

## **Empowering Neurodivergent Librarians to Lead Inclusion in Libraries**

*Laura Bush 21st Century Librarian Program – Applied Research*

A University of Washington Information School research team is requesting \$491,500 in support of a two-year research project to improve our understanding of and our ability to empower neurodivergent librarians in libraries. We aim to improve the capacity of libraries to recruit, onboard, retain, and advance neurodivergent librarians, who currently face barriers to inclusion in library workplaces. We propose to do so by developing a neurodiversity at work training program to be used by libraries and MLIS programs across the U.S. to foster neurodiversity inclusion. This proposed research project aligns with the Laura Bush 21st Century Librarian Program to support the professional development of the library workforce, especially to “address issues of diversity, equity, and inclusion in the recruitment, development, and retention of faculty, library, and archives leaders from diverse and underrepresented backgrounds” (Objective 2.2).

### **Project Justification: Neurodivergent librarians are underrepresented in the library workforce**

Neurodiversity, a term coined by sociologist Judy Singer in the late 1990s, refers to the natural variation among human minds, or more accurately, bodyminds, because the mind and the body are inextricably linked.<sup>1</sup> People whose bodyminds do not align with dominant societal expectations are considered neurodivergent, such as autistic people or people with ADHD. Neurodivergent adults face significant barriers to employment due to their invisible disability. Neurodivergent people face numerous barriers to inclusion in the workplace, including negative stereotypes and stigma, fear of discrimination, isolation, and an inaccessible work environment.<sup>2</sup> Such barriers may result in lower employment opportunities as experienced by autistic adults who are three times less likely to secure employment compared to any other disabled group.<sup>3</sup> Recent reports indicate that 10.8% of adults currently live with some form of cognitive disability, yet only 3% of librarians report having any type of disability.<sup>4</sup> Neurodivergent librarians remain underrepresented in the profession, face barriers to inclusion, and are largely overlooked by library literature.<sup>5</sup>

As libraries increase their efforts toward diversity and inclusion, neurodiversity remains underexamined, as evidenced through library literature. In a recent review of library literature, Gibson et al. found that 41% of articles covered disability broadly, while 7.4% of the literature addressed learning disabilities, and autism was the only category of neurodiversity mentioned specifically (4%).<sup>6</sup> These findings are similar to the content analysis conducted by Hill, which suggests that the focus of the literature has not changed significantly over the past decade.<sup>7</sup> Additionally, much of the literature focuses on neurodivergent patrons, especially children, and suggests practices for providing services and programs for patrons with autism, ADHD, or dyslexia. For neurodiversity, autism is mentioned most often, yet most of this literature is written from a neurotypical perspective and does not include input or feedback from neurodivergent people themselves. The needs of neurodivergent adults are rarely explored, and there is a lack of attention to neurodiversity in the library profession.

The limited attention to neurodiversity in inclusion efforts in library research, practice, and education is problematic for several reasons. Public libraries serve as essential community spaces, promoting lifelong learning, information access, and early learning programs.<sup>8</sup> Libraries strengthen communities in need and offer a variety of resources and experiences to their patrons,<sup>9</sup> especially low-income families, minority groups, and English-language learners.<sup>10</sup> For libraries to provide such services and play such a critical role for neurodivergent people within the community equitably and effectively, they must employ neurodivergent librarians to inform this important work for all patrons. Representation of neurodiversity contributes to innovation and effective representation and therefore quality service to patrons.<sup>11</sup> For neurodivergent people and aspiring librarians, employment is core to their quality of life. Neurodivergent people experience financial, emotional, and health benefits when employed.<sup>12</sup> Limiting barriers to employment mentioned above will enable neurodivergent people to reap essential benefits of employment equitably.

### **The nature of inclusion of neurodivergent people in the library profession**

Library literature has only recently begun to examine the experience of disabled and neurodivergent library workers. Several studies indicate that library administrators and supervisors often lack an understanding of disabilities, especially invisible disabilities such as autism and dyslexia, or hold negative attitudes or stereotypes, which creates barriers to workplace inclusion. Oud found that workplace barriers for disabled librarians included the assumption that library workers are not disabled, a negative view of disabled workers as lazy or less productive, and an overall lack of structures

and systems to support disabled employees.<sup>13</sup> Similarly, Pionke found that library management is often viewed as a barrier through actions and attitudes such as resistance to change or ableist attitudes toward disabilities.<sup>14</sup>

For neurodivergent employees, as for disabled library workers, supervisors contribute to positive or negative work experiences.<sup>15</sup> Library supervisors impact the experiences of individual employees and contribute to organizational culture and practices. Research suggests training and education for library managers and co-workers to enhance inclusion<sup>16</sup> and emphasize moving beyond acceptance training to know-how (practice-based) training for lasting impact.<sup>17</sup> Initial findings from a related IMLS funded project,<sup>18</sup> librarians echoed the literature and expressed the need for comprehensive and ongoing training related to autism inclusion in libraries. Librarians expressed the need for more training on including neurodivergent patrons as well as colleagues in libraries. Librarians and patrons also emphasized the importance of the representation of neurodivergent employees within the librarian ranks in order to better serve neurodivergent patrons as well. To address this gap in the literature, and the critical need to include neurodivergent librarians, our proposed project will focus on increasing neurodiversity acceptance and practical 'know-how' for library managers, supervisors, and other employees who are critical to fostering the inclusion of neurodivergent librarians. Using a critical lens, our project distributes responsibility for change across the team, rather than burdening the underserved employee.<sup>19</sup>

### **Gap in research and practice**

While libraries have implemented some methods for improving services to neurodivergent patrons, such as autism awareness programs, collection development initiatives, and sensory hours, the representation and experiences of neurodivergent librarians remain largely unexamined. In recent interviews and focus groups we conducted in our Autism-Ready Libraries project (LG-246350-OLS-20), patrons noted the importance of representation so patrons could see and interact with neurodivergent librarians who had similar lived experiences. Calls for the representation of neurodivergent librarians have been echoed in recent literature.<sup>20</sup> Several recent projects, such as Targeting Autism, Project PALS, Project ENABLE, and Project A+, have focused on disability and autism inclusion in libraries by raising awareness and improving information access and services to patrons. These efforts, however, do not address the representation and inclusion of neurodivergent librarians in the workplace, an essential factor in creating inclusion and empowerment for the community. Currently, there is very little research and few established practices to guide recruiting, onboarding, retaining, and advancing neurodivergent librarians in the profession.

