptions were retrieved from provided links in the advertisements and copied into and saved with the original listserv e-mail announcement. The scan of ARL staff directories' Web sites was conducted from September 2013 through November 2013.

A Microsoft Excel spreadsheet was created to capture the source (listserv or scan), dates, position names, department titles, institution names, location, ARL status, Web-scale discovery system, job description, job skills or experience, and Carnegie Classification of Institutions of Higher Education. The position names were analyzed and categorized according to primary job function or library service to elicit specific areas of impact. They are listed below:

- Access Services,
- Acquisitions or Electronic Resources,
- Cataloging or Metadata,
- Director or Manager,
- General Technical Services,
- Systems,
- User Services.

RESULTS

A total of 36 job positions related to WSDS were obtained with 23 from position postings and 13 from the ARL staff directories' Web sites scan. Of these 36, 29 (81 percent) have a WSDS as determined by the job advertisements or author searches of the library Web sites. ARL institutions in this study totaled nineteen (15 percent) of the total ARL membership ($n = 125$). Table 1 divides the institutions by ARL affiliation and location of the *discovery* term; position names only, department titles only, or both position names and department

TABLE 1 Discovery Term Distribution in Position Postings and ARL Web Site Scans* (Positions and Departments) by ARL Affiliation and Geographic Regions**

Discovery in name of . . .	ARL libraries All in U.S. are Research Universities/Very High and Large by Carnegie Classification	Non-ARL libraries [Carnegie Basic Classification, Size]
Positions only (25)	Northeast (6) Cornell University (Ithaca) *New York University (New York) [*2 different positions*] Penn State (State College) *University of Massachusetts (Amherst) Yale University Midwest (1) Ohio State University Libraries (Columbus) West (1) *University of Washington (Seattle) Canada-Central (2) *University of Guelph (Ontario) *University of Waterloo (Ontario) Canada-Prairie (1) *University of Alberta (Alberta)	Northeast (4) Drexel University (Philadelphia): Research University/High, Large Duquesne University (Pittsburgh): Research University/High, Medium Hampshire College (Amherst): Baccalaureate/Arts & Sciences, Small Montgomery College (Rockville): Associate's/Public Suburban, Very Large Midwest (2) Argonne National Laboratory (Argonne) *[Carnegie Classification not applicable]* Marquette University (Milwaukee): Doctoral/Research, Large South (5) University of Maryland (Baltimore County): Research University/High, Large East Carolina University (Greenville, North Carolina): Doctoral/Research, Large University of Houston (Clear Lake): Master's Large, Medium Florida Gulf Coast University (Fort Meyers): Master's Large, Medium Furman University (Greenville, South Carolina): Baccalaureate/Arts & Sciences, Small West (3) Montana State University Library (Bozeman): Research University/Very High, Large Nevada State College (Henderson): Baccalaureate, Small University of Colorado (Denver): Research University/High, Large

(Continued on next page)

TABLE 1 Discovery Term Distribution in Position Postings and ARL Web Site Scans* (Positions and Departments) by ARL Affiliation and Geographic Regions** *(Continued)*

Discovery in name of . . .	ARL libraries All in U.S. are Research Universities/Very High and Large by Carnegie Classification	Non-ARL libraries [Carnegie Basic Classification, Size]
Departments only (5)	Northeast (1) *Massachusetts Institute of Technology Libraries (Boston) Midwest (1) *University of Michigan Library (Ann Arbor) South (1) *University of Tennessee (Knoxville) West (1) *University of Utah Library (Salt Lake City)	South (1) University of North Florida (Jacksonville): Master's Large, Large
Position & Department (11)	Midwest (3) Indiana University Libraries (Bloomington) *University of Notre Dame (South Bend) *Wayne State University (Detroit) South (4) *North Carolina State University Libraries (Raleigh) *Smithsonian Institution Libraries (Washington, District of Columbia) *[Carnegie classification not applicable]* *University of Houston Libraries (Houston) University of Maryland (College Park) West (1) University of New Mexico (Albuquerque) Canada-Central (1) *Queen's University Library (Ontario)	Northeast (1) Smith College (Northampton): Baccalaureate/Arts & Sciences, Medium Canada-Prairie (1) MacEwan University (Alberta): Baccalaureate/Arts & Sciences, Medium (Author designation, not listed in Carnegie)

*Found from Web site scan.

