



LAURA BUSH 21st CENTURY LIBRARIAN PROGRAM

Sample Application RE-259930-OLS-26
Project Category: Applied Research

University of Illinois Chicago

Amount awarded by IMLS: \$290,116
Amount of cost share: \$0

Researchers from the University of Illinois Chicago and University of Wisconsin-Madison will investigate academic library leader decision-making around technological adoption and create a tool to support evidence-based decisions around future technologies. As technological trends such as blockchain, virtual reality headsets, and online badges cycle through mainstream media and professional discussions, academic library leaders are continually challenged to make smart bets on these technologies, often at rapid speed. However, library leaders lack practical evidence-based tools to support this decision making and there is little known about the guidelines and resources they use to support or reject emerging technology adoption. This applied research project will include a literature review, interviews with academic library leaders, and tool development and testing, to support library leaders in making technology decisions.

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

When preparing an application for the next deadline, be sure to follow the instructions in the most recent Notice of Funding Opportunity for the grant program to which you are applying.

Title: Valid or Void: Critically Evaluating Technology Trends for Academic Library Adoption

Introduction

As technological trends and fads such as blockchain, Second Life, virtual reality headsets, and online badges cycle through mainstream media and professional discussions, academic library leaders are continually challenged to make smart bets on new technologies. They must do this to meet both internal and external pressures, facing budget and training demands, and often at rapid speed. However, library leaders lack practical evidence-based tools to support this decision making and there is little known about the guidelines and resources they use to support or reject emerging technology adoption. With the project director from the University of Illinois Chicago and an independent researcher, the project team requests a Laura Bush 21st Century Librarian Program -- Applied Research grant for \$290116 to address the following research questions:

1. What differences in tone, rhetoric, or trend attribution are evident between technological trends with staying power and those without, as those trends reach the library community in library journal and conference literature and presentations?
2. What pressures, assumptions, and motivators impact academic library leaders' decisions for and against investment in such trends?
3. What concrete, easily-answerable questions would best support library leaders' decision-making around technology?

With this funding we will (1) conduct a rapid review of the library literature and conference materials to investigate how emerging technologies have been presented, discussed, and embraced in academic libraries; (2) conduct interviews with academic library leaders to understand what guides their decision to adopt technologies, what they wish they knew, and identify factors leading to success or failure; and (3) create and iteratively test an evidence-based decision tool, the Valid or Void Checklist, for academic library leaders to use with future technologies.

Project Justification

New technologies are often presented to academic librarians as critical for relevancy, but libraries cannot afford to climb on every bandwagon. **Administrators must dedicate resources** to integrating promising technologies into staff and patron workflows, while rejecting novelties that are irrelevant, unappealing, unlikely to endure, or too costly. As unsustainable fads fade only to be replaced by new ones, librarians and their leaders struggle to choose wisely, instead feeling constantly pressured, reactive, or outdated. While other disciplines have examined technology adoption cycles (Williams et al. 2024, Webster 2017, Ramiller 2006), they have been insufficiently addressed and understood in academic libraries, leaving academic library leaders without decision-support tools. Additionally, as documented by Lauseng et al (2022), decision-making processes of academic library leaders are under-studied.

Rapid Change in Technology

A survey of issue and chapter titles in *Library Technology Reports* demonstrates how often novel and interesting technologies cross from the mainstream into academic libraries – and, given the rarity of

second looks at the same technology in *LTR*, how quickly they fade from view, leaving little behind but resource investments that see inadequate return in service quality or improved institutional perception of libraries.

The barrage of attention-seeking from technology creators and new-technology proponents easily overwhelms leaders seeking to make strategic decisions about where to experiment, where to go all-in, and where to refuse. Intimidation-based or deficit-model rhetoric from some early adopters – “libraries that don’t adopt this will be obsolete!” (Krowne 2005, Delaney & Bates 2014) or “this will save libraries!” (Edwards 2024) – does not help; neither do evidenceless assertions that a given technology will apply seamlessly to an established library process (see e.g. Brzustowicz 2023 and critical responses in the subsequent issue).

Suboptimal outcomes, from the perspective of academic-library leaders, include constantly feeling technostress (West 2007), prematurely overcommitting resources into technologies that do not pan out (e.g. the institutional repository; see Kitchin Tillman 2017), difficulty resisting pressure (from outside and even from campus constituencies) for premature adoption, and missing out on promising technologies because limited existing resources have already been committed to flashy overhyped ones. Better technology assessment and decision-making tools could help leaders avoid these dangers.