### **Theoretical Framework**

To address our research questions, we ground our work in Annabi and Locke's Organizational Interventions Mitigating Individual Barriers Framework (OIMIB).<sup>21</sup> OIMIB was first developed to study the experiences of women in IT and later adopted to study neurodiversity employment within the technology industry. This framework is applicable to neurodiversity employment more generally.<sup>22</sup> It is common in the literature to apply and extend theoretical frameworks used for one marginalized population to another with the intent to refine and extend the theory, especially when there are similarities in the experiences of the populations in question.<sup>23</sup> We draw on this framework for three reasons:

1. The study of neurodiversity employment is an emerging field of study. Currently, OIMIB is the only established theoretically grounded framework available to draw from.<sup>24</sup>
2. The framework is grounded in critical studies focusing on individual differences to highlight the complexity of intersectionality, especially important for neurodiversity employment.
3. Most neurodiversity research represents the neurotypical priorities and perspectives.<sup>25</sup> The critical epistemological lens through which OIMIB was developed provides the lens necessary to give voice to neurodivergent people and utilizes a strength model rather than a deficit model often present in employment literature.

OIMIB (illustrated in Figure 1) includes five components to demarcate individual-, intervention-, and organizational-level constructs that influence neurodivergent individuals' experiences in the workforce. OIMIB posits that neurodivergent individuals experience workplace barriers and opportunities differently based on their individual identity, individual influences, and environmental influences. These individual differences also influence how and whether a neurodivergent employee utilizes any neurodiversity employment programs, accommodations, or support

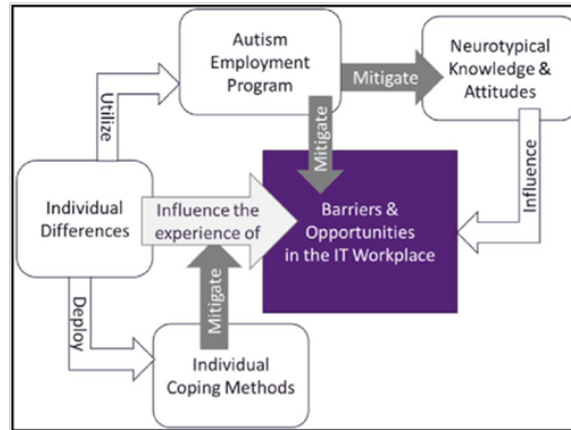


Figure 1: Organizational Interventions Mitigating Individual Barriers Framework (OIMIB)

structures and whether they deploy their own coping methods to mitigate their experience of barriers and opportunities in the workplace. In this model, organizations deploy neurodiversity diversity interventions (such as autism programs) in order to (1) mitigate barriers in the workplace for those neurodivergent employees and (2) mitigate negative attitudes toward and improve the knowledge about neurodiversity that neurotypical employees may have. Knowledge and attitude constructs informed by the Theory of Planned Behavior ([TPB] Ajzen<sup>26</sup>), in turn, influence barriers and opportunities that exist in the workplace for neurodivergent people. The first four components are detailed in Table 1.

**Table 1. Organizational Interventions Mitigating Individual Barriers Framework (OIMIB) Constructs**

Individual experiences	Barriers	Organizational interventions (methods & practices)	Individual coping methods
<p><u>Individual identity:</u> Personal demographics, career items</p> <p><u>Individual influences:</u> Personal characteristics (social skills, lack of identification with femininity, environmental sensitivity, executive functioning), personal influences</p> <p><u>Environmental influences:</u> Cultural, economic, policy, and infrastructure</p>	<p>- <u>Stereotypes</u></p> <p>- <u>Lack of access and legitimacy/discrimination:</u> Bias</p> <p>- <u>Isolation and exclusion:</u> Neurotypical peer environment</p> <p>- <u>Poor supervisory relationship:</u> Lack of understanding and support</p> <p>- <u>Environmental barriers:</u> Overwhelming environmental stimuli in neurotypical work environment</p>	<p>- <u>Build a culture of diversity:</u> create a culture of openness, awareness, and employee focus, integrated social activities</p> <p>- <u>Educate employees</u></p> <p>- <u>Examine current practices</u></p> <p>- <u>Provide professional development opportunities:</u> Custom on-the-job training/onboarding, partnering with external diversity organizations, making role models visible</p> <p>- <u>Job Placement:</u> During hiring</p> <p>- <u>Improve supervisor relationship:</u> Awareness of strengths, supportive career development</p> <p>- <u>Provide flexible arrangements:</u> Accommodations</p>	<p>- Make individual-level changes</p> <p>- Ignore barriers</p> <p>- Deliver consistently high performance</p> <p>- Adopting a “change agent” mindset</p> <p>- Becoming a mentor to others</p> <p>- Externalizing neurodiversity</p> <p>- Use special interests to build careers and community</p> <p>- Find support through online community</p> <p>- Make diagnosis known</p>

Individual Experience is an individual-level construct grounded in Individual Differences Theory of Gender<sup>27</sup> and neurodiversity literature to depict intersectional identities of neurodivergent employees and includes three sub- constructs: 1) individual identity (personal demographics and career items); 2) individual influences

(personal characteristics and influences); and 3) environmental influences (cultural, economic, policy, and infrastructure influences). The interplay between these constructs explains the varied ways in which neurodivergent employees experience barriers in the workplace and are able to secure and persist in employment.