**Sources used to determine U.S. regions: http://www.census.gov/geo/maps-data/maps/pdfs/reference/us_regdiv.pdf and Canadian Regions: http://www.thecanadapage.org/Regions.htm.

***n* = 41** *(positions only, departments only, positions and departments)*

***n* = 36** *(positions only and positions and departments)*

***n* = 23** *(posted positions)*

titles. Within each of the six blocks, the institutions are further divided by geographic regions to provide additional context. An asterisk indicates that the position or department was found via a Web site scan. ARL libraries have

TABLE 2 Distribution of Discovery Position Postings and ARL Web Site Scans by Primary Position Function or Service, $n = 36$*

Primary function or service	Totals
Director or manager	10
Systems	8
Cataloging or metadata	7
Acquisitions or electronic resources	5
User experiences	3
Access services	2
General technical services	1

*This total represents only positions and does not include the five institutions with discovery named in department titles only.

eleven positions, and non-ARL libraries have fourteen positions with discovery in the position name only. Five institutions were found with discovery in the department title only, four from ARL libraries and one from a non-ARL library.

When examining positions with respect to library size, 26 of 36 (72 percent) are from large research institutions according to Carnegie classification, potentially indicating a greater need for a dedicated position due to collection size or financial resources. Six (35 percent) of the non-ARL-affiliated libraries are from large research-level universities, and the remaining 65 percent are from medium research (1), masters (3), and associate/baccalaureate (6) institutions. Furthermore, when looking at the term *discovery* in the position name only, department title only, or in both the position name and the department title, the ARL-affiliated libraries have more than twice the number of the non-ARL-affiliated libraries. Focusing on the 41 discovery positions and departments, the data show a higher number of instances with *discovery* in a position name, a total of 36 of 41 (88 percent). Geographically, there are 36 (88 percent) discovery positions and departments in the United States and five (12 percent) in Canada, which follows the geographic distribution of the ARL membership. The regional distribution between ARL and non-ARL libraries is similar.

Table 2 illustrates the 36 discovery positions, both the independent and those established in discovery departments, by primary job function or service area. This categorization demonstrates "who" or what library service is impacted by the addition of a discovery service. Directors or managers comprise the highest number with ten (28 percent), systems with eight (22 percent), cataloging and metadata with seven (19 percent), acquisitions or electronic resources with five (14 percent), user experiences with three (8 percent), access services with two (6 percent), and general technical services with one (3 percent).

The following two lists delineate the position names and department titles found in this dataset. Of significance is the blending or multifaceted roles exhibited in these discovery position names and department titles. This distribution of job duties across a spectrum of library functions and services is not surprising as discovery services involve complex processes from technical services to public services, as observed by Kornblau and colleagues (2012). No discernible pattern from the data can explain the placement of the discovery position in one functional area as opposed to another, but this question is ripe for further investigation.

Position Names with "Discovery"

- Associate Dean for Technical, Discovery, and Digital Services
- Assistant Director for Discovery Services
- Associate University Librarian, Digital & Discovery Services
- Catalog/Discovery Librarian
- Collection Management, Discovery Services Associate Director
- Coordinator of Acquisition and Discovery Services
- Director of Discovery & Access
- Discovery and Digital Access Librarian
- Discovery and Digital Resources Librarian
- Discovery and Integrated Systems Coordinator
- Discovery Librarian
- Discovery Metadata Librarian (2)
- Discovery Services Librarian (2)
- Discovery Systems Librarian
- Discovery Systems Manager
- Discovery Systems Technology Specialist
- Discovery User Experience Librarian
- E-Resources & Discovery Services Librarian
- Electronic Resources & Discovery Services Librarian
- Electronic Resources and Discovery Librarian
- Electronic Resources Metadata and Discovery Librarian
- Head, Acquisitions & Discovery
- Head, Discovery and Technology Services
- Head, Metadata Resources, Management and Discovery
- Manager, Discovery Systems
- Metadata and Discovery Librarian
- Metadata and Discovery Services Librarian
- Program Director, Resource Acquisitions and Discovery
- User Experience & Discovery Librarian

TABLE 3 Posted Discovery Positions: Duties and Attributes, $n = 23$

Duties and attributes	Frequency in postings (Number of unique postings)
Manage, analyze, map metadata	67 (13)
Foster user experience	55 (13)
Collaborate across library departments, university departments, with vendors, users, etc.	35 (17)
Develop workflows and procedures	24 (15) *workflows 15 (9); procedures 9 (6)*
Develop, implement, extend strategies for discovery	21 (13)
Participate in and /or coordinate planning	21 (12)
Participate in a team	21 (12)
Evaluate discovery solutions	16 (13)
Participate in and/or coordinate assessment	12 (10)