Technological Adoptions Theory / Hype Theory / Adoption Cycles

While other disciplines have examined their technology adoption cycles (Williams et al. 2024, Webster 2017, Ramiller 2006), LIS has not. The existing technology-adoption literature tends to either float very broad adoption theories (e.g. Momani 2021) or hyperfocus on extremely specific technologies and communities (e.g. Dehler-Holland et al. 2021). Applicability of existing broad theory to librarianship is therefore not known, and few if any hyperfocused studies address library-relevant technologies.

Existing studies of hype sometimes also try for unified theory (e.g. Powers 2012, van Lente et al. 2013), but more commonly they address: its value to proponents of the hyped phenomena (e.g. Ukobitz & Faillant 2022), rhetorical strategies and their impacts (e.g. Cai et al. 2023, Korotkova et al. 2023), likelihood of success or sustainability of hyped phenomena (e.g. Fox 2018), and (very rarely) impact on organizations trying to cope with hype (e.g. Hedman & Gimpel 2010, Wang 2010). None of the existing literature addresses the library context.

Studies of Technology Change and Adoption in Academic Libraries

As evidenced by *Library Technology Reports*, academic library technology adoption literature has focused primarily on single technology adoption or on how the adoption of technology requires hiring or reskilling (Gold 2010). These pieces often cast overt or subtle aspersions on the limitations of library schools’ ability to provide full courses on the latest emerging technology (Creamer et al. 2012, Bishop et al. 2022) without comparable examination of how library leaders do or don’t commit to upgrading the knowledge and skills of current employees. When journal or conference pieces discuss multiple kinds of technology together, they are often presented as universal panaceas (Varnum 2019) across all types and sizes of libraries, which limits decisionmaking and implementation applicability.

Decision-making in Libraries

Academic library leaders have to make continuous, often reactive, decisions around quickly-evolving technology as they face demands from employees, faculty, students, administrators and beyond. However, little literature documents how academic library leaders balance internal and external pressures, seek information, identify solutions, and ultimately make decisions about the technologies they adopt in their libraries. The most comprehensive scoping review that we can build upon is by Lauseng et al (2022), which only found 33 articles addressing influencing factors of library administrator decision-making. The Lauseng review identified inputs such as use of interviews and surveys, datasets, scenario development, literature reviews, and vendor statistics, with the influences coming from campus administration, staffing factors, budget, assessment, space, and other/insufficient data and information. Notably, student requests or demands are not represented either in inputs or influences. Further, of the papers included in the scoping review, only two focused on technology-adoption decisions. This project builds, therefore, on the excellent work already conducted by Lauseng, et al., hoping to fill in some of its gaps.

In “Changing Leadership, a Longitudinal Study of Decision-Making” (2024), Meier repeats a 2016 series of interviews with senior library leaders at American Association of Universities institutions. The paper focuses on overarching trends impacting academic libraries, only briefly touching upon emerging and evolving technology, specifically concerns around artificial intelligence. While Meier does ask leaders what resources they rely upon to make decisions generally, we believe that leaders’ answers will change when asked more targeted questions about technology decisions specifically. Finally, this paper is limited in its target population, examining only the most well-off academic institutions. We anticipate that engaging with a more comprehensive group of library leaders will reveal not only common trends but also variety driven by constrained budget and staff resources.

Also under-studied is hype-driven malinvestment in novel technology that turns out to be unsustainable, inadequate, or not as useful as claimed. The majority of literature and conference proceedings around technology is focused on emerging and changing trends or on a single technology, without addressing overall cycles of technological adoption or evidence-based utility. The literature also lacks retrospectives on hyped technologies that failed to gain a foothold. Drawing upon our own previous research on technology ethics, accessibility, and information security, this applied research project will combine an investigation of **15 years of technological cycles in academic libraries** with interviewing library leaders to develop a grounded appraisal tool to assist academic librarians in avoiding empty hype by critically and consistently assessing new technologies for adoption.

The target group for the project is academic library leaders responsible for technology decisions. This will include directors, department heads, and deans (depending on the organizational structure), and will best support those in resource-constrained environments as well as those who must resist poorly-considered internal and external pressure to adopt the latest hyped technology despite unproven utility or poor quality of the underlying evidence base. An additional target is academic library employees interested in new technologies and seeking to evaluate them against criteria that leaders may use before recommending purchase or adoption. The American Library Association reports that there are nearly 4,000 academic libraries presently in the United States; we anticipate there could be

1-2 individuals at each library who might wish to use the tool, leading to a target group of approximately 5000-7000. We also see this tool as beneficial to academic library employees and patrons; a guided decision making process supports a fruitful balance of seeking innovation with careful stewardship of resources.