Barriers and Opportunities are organizational-level constructs. Societal and organizational structures grounded in normative and ableist expectations about how professionals should communicate, interact, and behave, create barriers for neurodivergent librarians in the workplace. The library literature generally conceives of disabilities in a narrow manner, focusing largely on electronic accessibility for blind or visually impaired patrons. Invisible disabilities such as autism, ADHD, mental illness, and chronic illness remain significantly overlooked in the literature.<sup>28</sup> In their review of library literature, Gibson et al. found that 79% of the articles in their study “addressed disability as an individual and/or cognitive condition experienced by individuals.”<sup>29</sup> This individualized framing of disabilities aligns with the medical model of disability, also called a deficit model, which focuses on individual impairments. In the medical model, these impairments or deficits are viewed as problems to be solved through interventions designed to cure the condition. Yet this model regularly overlooks inequities to access and the inherent strengths of individuals with the condition. The social model of disability, drawn from critical studies of disabilities, offers an alternative perspective of disability, one that, instead of focusing on the individual focuses attention on the societal conditions and barriers that construct disability and inequitable access. The social model emerged in response to the medical model to examine socio-political and economic factors in<sup>30</sup> society that shape disability and create barriers. The social model posits that it is society that needs to change, not the individual.<sup>31</sup> The social model “holds that disability is created by a society that is inaccessible to and biased towards people with certain bodies and minds.”<sup>32</sup> Library literature, however, makes limited use of the social model of disability. Gibson et al. noted that only 36% of the research in their study recognized disability as a societal construct, while 33% framed disability from both individual and societal perspectives.<sup>33</sup> When disabilities are consistently framed as problems to be solved with interventions or retrofits, it ‘others’ people with disabilities and places additional burden on them to ‘prove’ or adequately demonstrate their disability and seek out accommodations. Because the LIS literature draws heavily on the medical model of disability, it also fails to examine power, racism, and intersectionality issues. Overall, a critical examination of “the LIS landscape suggests an unprioritized and short-sighted understanding of disability.”<sup>34</sup> Hence, we use OIMIB which introduces barriers as existing in the environment from the lens of neurodivergent employees which is a critical contribution to the current inclusion paradigm that permeates librarianship.

Individual Coping Methods is an individual-level construct focusing on how neurodivergent individuals exercise agency and deploy individual coping methods to respond to barriers. These range from developing informal networks, seeking informal mentors, and ignoring barriers, to more severe responses, such as changing personal characteristics or leaving their job. We know very little about the coping methods that neurodivergent librarians use to mitigate barriers. We posit that not all the methods previously identified in OIMIB will be relevant to neurodivergent librarians.

Organizational Intervention Characteristics is an intervention-level construct that includes the characteristics of libraries and various inclusion programs/interventions preventing, mitigating, and eliminating the barriers neurodivergent librarians experience. Intervention characteristics influence the extent to which barriers and opportunities exist and the level at which they negatively or positively impact neurodivergent librarians. For our study, we look at methods and practices deployed.

Knowledge and attitudes of neurotypical librarians is an individual-level construct informed by the Theory of Planned Behavior<sup>35</sup> To specifically measure the potential impact of organizational interventions on neurotypical librarians and supervisors’ behaviors and ultimately the challenges and opportunities facing employees with autism.

### **Project Objectives**

The goal of our research project is to build libraries’ capacity, at the team level, to improve employment outcomes of neurodivergent librarians, including representation, empowerment, equity, belonging, and advancement. This goal is in alignment with the Laura Bush 21st Century Librarian Program to support the professional development of the library workforce, especially to “address issues of diversity, equity, and inclusion in the recruitment, development,

and retention of faculty, library, and archives leaders from diverse and underrepresented backgrounds” (Objective 2.2). As such, our specific objectives are to:

1. Understand the experiences (barriers and enablers) of neurodivergent librarians in the workplace
2. Understand the perceptions of neurotypical librarians and supervisors of neurodiverse librarians and their experiences working with neurodivergent librarians
3. Identify effective methods to create meaningful inclusion and improve knowledge of and attitudes toward neurodiversity
4. Develop training for libraries and curriculum for MLIS programs nationwide that creates inclusive libraries

Our project is distinct from current efforts because we will focus on identifying and addressing barriers to inclusion in the workplace as articulated by neurodivergent librarians, develop a training program for peers and managers to foster neurodiversity acceptance and know-how, and draw on critical disability studies<sup>36</sup> and autism hiring program resources in related fields.<sup>37</sup> This proposed research project will investigate the following questions:

1. What barriers and enablers to workplace inclusion and empowerment do neurodivergent librarians experience?
2. What methods and practices can supervisors and employees use to increase libraries’ capacity to recruit, onboard, retain, and advance neurodivergent librarians?
3. What resources/education will enable supervisors and employees to implement neurodivergent-inclusive practices?

Our project is distinct from existing efforts regarding neurodiversity inclusion in libraries in its focus on building the capacity of libraries to empower neurodivergent librarians. Our approach is novel in three ways: 1) we utilize interviews with neurodivergent librarians to illuminate their experiences, 2) integrate research from the autism employment and critical disability studies to develop effective training and curriculum training to include and empower neurodivergent employees, 3) engage both neurodivergent librarians and their neurotypical supervisors and peers to better understand all perspectives and design effective curriculum and training for all librarians, and 4) assess the training and curriculum being developed with librarians nationwide. This research has prior Institutional Review Board (IRB) approval, which will be updated at the time of funding.