Department Names with "Discovery"

- Access and Discovery Unit
- Acquisitions & Discovery
- Collection Management and Discovery Services
- Discovery & Access
- Discovery and Research Services
- Discovery and Technical Services
- Discovery and Technology Services Division
- Discovery and Web Development
- Discovery, Access and Consortial Services
- Discovery Enhancement
- Discovery Services
- Information Technology and Discovery Services
- Learning & Teaching: User Information & Discovery Services
- Metadata Resources Management and Discovery
- Resource Acquisitions and Discovery
- Resource Discovery Systems

The commonly occurring position duties and attributes from the 23 posted positions are listed in Table 3. *Managing and analyzing metadata* tops this list, which is not surprising as many and diverse metadata types flow through these systems and support several areas of library operations

TABLE 4 Posted Discovery Positions: Skills and Experience, $n = 23$

Job skills and experience	Frequency in postings (Number of unique postings)
Discovery systems	38 (18)
Metadata	25 (13)
Standards	22 (15)
Service orientation	20 (14)
Collaboration	16 (14)
Teamwork	15 (12)
Complex environments, information, projects, workflow	11 (8)
Adaptable to change	10 (7)
User centered	10 (6)
Web standards, protocols, applications	10 (9)
Leadership	9 (6)
Best practices in technical services	5 (4)

and end user discovery. In a cloud-based, service-oriented environment, metadata are needed to intelligently and functionally support many discovery processes from acquiring information resources, aiding searches, and providing access. Providing effective access in the form of *fostering user experience* was found 55 times in thirteen discovery positions and suggests deeper blending or more bridging between technical and public services. Likewise, *collaboration* with 35 occurrences in seventeen discovery positions also points to a stronger tie between technical and public services. The digital context and information economy as stated earlier requires effective stewardship of human and machine systems along with their corresponding workflows.

Table 4 displays the commonly occurring skills or experiences desired in the 23 posted positions. It is self-evident that *experience with discovery systems* is highly desirable and is positioned at the top of this list with 38 occurrences in eighteen positions. *Metadata and standards* follow discovery system experience with 25 and 22 occurrences in thirteen and fifteen positions respectively. It is commonly known that all systems, human and machine, work best with clear, complete, consistent, and accurate communication of information to execute a task or series of tasks. Myung-Ja Han (2012), for example, outlined the problems and needs that arise with library MARC metadata and discovery, as she addressed discovery services and bibliographic control challenges with "heterogeneous collections," different metadata standards, multiple controlled vocabularies, and incomplete and inconsistent records, to name a few. Systems, metadata, and standards underlie several core technical services operations. As with discovery position duties and attributes, *collaboration* is an essential skill with sixteen occurrences

in fourteen positions. Collaboration, as an expressed skill, points to the blending needed between technical and public services and the implementation and maintenance of a WSDS that provides effective and optimal user experiences.

DISCUSSION

In March 2014, Marshall Breeding's Library Technology Guides revealed 103 out of 125 ARL-affiliated libraries (82 percent) have a WSDS; by late July 2014, there were 114 (91 percent) with a WSDS. In the span of four months, eleven more institutions adopted a WSDS with undoubtedly more to follow. This investigation found a total of fifteen (12 percent) of ARL-affiliated libraries with a WSDS and a named discovery position. While this study's number seems low, the actual number may be much higher. For example, the author of this study received an e-mail on June 16, 2014 addressing a question on the Code4Lib listserv and observed the respondent's position name as "Metadata and Discovery Services Librarian" at a Midwest ARL library. Yet, the data originally collected did not reveal this particular named discovery librarian position at that library, only the Collection Management, Discovery Services Associate Director. In re-examining the library's staff directory on June 16, 2014, the person's named position was listed as "Librarian." Therefore, it can be safe to assume that staff directories may not indicate the specific position name or may not be up to date.

Despite the small yield and limited scope of this collection of discovery positions, the results reveal that the term *discovery* is more frequently found in the name of a job position rather than in the library department title. The plurality of discovery job positions residing at the level of director or manager may indicate a need for centralized oversight and decision-making for certain aspects of a WSDS. Some institutions favor oversight in the acquisitions or electronic resources area and others in the realm of metadata. Courtney Greene (2012) recalled in her WSDS implementation experience that many changes in direction were taken due to both product and local changes (501). Given the fluidity and rapid change inherent in these systems and the digital information economy, oversight and effective decision-making are critical and require continual re-examination and attention.