While libraries have embraced data-driven and evidence-based decision making for many areas of academic librarianship, the speed of technology change often precludes waiting on the formal establishment of a literature base or drawing upon peer institutions' data findings before leaders must determine whether to make an investment. This research will identify specific issues and information needs identified by academic library leaders as inputs to technology-adoption decisions.

Project Work Plan

Over three years, this project will investigate the following research questions:

1. What differences in tone, rhetoric, or trend attribution are evident between technological trends with staying power and those without, as those trends reach the library community in library journal and conference literature and presentations?
2. What pressures, assumptions, and motivators impact academic library leaders' decisions for and against investment in such trends?
3. What concrete, easily-answerable questions would best support library leaders' decision-making around technology?

Each phase of the grant is designed to provide scaffolding that supports the following phases. The initial investigations will provide the evidence base to then develop and pilot a short critical checklist that supports academic librarians appraising technology trends. This project will support LB21 Program Goal 2.1 by providing an accessible, evidence-based tool for critical technological appraisal for academic library adoption.

Phase One: Rapid Review

In the initial phase of the research, we will ground the project in the existing literature and establish a web presence for the project. Goben will lead the starting activity for the project, which will be a rapid review (Grant and Booth 2009) which lists and appraises technology trends discussed at library conferences and in professional library literature in the period 2005-2020. As this rapid review otherwise follows a scoping review methodology, we will draw upon the Arksey and O'Malley (2002) methodological framework to guide the data collection and analysis. The topics we will investigate include:

- Capturing an overview of technology trends in academic libraries as captured in library literature and conference presentations
- Determining the perceived efficacy of trending tools
- Identifying documented drivers towards or against adoption or rejection of trends
- Measuring overarching diffusion of trend awareness and adoption

Goben and Salo will co-develop and conduct the rapid review including creating database searches. A graduate hourly assistant will support the project team conducting preliminary searches and

scanning historical conference schedules and proceedings. Goben and Salo will create inclusion and exclusion criteria and use the Covidence review software to screen titles and abstracts. Full text documents and materials will be analyzed by Goben, Salo, and the graduate hourly assistant to reveal trends. The Advisory Board (See Pg. 7) will be asked to review proposed database searches and identify additional conferences or sources of gray literature to enhance the review.

Outputs: The outputs from this phase will include at least one journal article manuscript, a published search protocol, a bibliography of included materials, a bibliography of excluded materials, and materials created by the project team from any webinars or conference presentations.

Phase Two: Library Leader Interviews

The rapid review results will inform the initial interview protocol, which we will develop via grounded theory techniques ([Charmaz 2014](#)). The interview protocol will undergo a cognitive review with at least 2 colleagues at the University of Illinois Chicago before undergoing a pilot test with members of the Advisory Board. The final version of the interview protocol will be reviewed and approved by the UIC Institutional Review Board (IRB) prior to the conduct of research.

The goals of the interviews will be to identify:

- Technology trends that library leaders did adopt
- Technology trends that library leaders did not adopt
- Technology trends that library leaders regret adopting OR not adopting
- Information sources that supported library leaders in these decisions
- Facilitators, barriers, or pressures encountered when investigating technology trends
- Successes or failures

The pursuit of relevance and the pressures of technology hype can put library leaders in a tenuous position faced with institutional administrative pressures. Library leaders may feel uncomfortable revealing how they have made decisions about technology or may not be willing to publicly share about a failure related to technology adoption. By asking these more difficult questions in interviews, we will provide as much opportunity as possible for leaders to be candid without incurring individual reputational harm.

Up to 25 one-hour interviews will be conducted remotely using a web conferencing platform and will utilize built-in transcript tools, to be supplemented with transcript software available in qualitative analysis software such as nVivo. We will recruit broadly among colleagues who are currently at a variety of academic library types, sizes, and geographic locations around the United States. In order to gain historical insight, we will attempt to also engage with recently retired library leaders, who may be more willing to speak about challenges or failures.

Once we have received IRB approval, Goben and Salo will each conduct interviews with the support of a graduate assistant. We anticipate these interviews to be scheduled over a 4-6 month period, recognizing time constraints on library leaders. The graduate student will review and correct the automatic transcript. Using qualitative software, we anticipate using inductive coding to identify

potential themes in internal and external pressures, trend identification and assessment, choicemaking, and insights from hindsight.

Outputs: The outputs from this phase will include an interview protocol, a sample de-identified transcript, a coding handbook, a selection of excerpts from the full transcripts, at least one journal article manuscript, and materials created by the project team from any webinars or conference presentations.

