

When Roles Collide: Librarians as Educators and the Question of Learning Analytics

By Megan Oakleaf, Malcolm Brown, Dean Hendrix, Joe Lucia, Scott Walter

Introduction

Learning analytics, the “collection and analysis of usage data associated with student learning...to observe and understand learning behaviors in order to enable appropriate interventions,”¹ is no longer a new idea in higher education. Rather, learning analytics is an established area of cross-institutional cooperation on many campuses. As learning analytics evolves from a novel approach to an accepted strategy for investigating and supporting student success, librarians have an opportunity to consider ways in which they might collaborate with institutional partners who are already engaged in learning analytics and contribute their unique outlook and expertise to this endeavor.

From a library perspective, there are many ways to investigate and explore the student-library interactions that contribute to student success. Indeed, librarians have already conducted substantial research to uncover student library behaviors that are linked to academic achievement using a variety of strategies, including surveys, tests, performance assessments, ethnographies, and correlation studies. As institutions augment such traditional approaches with learning analytics, librarians can determine how (or whether) to engage in their institutions’ learning analytics-based efforts to identify student trouble-spots, share information with students, and intervene in order to improve student learning experiences and environments.

The prospect of library participation in institutional learning analytics raises a number of questions that may inspire professional introspection and challenge long-held beliefs embedded in the practice of librarianship. For example, librarians can reflect upon traditional professional values surrounding the use of individual-level data, the granularity of data maintained within in-house or via vendor partners, and the possibility of true opt-in or opt-out choices. At the same time, librarians can consider unprecedented data-focused options to support institutional student success work, determine what libraries could or should contribute to the larger picture of student success at their institution, and envision the ways in which libraries can transform their services and resources to better meet student learning needs. In working through the apparent conflicts presented by engagement with learning analytics, librarians can expand their role as educators who contribute more directly and actively to the learning, engagement, and success of students at their institutions, individually and in aggregate...but they also must seek ways to align that work with precedents in library practices. When longtime library practices and emergent expectations of student success support appear in conflict, how can librarians honor the values of both roles? And how might librarians who

broaden their educational role to incorporate learning analytics navigate the historical conventions of the library profession?²

Library Integration in Institutional Learning Analytics (LIILA)

The IMLS-funded Library Integration in Institutional Learning Analytics (LIILA) project sought to engage these issues and questions through increasing librarian awareness of learning analytics. The project brought together dozens of academic library leaders, library and higher education professional organizations, information technology professionals, and library and educational technology vendor partners in a wide-ranging discussion what role academic libraries could or should play in learning analytics. As a part of the larger project, participants considered ways in which librarians might contribute to institutional learning analytics initiatives in order to grow the educational role and impact of libraries while simultaneously honoring professional values and ethics.

Overall, LIILA aimed to achieve four goals:

- To increase librarian awareness and engagement in learning analytics,
- To craft a plan for integrating academic libraries into learning analytics initiatives that support student learning and success,
- To develop sustaining partnerships and collaborations among librarians and learning analytics lynchpins, institutional and library systems professionals, and library vendor communities, and
- To explore, design, and develop library use cases and data profiles that can be used with learning analytics standards to integrate library data with institutional data stores.

To achieve these goals, LIILA participants convened at three National Forum meetings which took place at the EDUCAUSE Annual Conference in Philadelphia (November 2017), the Coalition for Networked Information (CNI) Fall Meeting in Washington, D.C. (December 2017), and the CNI Spring Meeting, San Diego (April 2018).

The results of the LIILA project are captured in a freely available report and serve as the basis of this paper. It should be noted that while LIILA was the first learning analytics-focused grant funded by IMLS, there are several ongoing projects that interested librarians can follow, including Data Doubles,³ the Library Learning Analytics Project (LLAP),⁴ CARLI Counts,⁵ and Connecting Libraries and Learning Analytics for Student Success (CLLASS).⁶

Learning Analytics Defined

Learning analytics has been described as “the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purposes of understanding and optimizing learning and the environments in which it occurs.”⁷ In a nutshell, learning analytics employs data to improve learning contexts and help learners succeed. To accomplish these goals, learning analytics systems input data from a variety of sources and output descriptive

information about student populations and cohorts; this information is employed to discover behaviors, characteristics, or other attributes that appear to lead to student difficulties or successes.

The phrase “learning analytics” has been used within library circles as a synonym for any kind of library assessment utilizing student data; this is a departure from how the term is used in higher education conversations. Within higher education, “learning analytics” is a term used in two main ways. First, learning analytics is generally used to refer to the use of institutional-level systems that collect individual-level student learning data, centralize it in a warehouse or “record store,” and serve as a unified source for research seeking to understand student success. Second, learning analytics is sometimes employed to refer to early alert or integrated planning and advising for student success (IPASS) systems. IPASS systems offer an “integrative approach to student success that promotes shared ownership for educational progress among students, faculty, and staff. [IPASS systems] help students formulate and advance toward educational goals, including advising, counseling, progress tracking, and academic early alerts. IPASS technologies can contribute by documenting and tracking students’ educational plans, improving data analysis, offering self-service resources that reduce advisor workloads, and triggering interventions based on student behavior or faculty input.”⁸ These systems attempt to predict which students are “at risk” or “high priority” based on known attributes so that educators can intervene quickly. Interventions emanating from learning analytics systems include notifications to students, advisors, or faculty; recommendations or requirements for students to meet with support services, changes to institutional processes or policies; or other actions intended to support improved student outcomes.⁹ In some cases, institutions also employ engagement analytics systems to understand student participation in activities outside the classroom, including student groups and other co-curricular initiatives. Because student engagement often correlates with student success, these systems may also be included under a “learning analytics” umbrella at some institutions.