### Scope of Work

Neurodiversity includes refers to the neurological, cognitive, and body differences amongst humans such as Autism, ADHD, Dyspraxia, Obsessive Compulsive Disorder, Tourette’s, Dyslexia, and others. One in seven people are neurodivergent and may have more than one dimension of neurodiversity. These differences affect how a neurodivergent person processes information, experiences their environment and interacts with the world. There is great diversity within neurodiversity and for our study, we will **focus on autism and ADHD**. We do so as a starting point recognizing our limited resources and expertise related to other differences. Focusing on autism and ADHD will allow us to gain a deeper understanding of the two populations and have greater representation with other intersectional identities such as race and gender within each group. We will leverage the literature and our team’s expertise to further build on this emerging area of research and lay the groundwork for future research for all neurodiversity.

In recognition of the intersectional nature of marginalization, this project will solicit participation and feedback from neurodivergent adults and self-advocates with other marginalized identity markers, such as race and gender. Women and people of color remain significantly underdiagnosed with invisible disabilities such as autism or ADHD, or maybe misdiagnosed with other conditions, such as anxiety or behavioral issues.<sup>38</sup> Additionally, women and people with racialized identities are less likely to be believed by doctors and may be viewed as unreliable narrators of their own experiences.<sup>39</sup> Access to diagnosis is further complicated by the cost and time involved, lack of access to healthcare or health insurance, and difficulties in obtaining a diagnosis as an adult because most practitioners focus solely on children and teens. For neurodivergent librarians, then, an official diagnosis may be an impossibility; thus this study will **consider self-diagnosis or unofficial diagnosis** (e.g., by a therapist) as equally valid as an official diagnosis.

We will limit the scope of our project to academic and public libraries for four reasons. First, these libraries serve as essential community spaces that promote lifelong learning, information access, and essential skills like early literacy.<sup>40</sup> Libraries strengthen communities in need and offer a variety of resources and experiences to their patrons.<sup>41</sup> Together,

academic and public libraries are well-positioned to be a model for the inclusion of neurodivergent librarians nationally and for other service organizations. Second, academic and public libraries employ more than 75,000 librarians and have a great potential for impact.<sup>42</sup> Thirdly, with significant cuts made to funding and support of libraries, academic and public libraries stand to benefit greatly from such research and support to their employee development. Fourth, the training and curriculum outcome of this work is largely transferable and adaptable to additional contexts.

### **Project Work Plan**

Our study will be carried out in four phases over a two-year period. In **Phase 1**, we will use Annabi and Locke's framework to investigate the barriers and enablers that neurodivergent librarians encounter in the workplace by conducting semi-structured interviews with 20-25 neurodivergent librarians, 20-25 library supervisors, and 20-25 peer employees. We will use a criteria-based sample recruited through library listservs, a group for autistic library workers, professional networks, and social media. Findings from Phase 1 will inform **Phase 2** to conduct nationwide surveys of 75- 100 neurodivergent librarians and 100-150 neurotypical library supervisors and employees to further identify and validate barriers and enablers. **Phase 3** will draw on the previous two phases and will employ participatory design to create a high-impact curricular module, for use in library organizations and MLIS programs, that is aimed at not only changing attitudes, but also developing practical 'know-how' for retaining and advancing neurodivergent librarians. The design phase will also include input from neurodivergent librarians and self-advocates and will draw on existing literature on professional education and neurodiversity inclusion. In **Phase 4**, we will deliver and assess the effectiveness of the curricular module through workshops at ALA and at least three nationally-recognized MLIS programs, including University of Washington. The assessment will measure participants' change in knowledge, attitudes, and practical know-how, and will inform additional revisions before the curricular module is made publicly available. Below we outline the detailed activities within each phase and objective.

#### ***Phase 1: Investigate Barriers, Enablers, and Best Practices***

Phase 1 will focus on objectives 1 and 2 of this study. In phase I, we will engage neurodivergent librarians nationwide to explore the barriers and enablers they experience securing, persisting in, and advancing in the library workplace. We will include neurodivergent and neurotypical librarians and supervisors nationwide and encourage individuals across age, gender, ethnicity, and race to participate. We will recruit participants through library organizations such as ALA, PLA (Public Library Association), ACRL (Association of College and Research Libraries); ALA affiliates such as the Asian/Pacific American Librarians Association (APALA), Black Caucus of ALA (BCALA), Joint Council of Librarians of Color (JCLC), and REFORMA; library listservs; affinity groups like LibParlor and we here; professional networks; and via social media. We will also use and encourage snowball sampling strategies to recruit supervisors and peers of neurodivergent librarians when appropriate. Our goal is to conduct 25 interviews for each group to get the various perspectives and identify how barriers and enablers manifest from each of these perspectives.

We will use semi-structured interviews grounded in OIMIB but not limited to the framework to elicit data regarding 1) challenges and opportunities working in libraries that include neurodiverse and neurotypical librarians; 2) knowledge gaps and attitudes towards neurodiversity; 3) characteristics of inclusion interventions aimed to include neurodiversity in libraries or support neurodivergent librarians; and 4) methods and practices participants would propose to further improve their work environment. Semi-structured interviews use interpretive techniques to provide participants ways to voice their needs and concerns

Phase 1 Data Collection and Analysis: Interviews will be conducted virtually via Zoom, recorded, and transcribed. Qualitative data will be analyzed utilizing Miles and Huberman's<sup>43</sup> interactive model of content analysis. This will follow an interactive process between data collection, data reduction (deductive and inductive coding), data display, and drawing and verifying conclusions. Qualitative data will first be analyzed within each stakeholder group, and then later analyzed across the three stakeholder groups. Cross-analysis will reveal convergent and divergent views of opportunities and challenges, knowledge gaps, attitudes, and suggested strategies for interventions. The in-depth content analysis will explain the interplay between knowledge and attitudes, as well as reveal actionable insights librarians and managers can adopt to promote a more inclusive work setting. To ensure the reliability and validity of the content analysis, we will conduct inter-coder reliability tests using the developed content analytic framework on a sample of the data until the three coders reach acceptable inter-coder agreement per Baker-Brown et al..<sup>44</sup>

Phase 1 Outcomes: The research activities outlined above will result in a better understanding of barriers and

best practices from the perspective of both neurodivergent librarians as well as their neurotypical peers and managers. findings from this phase will inform the survey in Phase 2.