Phase Three: Development of the Valid or Void Checklist

We will use findings from the rapid review and the Phase 2 interviews to shape the creation of the **Valid or Void Checklist**, a decision-tree style tool to assist academic library leaders and librarians in critically assessing emerging technology trends. Goben and Salo will jointly create the initial draft. Considerations the checklist may contain include: noticing unsupported *hype*, seeking *evidence* of positive impact; documenting required *implementation resources* including staff time, training, and licensing fees; aligning with institutional *strategic priorities*; and assessing potential *harm* to patrons. After drafting the tool, we will seek feedback from our Advisory Board and from colleagues at our local institutions and revise accordingly.

We will then ask library leaders from a variety of academic institutions to participate in hour-long focus groups to test the tool for utility, usability, and comprehensibility. The focus groups will be conducted remotely using web conferencing platforms and will utilize built-in transcript tools, with 5-8 participants per focus group. For these focus groups we will develop and use talk-aloud protocols to encourage participants to speak about how they would use the draft tool, how they might integrate other input, and to identify any gaps in the tool or additional items they evaluate as they are considering a technology. The use of focus groups will additionally allow for library leaders to compare their decision-making inputs and challenges for commonalities or uniquenesses compared to other participants.

The goals of the focus groups will be to

- Ensure that referrals to common resources are represented
- Identify any missing red/green flags which would halt or promote technological adoption
- Identify any external pressures which may override library leaders' judgment or require additional input to navigate

Goben and Salo will co-develop the focus group protocol. We will recruit broadly among a variety of academic library types, sizes, and geographic locations around the United States. Following appropriate Institutional Review Board approval, Goben and Salo will each conduct focus groups with the support of the graduate hourly assistant in two iterative phases, with allowances for changes and relevant edits to the two in between. As we expect to do 2 rounds of testing with up a total of 50 leaders with appropriate revisions and adapted versions, we expect data collection to take at least 6 months. The final version of the Valid or Void Checklist will be released on the project website in Summer 2029 under a Creative Commons license, with a stable version in the University of Illinois Chicago institutional repository, INDIGO, which is hosted on the figshare platform.

Outputs: The outputs from this will include the final Valid or Void Checklist with any accompanying usage documentation, the focus group protocol, and materials created by the project team from any webinars or conference presentations.

Team Description

This three-year applied research project will consist of a trend analysis rapid review, 20-25 virtual interviews with academic library leaders, and the development and focus-group based testing of a technology-trend critical appraisal tool, the Valid or Void Checklist. The project will be carried out by Abigail Goben (UIC) and Dorothea Salo (independent researcher) with the support of a graduate hourly assistant.

Abigail Goben (UIC) is the Data Management Librarian and Professor at the University of Illinois Chicago. She has an extensive research background focused on research data management policy and education and student privacy and learning analytics. Goben has developed curricula and practical tools such as the Data Departure Checklist and the ACRL Research Data Management Road Show. She manages the Data Squids, a team of graduate students from a variety of disciplinary backgrounds who support researchers in developing data management plans.

Dorothea Salo has taught library-technology courses that help students navigate trends and hype since 2007. Her research has investigated digital-library sustainability, library privacy practices, metadata quality, learning analytics, and ethics in the adoption and promulgation of novel technologies such as linked data.

Goben and Salo have collaborated on research and practical scholarship for over a decade. Most recently, they were two of the investigators on the Data Doubles project, an IMLS-funded investigation of library learning analytics and student privacy. During that project, both conducted and coded interviews and focus groups, which provides a recent familiarity with managing these research protocols in an online environment. The graduate hourly assistant(s) for this project will be recruited from either the iSchool at the University of Illinois Urbana-Champaign, which is in-system for Goben, or from graduate students at UIC who have a demonstrated interest in social science scholarship related to technology adoption.

We will also gather an Advisory Board with members providing expertise related to interview methodology (Andrew Asher, Indiana University), academic library leadership (Sarah Shreeves, University of Utah), navigating technology adoption (Derrick Jefferson, American University), and technology development and evaluation (Andromeda Yelton, Ithaka). We anticipate adding an additional Advisory Board member with applicable expertise in decision-tool development. The project team has an extensive combined research resume in areas including learning analytics and patron privacy; technology ethics; research data education and policy; information security; and accessibility.

Project Results

The outcomes for this project include:

- The Valid or Void Checklist: provided in a downloadable and editable format on the project website and in an institutional repository.
- At least two journal article manuscripts: one from the rapid review and one from the interviews.
- Bibliographies of included and excluded materials from the rapid review
- A published search protocol from the rapid review
- Interview and focus group protocols as approved by the UIC IRB
- Coding handbooks, sample transcripts, and selections from full transcripts from the interviews and focus groups
- Materials from webinars or conference presentations.