The job duty occurring most frequently over all the posted 23 positions, with an occurrence of 67 times in eighteen positions, is the management of metadata. As previously stated, this is not surprising and will most likely continue to escalate in importance as metadata flow in larger groups of aggregation and increasing granularity from an ever growing variety of sources (Naun 2010, 333). Depending on the direction(s) that library and information resource data take and the degree to which this data evolve within the very fibers of the Web, e.g., through the use of linked data (Dempsey 2012,

205; Somerville and Conrad 2014, 6–7, 16), the greater the necessity may be to dramatically alter library positions, departments, and associated workflows. Library services and positions may become even more integrated to enable dynamic decision-making aimed at optimizing search and discovery functions and addressing user needs.

Educational institutions exist to serve the educational and research needs of their stakeholders, and so it is not surprising that near the top of necessary job duties and attributes are those *fostering the user experience*. As seen in Table 3, *fostering user experiences* occurs 55 times in thirteen of the 23 posted positions. In order to make sure these systems operate effectively for the end user, technical and public services must engage in continual feedback. The nature of information resources as dynamic and changing furthers this engagement and is supported by the occurrence of *collaboration* in position duties 35 times in seventeen positions and sixteen times in fourteen positions with respect to position skills. This also is not surprising as WSDS involves every facet of library services, especially the cloud-based service platforms that promise to streamline disparate workflows even further for technical services operations (Branch 2012, 328). Communicative and collaborative trends both internally and externally in academic libraries, observed by Beverly P. Lynch and Kimberley Robles Smith (2001) in the early twenty-first century (418), seem to be becoming even more important in a WSDS environment. WSDS implementation and maintenance may promote further the maturing and deepening of communication and collaborative work processes and partnerships.

As the need for collaboration deepens, a resulting response of developing workflows and creating documentation for vetted procedures is a logical conclusion for position responsibilities. In the 23 posted positions examined, developing workflows was cited fifteen times within nine positions. As noted in the literature, the emergence of electronic resources has greatly challenged the establishment of effective workflows (Duranceau and Hepfer 2001, 320; Branch 2012, 316; Collins 2009, 262). Due to the dynamic nature of these systems, workflow analysis and management, like system improvements, are a never-ending task. Well-developed and maintained procedures document work task agreement among persons and departments. Furthermore, procedures can be useful for training and aiding in emergency situations when a key person is on leave, sick, or ceases employment.

In summary, the following common discovery position needs can be gleaned from the posted positions analyzed in this study:

- Management or oversight by one position,
- Broad and deep understanding of metadata and standards,
- Collaboration among internal and external partners and stakeholders,
- Focus on optimal user experiences,

- Service mentality,
- Workflow and procedure development.

STUDY LIMITATIONS AND FUTURE RESEARCH

The primary limitation of this study is that it is a small and non-comprehensive dataset comprised of four listserv e-mail notices and restricted to academic libraries. Another limitation is the two-year time span of the study. It may be beneficial to revisit discovery positions in a year or two to see what develops: dedicated positions, blended or hybrid positions, or general incorporation of the term *discovery* or a *discovery essence* into most, if not all, professional library positions. These position descriptions and the ARL Web site staff directory scans lacked adequate depth to uncover best practices or essential key elements for staff maintaining WSDS systems. Staff directories may not be up to date, and even if the term *discovery* is not specifically included in a position name, this does not suggest that *discovery* job duties and attributes are not already covered by one or more positions or teams, be they formal or informal.

Additional probing or follow-up is needed to determine if and where facets of *discovery responsibility*, especially with respect to overall systems strategy, planning, metadata management, workflow development, and user experience enhancements are being conducted. Likewise, it would be beneficial to find out why oversight or a dedicated discovery position resides in one functional domain as opposed to another. A potential way to obtain these insights may be through a qualitative investigation via personal interviews or solicitation through an anonymous survey. Considering the growing and global nature of information and the Web, it also may be useful to examine discovery positions on an international level as well as among other types of libraries.

CONCLUSION

Is there a distinctive *discovery* reference appearing in academic library job positions or department titles? The data collected in this investigation reveal a small number of dedicated job positions and departments with the term *discovery*, suggesting a potential need for a dedicated discovery position in large, research-level institutions. Because these systems are large, complex, and constantly changing, more time and experience may be needed before best practices or guidelines can be effectively designed.