***Phase 2: Verify Barriers, Enablers, and Best Practices and Establish a baseline of knowledge and attitudes***

In Phase 2, we will construct a survey to meet two purposes. First, the nationwide surveys of 75-100 neurodivergent librarians and 100-150 neurotypical library supervisors and employees to further identify and validate barriers, enablers, and best practices. The survey will elaborate on the interplay between the various components of the OIMIB framework. For instance, how are certain intersecting identities with neurodiversity impacting experiences of barriers or unique coping methods? The survey could further reveal the commonalities and tensions between neurotypical and neurodivergent librarians about notions of barriers and possible methods to address them. Second, the survey will help us establish a baseline measure of knowledge of and attitudes towards neurodiversity among librarians. Our quantitative measures of knowledge of and attitudes towards neurodiversity will use the Theory of Planned Behavior to guide the development of our survey instrument, based on Ajzen<sup>45</sup> and previously validated instruments measuring knowledge of and attitudes towards autism,<sup>46</sup> which we will be adapted to neurodiversity within the library context and findings from Phase 1. To measure knowledge about neurodiversity, we will adapt an updated Autism Knowledge Survey,<sup>47</sup> a Likert-style questionnaire comprised of autism-facts for which respondents rate their agreement on a scale from 1-6 from Fully Agree to Fully Disagree. The Autism Knowledge Survey assesses beliefs regarding the social/emotional, cognitive, and treatment/prognosis of autism. The statements are based on common misperception regarding autism derived from research and practice. This measure has been shown to demonstrate adequate psychometric properties in past research.<sup>48</sup> The items in the following measures will undergo cognitive response testing with a small set of librarians (n = 15) not included in this study to identify ambiguous wording, awkward instructional sets, and difficult sections prior to large-scale administration.<sup>49</sup> To measure attitudes about neurodiversity, we will follow standard procedure<sup>50</sup> and adapt six-question stems<sup>51</sup> to assess attitudes about neurodiversity on a 7-point bipolar adjective scale. The exact question stems will be informed by Phase I. For example, scales will allow respondents to rate experiences working with neurodivergent individuals as extremely unpleasant to extremely pleasant and as extremely difficult to extremely easy. The mean score across all items will constitute our measure of attitudes about autism. Finally, to measure intentions, we will follow standard procedure using three items (e.g., “I intend to include neurodivergent librarian socially in the next two weeks”). The scaled response options will range from 1 to 7, where 1 = “strongly disagree” and 7 = “strongly agree”. Participants will complete three items to measure their intentions to work with neurodivergent librarians.

Phase 2 Data Collection and Analysis: Phase 2 will focus on the development and deployment of a survey to establish a baseline measure of knowledge and attitudes neurotypical librarians hold of neurodiversity. We will recruit participants through library organizations highlighted in phase 1 recruitment strategies. We will first describe all variables using summary statistics. We will also examine the distribution of and correlations among variables to understand the nuances of the data. We will plot relationships to screen for errors and examine distributional form and time trends. We will scrutinize any item with more than 10% missing data to determine the reasons for the missing data.

Phase 2 Outcomes: will inform the design and deployment of training and curriculum to increase the acceptance and empowerment of neurodivergent librarians in public libraries. Training will address knowledge gaps, improve attitudes towards neurodiversity, and barriers experienced such as work design, environmental accommodations, etc.

***Phase 3: Design Training, Curriculum, and Toolkit***

Phase 3 will focus on objective 3: Identify effective methods to create meaningful inclusion and improve knowledge and attitudes of neurodiversity. As such, which Phase 3 will draw on the previous two phases and will employ participatory design to create a high-impact curricular module, for use in library organizations and MLIS programs, that is aimed at not only changing attitudes but also developing practical ‘know-how’ for retaining and advancing neurodivergent librarians. The design phase will also include input from neurodivergent librarians and self-advocates and will draw on existing literature on professional education and neurodiversity inclusion. We will conduct six participatory design (PD) sessions (8 participants each) with neurodivergent librarians as well as neurotypical librarians and managers. The overall PD framework proceeds through three stages: critiquing the present; envisioning the future; and implementing – moving from the present to the future. “These three activities involve participants in new perspectives on their work and help to develop new concepts and new initiatives.”<sup>52</sup> This approach will help us co-

design a robust training and curriculum as well as other templates specified in Table 1 informed by the perspectives of neurodivergent librarians as well as neurotypical librarians and managers. The PD sessions will inform the training, curriculum, and accompanying toolkit.

Phase 3 Data Collection and Analysis: Discussion during PD sessions will be transcribed and analyzed using Miles and Huberman’s interactive model of content analysis employing inductive and deductive coding. Artifacts generated during PD sessions will be coded utilizing inductive thematic analysis; to support qualitative analysis, written notes in artifacts will be transcribed, and visuals such as drawings will be described in words and transcribed. To ensure the reliability and validity of the content analysis, we will conduct inter-coder reliability tests across until coders reach acceptable inter- coder agreement per Baker-Brown et al..