The primary anticipated result from this project will be the Valid or Void Checklist, supported by research and practical publications and presentations. The checklist will be a practical and flexible tool that can meet the needs of academic library leaders across institutions to serve as a starting point or a check when evaluating the newest technology and determining the financial feasibility, the value to library patrons and operations, the impact on staff, and anticipated benefits or harms from participation. The checklist will be grounded in an understanding of recent technological adoptions by academic libraries and informed directly by the needs and understandings of current academic library leaders. The checklist will have undergone validation, allowing for adoption and implementation across a variety of library types. However, we anticipate releasing it with a CC-BY-NC license to allow for further modifications and developments at the local level or in additional languages.

We are approaching this project using grounded theory, a standard social science technique, as it will help us to understand leader behavior in an otherwise uncertain landscape. We are further basing our results on the evidence drawn from library literature and conference proceedings to provide generalizable and transferrable understanding of the state of the discipline over the time period examined.

Additional results include anticipated journal article publications and the release of our protocols, search strategies, code books, and other materials underlying the interviews and focus groups. We are committed to Open Science practices and want to provide the broadest amount of material available while still respecting the participants who are contributing their time, experience, and expertise. No identifiable materials about a person or specific institution will be included in the shared documents. The archive for our shared materials will be the University of Illinois Chicago institutional repository, INDIGO, which is hosted on the figshare platform, with appropriate submission of peer reviewed publications to IMLS. The rapid review protocol may additionally be shared in an appropriate protocol repository. Wherever possible, materials will be stored in non-proprietary formats and will be released under a CC-BY-NC license and in open access publications to facilitate discovery and use.

To reach our target audience of library leaders and librarians interested in technology, we will publish the underlying research in open access library administration and technology journals, such as the

code4lib journal, *Information Technology and Libraries*, *College and Research Libraries*, and the *Journal of Library Administration*. We anticipate at least 2 peer-reviewed publications addressing the different phases of the grant, with potential additional publications to be completed following the end of the performance period. Throughout the grant period, we will submit to conferences commonly attended by academic library leaders such as CNI, CALM, CORE Forum, and ACRL. Additionally, we will pursue opportunities to share our findings and the tool through continuing education webinars during and for a year following the end of the performance period. We will also disseminate updates and ongoing findings through the Valid or Void project website, which will be hosted through the University of Illinois Chicago University Library. The website and the affiliated project repository will ensure that any presentations or guidance made available will be retained and accessible past the life of the grant.

The goal of the Valid or Void checklist project is to create a tool that will be adaptable to a variety of new technologies in the coming decade. We cannot anticipate all of the changes or considerations, but are grounding our understanding in both the experienced literature surrounding previous technological trends and by drawing from lived experience of current and past colleagues who have made these decisions. By using these forms of evidence, the checklist will be more durable and flexible.

We anticipate that future research might investigate outcomes of implementing the Valid or Void checklist, which could aid modifying the checklist for unusual library types, potential use in public libraries, or expansion beyond academic libraries to other areas of the academy where leaders are seeking transferable practical tools for decision-making. As researchers, we anticipate continuing our research investigations and writing related to technological adoption in academic libraries beyond the performance period. Ultimately, it is our hope that this project may assist in changing the narrative around technological adoption away from a focus on hype and urgency towards ensuring alignment with library strategic directions and values, responsible allocation of funding, and moving towards sustainable engagement with new and emerging technologies.

Valid or Void Schedule of Completion

[illegible]

ACTIVITY	MONTH START	MONTH DURATION	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Hire Grad Assistant	13	2																																				
Interviews: Conduct	13	5																																				
Interviews: Analyze	16	5																																				
Checklist: Create Initial VoV Draft	20	6																																				
Interviews: Draft Manuscript	23	3																																				
Interviews: Manuscript Submission	25	1																																				
Checklist: VoV Cognitive / Advisory Tests	26	1																																				
Checklist: Focus Group Protocol Development	26	2																																				
Checklist: Instrument Revisions	27	1																																				
Checklist: UIC Institutional Review Board	28	2																																				
Checklist: Recruit Focus Group Attendees	30	1																																				
Checklist: Focus Groups Round 1	31	2																																				
Checklists: Revisions	33	1																																				
Checklist: Focus Groups Round 2	34	2																																				
Checklist: Revisions	35	1																																				
Submit Public Access Materials to INDIGO and IMLS	35	1																																				
Checklist: Release to Project Website	36	1																																				
Final Report to IMLS	36	1																																				