Discovery is at the core of all library systems and services both machine and human. Maria Collins (2009, 264), addressing electronic resources workflows, stated,

> In today's online environment, every librarian is an e-resources librarian. . . . Consequently, e-resource management concerns have outgrown traditional department boundaries necessitating efficient communication strategies to stabilize and guide workflow practices across the library.

In a similar vein, Han and Hswe (2010, 133), exploring the evolving role of the metadata librarian, observed that metadata crosses several library units. The same can be said for discovery librarian positions as discovery intersects all library services whether the function is cataloging or metadata, systems, or electronic resources. The small corpus of library literature on WSDS systems and staffing favor a team approach for implementation and maintenance, whereas the discovery positions collected in this study favor a dedicated position. Current trends point to a more collaborative and sophisticated library work environment, dynamically operating in and part of an ever expanding and complex Web-based information ecosystem (Somerville and Conrad 2014, 6–7, 16). Libraries' desire for premium discovery user experiences in an environment of changing systems and information resources calls for consultative and collaborative practices that result in ongoing workflow development and documentation for vetted procedures. More convergences or deeper integration of library technical and public services positions as well as team work is needed to engage effectively in the continual decision-making required in implementing and maintaining a WSDS.

ABOUT THE AUTHOR

Nadine P. Ellero (MLS, State University of New York at Buffalo) is the Serials Acquisitions Librarian at Auburn University Libraries, in Auburn, Alabama. Prior to coming to Auburn, she was the Intellectual Access/Metadata Services Librarian at the Claude Moore Health Sciences Library at the University of Virginia, in Charlottesville, Virginia (1990–2011). She has published in *Library Resources & Technical Services*, *Journal of Electronic Resources in Medical Libraries*, *Journal of Library Administration*, and *Journal of Library Metadata*. Nadine presently serves on the Editorial Board of *Library Resources & Technical Services*. Her professional interests include resource acquisition, metadata, standards, and all avenues of information resource discovery.

NOTES

1. According to Marshall Breeding's Library Technology Guides, Association of Research Libraries: Discovery Systems have been adopted by 83 percent (103 of 125 libraries) as of 22 March 2014, available at http://www.librarytechnology.org/arl-discovery.pl.

2. As of March 30, 2014, Eastern Michigan University Libraries continued their subscription to the Summon WSDS.

REFERENCES

Bacon, Virginia, and Ginny Boyer. 2013. "Beyond Discovery Tools: The Evolution of Discovery at ECU Libraries." *Against the Grain* 25 (4):28–31.

Boydston, Jeanne M. K., and Joan M. Leysen. 2014. "ARL Cataloger Librarian Roles and Responsibilities Now and in the Future." *Cataloging & Classification Quarterly* 52 (2):229–50.

Branch, Denise. 2012. "Electronic Workflows: Taking it to the Cloud." *The Serials Librarian* 63 (3–4):315–32.

Breeding, Marshall. 2014. "Web-Scale Discovery Services." *American Libraries* 45 (1/2):25.

Breitbach, William. 2012. "Web-Scale Discovery: A Library of Babel?" In *Planning and Implementing Resource Discovery Tools in Academic Libraries*, edited by Mary Pagliero Popp and Diane Dallis, 637–45. Hershey, PA: IGI Global.

Choi, Youngok, and Edie Rasmussen. 2009. "What Qualifications and Skills are Important for Digital Librarian Positions in Academic Libraries? A Job Advertisement Analysis." *The Journal of Academic Librarianship* 35 (5):457–67.

Collins, Maria. 2009. "Evolving Workflows: Knowing when to Hold'em, Knowing when to Fold'em." *The Serials Librarian: From the Printed Page to the Digital Age* 57 (3):261–71.

Dempsey, Lorcan. 2012. "Libraries and the Informational Future: Some Notes." *Information Services & Use* 32 (3/4):203–14.

Duranceau, Ellen Finnie, and Cindy Hepfer. 2002. "Staffing for Electronic Resource Management: The Results of a Survey." *Serials Review* 28 (4):316–20.

Fu, Ping, and Moira Fitzgerald. 2013. "A Comparative Analysis of the Effect of the Integrated Library System on Staffing Models in Academic Libraries." *Information Technology & Libraries* 32 (3):47–58.