**Table 2. Neurodiversity Empowerment Toolkit**

Librarian & Manager Training ✓ Neurodiversity acceptance and Neurodiversity Culture Training Curriculum ✓ Communication & Collaboration Best Practices ✓ Accommodation Best Practices ✓ Manager Training	Manager Toolkit ✓ Templates for acceptance campaigns ✓ Supervisor expectation meeting templates ✓ Neurodiversity acceptance guiding principles ✓ Accommodation possibilities
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Phase 3 Outcomes: The outcome of the PD sessions in Phase 3 is the design of a training, MLIS curriculum, and Toolkit of accompanying instructional material. Guided by the PI’s expertise in developing guidebooks, the literature, and our current research on Autism-Ready Libraries, we identified broad categories that we will include but will not be limited to: 1) neurodiversity acceptance multimedia training (online videos and animations) to improve understanding of neurodiversity, neurodiversity culture, and the diversity of needs of the neurodiverse community; 2) in-person workshop training (at public libraries, national and regional conferences such as ALA) on best practices for collaborating with and leading neurodivergent librarians; and 3) templates for acceptance campaigns, supervisor expectation-meeting templates, guiding principles, etc. that librarians and managers can use and adapt to fit their context. The toolkit components are listed in Table 2. The research team, in collaboration with a graphic designer and videographer, will develop the components of training and the manager toolkit.

**Phase 4: Build and Assess Toolkit**

Phase 4 will focus on objective 3 and assess the effectiveness of the methods included in the training and toolkit to create meaningful inclusion and improve knowledge and attitudes of neurodiversity. In Phase 4, we will deliver and assess the effectiveness of the curricular module through workshops at ALA and at least three nationally recognized MLIS programs, including University of Washington. The assessment will measure participants’ change in knowledge, attitudes, and practical know-how, and will inform revisions before the curricular module is made publicly available.

To assess the efficacy of the toolkit, we will conduct three types of assessments, outlined below. Assessments will inform revisions to the Toolkit before public deployment.

- a. We will conduct two modified PD sessions to review and assess the design of the training and Toolkit components and templates. The workshop will include reviewing the initial findings and components and facilitating a guided discussion regarding the completeness of the Toolkit, the accessibility of materials, and the appropriateness of the activities across different libraries. We will invite 25 participants to the workshop, including neurodivergent and neurotypical librarians and managers and librarians nationwide.
- b. We will deploy four pilot training sessions - one for librarians nationwide at ALS, and three across three prominent MLIS programs, including the University of Washington. We will also elicit perceived effectiveness of the training and feedback regarding training delivery and materials. We will also assess the effectiveness of the training for librarians using a simple pre- and post-training neurodiversity knowledge and attitudes assessment questionnaire (from phase 2). The questionnaire will measure changes in attitudes and knowledge about autism and intention to serve autistic children and their families. We will follow standard procedure as described in our analysis for phase 2.

Phase 4 Data Collection and Analysis Toolkit evaluation qualitative data will be analyzed utilizing Miles and Huberman’s interactive model of content analysis, using inductive and deductive coding. To ensure the reliability and validity of the



content analysis, we will conduct inter-coder reliability tests on a sample of interviews and focus groups until coders reach acceptable inter-coder agreement per Baker-Brown et al.. Visual products of participatory design sessions will also be qualitatively content analyzed. To analyze quantitative training assessment data, we will first describe all variables using summary statistics; we will examine the distribution of and correlations among variables to understand the nuances of the data; we will plot relationships to screen for errors and examine distributional form and time trends; we will conduct separate repeated measures analysis of covariance models for: 1) knowledge about autism; and 2) attitudes about autism pre- and post-training, controlling for demographic information.

**Our team** includes an interdisciplinary and diverse team of faculty and a doctoral student with expertise to study neurodiversity in a broad range of workplaces. Dr. Hala Annabi is a leading scholar on neurodiversity inclusion in the workplace and an expert in investigating and developing autism employment programs for private and public organizations and has published the [Autism at Work Playbook](#). Dr. Michelle H. Martin, the Chair of the MLIS program at the UW, is an experienced inclusion scholar and educator. Dr. Martin has the expertise to transform LIS curricula to enable the inclusion of neurodivergent librarians with other intersecting marginalized identities. Christine M. Moeller is a neurodivergent doctoral student and academic librarian experienced in professional development and neurodiversity research.

### Diversity Plan

Neurodivergent adults are a marginalized population who remain underrepresented in libraries and library workplaces. The Bureau of Labor Statistics reports that in 2020, the employment rate for disabled people was 12.6%, which is significantly higher than for non-disabled people (7.9%). Our work aims to understand and eliminate the barriers neurodivergent people of all genders, race, ethnicities, and other intersecting identities experience. This is a significant contribution to librarianship in regards neurodiversity inclusion in libraries. Our work will meet a gap in the literature that currently reflects a failure to engage with other aspects of neurodivergent people's identities, thus seemingly ignoring the existence and lived experiences of neurodivergent BIPOC and LGBTQIA+ people.

### Project Results and National Impact

This research project will have the following broad outcomes and national impacts:

1. Our study will expand library literature and broader employment research on the experiences of neurodivergent librarians, identifying current barriers to and enablers of workplace inclusion,
2. Build the capacity of libraries to create workplaces that are inclusive and empowering of neurodivergent workers through the development of training and a toolkit for managers and employees, and
3. Provide a curriculum module and toolkit that can be used by MLIS programs across the U.S. to prepare inclusive future librarians and improve overall neurodiversity inclusion and empowerment in libraries nationwide.
4. **Sustainability:** The toolkit and curriculum will be publicly available on our Autism-Ready Library website. This website is hosted by the University of Washington and already houses output from our IMLS Award LG-246350-OLS-20 award. The toolkit will be released under a Creative Commons Attribution-Non-Commercial 4.0 International (CC BY-NC 4.0). We have chosen this form of intellectual property to reduce barriers for libraries and librarians from all communities to use and adapt the toolkit and training. Our goal is to allow a broad range of libraries and researchers to use our toolkit and curriculum and adapt their components to their local context and share it on their channels. The research team will be responsible for the upkeep and continuous development of the toolkit. Utilizing the UW Information School resources, we will maintain the project website and various project outputs.