Getsay, Heather, and Catherine Rudowsky. 2013. "Identifying the Serials Librarian: Serials-Related Position Titles in the United States and Around the World." *The Serials Librarian* 65 (3/4):374–88.

Greene, Courtney. 2012. "The Long and Winding Road: Implementing Discovery at Indiana University Bloomington Libraries." In *Planning and Implementing Resource Discovery Tools in Academic Libraries*, edited by Mary Pagliero Popp and Diane Dallis, 499–514. Hershey, PA: IGI Global.

Han, Myung-Ja. 2012. "New Discovery Services and Library Bibliographic Control." *Library Trends* 61 (1):162–72.

Han, Myung-Ja, and Patricia Hswe. 2010. "The Evolving Role of the Metadata Librarian: Competencies Found in Job Descriptions." *Library Resources & Technical Services* 54 (3):129–41.

Kornblau, Amy I., Jane Strudwick, and William Miller. 2012. "How Web-Scale Discovery Changes the Conversation: The Questions Librarian Should Ask Themselves." *College & Undergraduate Libraries* 19 (2–4):144–62.

Leebaw, Danya, Brian Conlan, Kasia Gonnerman, Sarah Johnston, and Christina Sinkler-Miller. 2013. "Improving Library Resource Discovery: Exploring the Possibilities of VuFind and Web-Scale Discovery. *Journal of Web Librarianship* 7 (2):154–89.

Lynch, Beverly P., and Kimberley Robles Smith. 2001. "The Changing Nature of Work in Academic Libraries." *College & Research Libraries* 62 (5):407–20.

Mandernach, Meris A., and Jody Condit Fagan. 2012. "Creating Organizational Buy-In: Overcoming Challenges to a Library-Wide Discovery Tool Implementation." In *Planning and Implementing Resource Discovery Tools in Academic Libraries*, edited by Mary Pagliero Popp and Diane Dallis, 419–37. Hershey, PA: IGI Global.

Milberg, Craig. I. 2012. "A Tale of Two Systems: A Case Study on the Implementation of Two Discovery Systems at Davidson College." *College & Undergraduate Libraries* 19 (2–4):264–77.

Mortimore, Jeffrey M., Leah McGinnis Dunn, Drew A. McNaughton, Elizabeth Novicki, Elizabeth J. Wade, and Christine A. Whittington. 2012. "Smoke Gets in Your Eyes: Trials and Triumphs of Implementing the Ex Libris Primo Discovery Service in a Small Regional Consortium." *College & Undergraduate Libraries* 19 (2–4):344–66.

Naun, Chew Chiat. 2010. "Next Generation OPACs: A Cataloging Viewpoint." *Cataloging & Classification Quarterly* 48 (4):330–42.

Richardson, Hillary A. H. 2013. "Revelations from the Literature: How Web-Scale Discovery Has Already Changed Us." *Computers in Libraries* 33 (4):12–7.

Somerville, Mary M. 2013a. "Digital Age Discoverability: A Collaborative Organizational Approach." *Serials Review* 39 (4):234–9.

———. 2013b. "Summon Web-Scale Discovery Service Implementation: An Organizational Readiness Case Study." *Computers in Libraries* 33 (6):22–6.

Somerville, Mary M., and Lettie Y. Conrad. 2014. "Collaborative Improvements in the Discoverability of Scholarly Content: Accomplishments, Aspirations, and Opportunities. A SAGE White Paper." Accessed February 13, 2014. http://www.sagepub.com/repository/binaries/pdf/improvementsindiscoverability.pdf.

Walker, Shaundra, and Iyanna L. Sims. 2012. "Implementing a Discovery Tool at Two HBCUs." *College & Undergraduate Libraries* 19 (2–4):312–26.

Webster, Peter. 2012. "The Web-Scale Discovery Environment and Changing Library Services and Processes." In *Planning and Implementing Resource Discovery Tools in Academic Libraries*, edited by Mary Pagliero Popp and Diane Dallis, 646–61. Hershey, PA: IGI Global.

Wrosch, Jackie, Karen Rogers-Collins, Michael Barnes, and William Marino. 2012. "Search Me: Eastern Michigan University's Journey through the Highs and Lows of Implementing the Summon Discovery Tool." *College & Undergraduate Libraries* 19 (2–4):367–86.

Zhu, Lihong. 2008. "Head of Cataloging Positions in Academic Libraries: An Analysis of Job Advertisements." *Technical Services Quarterly* 25 (4):49–70.