### Dissemination Plan

We will raise public awareness of the Empowering Neurodivergent Librarians research effort through UW local and national communication and media efforts to maximize the participation of libraries, library programs, and neurodivergent professionals. The Empowering Neurodivergent Librarians Toolkit will be made available for free to all interested libraries and library science programs and will be publicly accessible to libraries nationwide via our website. To raise awareness of our research and encourage adoption of the toolkit by libraries nationwide and our curriculum to all LIS programs, we will leverage social media outlets such as Facebook and LinkedIn. Recently, the PI Dr. Annabi released a guide to start autism employment programs "[The Autism @ Work Playbook](#)" and leveraged her network and

the network of her partners to do so. The Playbook was viewed 4,600 times on her LinkedIn profile in the span of three weeks. We will also work closely with ALA to help promote the toolkit and the curriculum on their website. We will also promote librarian training modules to be included in MLIS curricula across programs nationwide through ALA conferences and the iConference. Research results and outcomes will be disseminated through library conferences (e.g., ALA; ASIST, ALISE) and publications (e.g., JASIST; *Library Quarterly*). We will also conduct in-person training and workshops at ALA conferences for national impact.

# Schedule of Completion

## Empowering Neurodivergent Librarians to Lead Inclusion in Libraries

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## Digital Products Plan

### *Type*

Our project will produce a toolkit that includes components which will be produced in print and/or digital form. We intend to license the toolkit components under a Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0). We have chosen this form of intellectual property to reduce barriers for librarians from all communities to use and adapt the relevant toolkit components. Our goal is to allow a broad range of libraries and researchers to use our toolkit and adapt its components to their local context. We will include clear instructions on all materials to explain the license terms. The toolkit can be copied, adapted, remixed, transformed, and redistributed in any medium or format with proper attribution and credit. The toolkit may not be redistributed commercially.

We will pay great care in protecting the privacy of all our participants and we will not include their identities in any form in our materials or publications in accordance with our UW IRB terms. We will collect PII for recruitment purposes only (for example names, phone numbers, and email addresses). To protect the data, we will store all PII on an encrypted hard drive with password protection. We will also anonymize all participant data by blurring faces in photographs, using pseudonyms in publication, and employing identification numbers for participants.

We will also be collecting consent forms from librarian participants. Consent forms will be scanned and stored on OneDrive (in compliance with UW IRB). Paper copies will be stored in a locked file cabinet at the University of Washington's office. This project will also entail collecting audio and video recordings of focus groups, interviews, participatory design sessions, workshops, and pilots. We will record videos using video cameras in MP4 format, and audio using dedicated audio recorders. We will also be using questionnaires for assessment. All data will be uploaded to the University of Washington's OneDrive following IRB protocol. All data is protected using UW identification.

The Project Director, Co-PI, and doctoral student are responsible for collecting and securely storing all data and relevant materials in accordance with IRB standards. All recording equipment will be tested prior to each data collection and creation session. Recordings will be checked for quality immediately, and file backups are scheduled for automatic backup on a daily basis. These procedures will be followed and monitored regularly.

We will be developing codebooks and using a content analysis software called Atlas-Ti. None of the data we use in coding will have identifiable information. All documentation, including the codebook, will be stored on the University of Washington's OneDrive following IRB protocol. Memos and analytic notes will be written as DOCX files, and will also be uploaded to the OneDrive. All data access will be protected using UW identification. All data will be associated using pseudonyms and identification numbers.

Our products will be of the following file types:

- MS Office Word (DOCX)
- MS Office PowerPoint (PPTX)
- MS Office Publisher (PUB)
- Audio MP3/MP4
- Video M4A/vtt

All data will be archived and managed on the University of Washington's OneDrive servers compliant with IRB standards. Data will be disseminated in the form of a peer-reviewed journals, conference papers, white papers, reports, and books and book chapters. Data will also be used to inform an online toolkit, librarian trainings, webinars, and workshops.

To address potential cultural sensitivities in relation to the neurodivergent library workers, we will work closely with our participants in the community to assess the language used to describe neurodiversity. Both Dr. Annabi and Dr. Martin

are experienced in sensitivity training and will ensure our toolkit and publications use the correct language to describe neurodivergent librarians and library workers.

We will provide basic metadata for all Toolkit components hosted on our website using Dublin Core standards. Our doctoral students will be responsible for the creation and maintenance of metadata. Metadata will be preserved in a private server using the University of Washington OneDrive.

This data management plan will be reviewed once every three months. The implementation plan will be closely monitored by the PI and doctoral student to ensure privacy, confidentiality, and security. The PI will monitor the data management by creating a list of users with OneDrive access and checking the data for any privacy and confidentiality concerns.

### ***Availability***

Our toolkit and reports will be publicly available for no charge under toolkit under CC BY-NC 4.0 license. We will also disseminate these materials via Twitter, LinkedIn, and Facebook as well as various listservs relevant to libraries.

### ***Access***

We will provide open access to the toolkit under CC BY-NC 4.0 license and require attribution and appropriate credit. We will notify potential users of the license terms on all toolkit materials.

### ***Sustainability***

All digital assets will be stored on the University of Washington's secure OneDrive during and after the award period per IRB regulations. The toolkit will remain available on the project website hosted by the UW iSchool.

## **Empowering Neurodivergent Librarians to Lead Inclusion in Libraries**

*Laura Bush 21st Century Librarian Program – Applied Research*

PI: Annabi

## **Data Management Plan**

### **Types of Data and Materials Gathered and Produced**

The following data will be collected during the course of this project:

1. Recordings and transcripts from 75 interviews with neurodivergent and neurotypical librarians and managers.
2. Survey data (250 responses) from neurodivergent and neurotypical librarians and managers.

The following materials will be created during the course of this project:

1. Training modules (including video recordings, scripts, readings, etc.).
2. Toolkit including recruitment strategies, interview strategies, and onboarding strategies
3. Best practices for policies, procedures, and environmental accommodations

### **Data Storage and Access Standards**

Formal written consent will be acquired from participants prior to any data collection in accordance with the UW IRB. The research team will make every effort to keep all of the information obtained during the study strictly confidential. Such risks will be minimized through adhering to the procedures outlined by the UW IRB. These materials and systems will be maintained under the supervision of the PI and the research team. To ensure the privacy and confidentiality of data for the proposed projects, identifiable data will only be stored and used on password-protected UW servers. Data hosted on UW servers will be accessed over an encrypted VPN connection. In addition, individually identifiable or deducible data will be treated as confidential and will not be transmitted by unsecured telecommunications, which include the Internet, email, and electronic file transfer protocol. Access to participant data will be limited to the research team.

Identifiable information will be stripped from all data to protect the confidentiality of participants. The names that correlate to those numbers will be kept separate, such that any identifying information will be stored in one file, while data with the subject identification number will be kept in a separate file. All confidential materials will be stored on secure servers at the UW. Subject identity will be masked using numeric codes and only the research team will have access to the password-protected master lists. Data will be entered directly into password-protected files stored on UW servers, which only the research team will know. In addition, recorded audio files will be stored on secure UW servers. A UW IRB approved vendor will transcribe all audio recordings. The company is legally bound to comply with privacy policies and is prohibited from duplicating or sharing any information from recorded interviews. All transcripts will be saved on UW secure servers. All names and identifying information will be removed from all transcripts. All transcriptions will be de-identified such that no identifying information (e.g., names, places, streets) will be documented within the transcription.

### **Data and Material Sharing and Dissemination Standards**

Raw data about participants will not be shared outside of the research team without engagement with the research team. This is essential to build trust with the neurodiversity community. Only de-identified data in aggregate form will be shared outside of the research team. De-identified data will be shared with other interested academics, non-profits, and government agencies in aggregate form after analysis in the form of reports. Materials will be shared in electronic format in both Word and PDF format to

allow adaptation to fit the context of the libraries and LIS programs wishing to use the toolkit or the curriculum. Training video modules recorded will be hosted on the UW website and publicly available to view.

To ensure that our project produces meaningful transferable outcomes we will disseminate the research results and materials to multiple audiences through various modalities.

Academic Outcomes: Dissemination of our research findings will take place through standard research outlets including conferences, internal and external presentations to departments and colleges, academic journals, and workshops.

Libraries: Libraries will have access to our research findings through reports and presentations of aggregate data. We will work closely to contextualize our findings relating to different types of libraries to build internal capacity for the inclusion of neurodivergent librarians.

The field of librarianship: We also will share our findings with LIS programs through national library associations to transform the library profession to lead neurodiversity inclusion and empowerment.

### **Data and Material Archiving Standards**

Per UW IRB requirements raw data (e.g., audio recordings of interviews, survey data) will be retained for 6 years from the project close date and stored on secure servers at the UW. De-identifiable interview transcripts, survey data, and documentation will be stored indefinitely on UW servers. Shredders will be used on any printed material containing individual identifiers.

## The Information School at the University of Washington

### **Mission**

*Our Passion.* We are inspired by information. We want everyone to know how vital information is in all aspects of life. *Our Vision.* We envision a world where effective use of information helps everyone discover, learn, innovate, solve problems and have fun. We envision a world free of existential problems. Information changes lives. *Our Mission.* We make information work. We prepare information leaders. We research the problems and opportunities of information. We design solutions to information challenges.

- Source: <https://ischool.uw.edu/about/mission-vision>, Adopted by the Dean most recently in 2021 after consultation with faculty, staff, student and external advisory boards and councils.

### **Governance Structure**

The Information School is one of 18 independent schools and colleges comprising the University of Washington, a Tier 1 public research university ranked by Reuters as one of the top five most innovative public universities in the world in 2019. Study at the iSchool is guided by the Dean, who reports to the Provost. The iSchool currently consists of 70 faculty members of diverse expertise, with backgrounds ranging from the library and computer sciences to education, business, philosophy, and sociology.

### **Service Area**

The UW iSchool serves the people of the state of Washington.

### **Brief History**

Founded in 1911, the library school at the University of Washington was established as a response to the growing need, in the Western United States, for highly trained, well-prepared librarians. Over the course of the next 90 years, the school continued to play an essential role in the field of librarianship in the Northwest, as the school gained a reputation for producing extremely strong library professionals. Beginning in 2000, in response to changes in the ways people create, store, find, manipulate and share information, the school introduced a variety of new continuing education certificate programs and new degree programs, including the Online Master of Library and Information Science, the Bachelor of Science in Informatics, the Ph.D. in Information Science and the Master of Science in Information Management. In 2001, the Information School became the newest independent school of the UW, known simply as the Information School, or the iSchool, for short.

In the most recent U.S. News and World Report rankings (2021) of Library and Information Science programs, the UW iSchool is ranked second overall in the nation; second for digital librarianship and for information systems; third in health librarianship; fifth in services for children and youth; and eleventh in school library media. As a leading member of the iSchool movement, the UW is a model for other information schools around the world. The iSchool offers four degree-granting programs. The flagship program, the ALA-accredited Master of Science in Library and Information Science (MLIS), the oldest such program west of the Mississippi River. The iSchool also offers a Bachelor of Science in Informatics, Master of Science in Information Management (MSIM), and PhD in Information Science.