Whether focused on the development of learner record stores that can be used to understand student success or embodied in an IPASS or engagement tracking system, learning analytics seeks to: 1) help educators discover, diagnose, and predict challenges to learning and learner success; 2) enable instructors to identify and enact necessary changes to improve and customize educational content, delivery; 3) empower learners with insights into their own learning;¹⁰ and 4) point the way to successful and active interventions that benefit students, especially those who may be less familiar with the unwritten rules of higher education, including first-generation students, community college students, students of color, students with disabilities, and veterans. Used in this manner, learning analytics can provide a valuable tool to support the success of students of diverse populations.¹¹

Typically, the data used by learning analytics systems comes from student information systems, learning management systems, clickers, publishers, video-streaming and web-conference tools, surveys, and co-curricular and extracurricular involvement systems.¹² Currently, library data are typically omitted from learning analytics systems. In recent years, however, librarians are engaging issues and questions surfaced by learning analytics and actively working to determine

how (or whether) to close this gap.¹³ Indeed the integration of library data in institutional learning analytics initiatives represents a significant shift for librarians and one that seemingly places librarians' roles as educators and as guardians of privacy at odds. In response, librarians may ask: What is the librarian's role in institutional learning analytics efforts? Are librarians bound by past choices with regard to individual-level student information? How can librarians, as members of the institutional educational team, participate in learning analytics to support individual student learning, engagement, and academic success while simultaneously honoring professional values?

How can Librarians Expand their Educational Role Using Learning Analytics?

Librarians have long supported student learning, engagement, and success. Librarians ensure student access to information essential for learning and support students as they persist and attain their goals. They teach information literacy as well as disciplinary and general learning outcomes. They support students as they develop metacognitive skills and seek self-actualization in a variety of contexts, including their immediate learning environments, the broader community, and the world around them. In short, librarians help students learn, develop, and achieve.¹⁴

Librarians can amplify this educational role within their institutions by engaging in institutional learning analytics initiatives in a variety of ways. Librarians can situate learning analytics among other learning assessment approaches, identify problems that merit the use of learning analytics, ask questions, and envision library data contributions. By taking these actions, librarians can explore how library integration into learning analytics can bring librarians into institutional discussions and decision-making focused on student learning, engagement, and success and ensure that librarians continue to be (and be viewed as) essential partners on the institutional educational team.

Situate Learning Analytics among Other Learning Assessment Approaches

Assessment is an essential skill for any educator, and effective educators seek expertise in a variety of assessment approaches. Librarians, who are already familiar with many assessment strategies, can build their assessment repertoire and augment their roles as educators by situating learning analytics among more familiar learning assessment approaches. For decades, librarians have used surveys, tests, performance assessments, rubrics, ethnographies, and correlation studies to 1) gain insights into the needs, goals, and values of their learners; 2) design learning experiences that meet students where they are, engage them in meaningful ways, and enable them to attain greater agency in their own lives; and 3) reflect in order to improve each iterative teaching cycle, ultimately increasing the value of education for their present and future learners.¹⁵ Now, as higher education leverages learning analytics to assessing and understand student learning, librarians can explore the commonalities as well as differences between learning analytics and past assessment approaches. For example, both past assessments and learning analytics approaches seek to determine whether or not students

are learning from their interactions with the library; likewise they are both intended to yield clues about services and resources librarians can provide to increase their impact on student learning.¹⁶ Past assessments and learning analytics efforts differ in that past assessment approaches tend to be episodic rather than longitudinal, limited to information held within the library organization rather than a full view of the student experience, and focused on describing the past rather than anticipating the future. Many past assessment approaches have also been relatively small in scope, controlled by librarians, and limited in the amount of individual-level data captured and used. Learning analytics, in contrast, is longitudinal and ongoing, includes data from across the institution, and leverages the past to predict the future. Learning analytics also tends to be much larger in scope, may or may not offer librarians control and oversight, and involves the collection and use of individual-level data. Thus, there is room in the library assessment toolbox for more approaches that fill the gaps left by existing assessment methods.¹⁷ Indeed, library participation in learning analytics represents a logical evolution of library efforts to assess student learning.

Identify Problems Meriting a Learning Analytics Approach

In higher education, librarians play an important educational role by helping their institutions achieve their missions and supporting students as they attain their goals. While past assessment approaches have shed some light on how libraries impact (or could impact) institutional missions and student goals such as learning, engagement, and success, learning analytics may reveal more or different information that can enable libraries to develop improved services, resources, or facilities, thereby providing greater value to students both individually and on an institutional scale. Librarians who wish to leverage learning analytics to augment their educational impact on students can determine what areas of institutional mission and student support merit a learning analytics approach.¹⁸ Librarians can engage in the following questions to begin to surface areas in which a learning analytics approach is warranted:

- What are the problems we—as librarians, members of a library organization, and participants in an institutional community—are trying to solve that may benefit from information gleaned from learning analytics systems?
- What needs do our students or other stakeholders have that might be fulfilled using information generated by learning analytics efforts?
- What improvements, changes, or customizations could we make to library services, resources, or facilities if we had more information about these problems and/or stakeholder needs? Could that information be supplied by engagement in learning analytics?¹⁹

Asking Questions

The next logical step for librarians seeking to develop their educational roles by engaging in learning analytics is to ask focused questions about potential library contributions to learning analytics at their institution.²⁰ Asking questions can help librarians surface their beliefs,

conceptions, and possibly misconceptions of learning analytics; discover the degree to which their institutions are involved in learning analytics; and anticipate ways in which learning analytics might allow them to increase their support of student learning. Librarians may begin with questions about what library integration in institutional learning analytics might “look like,” including:

- What library data can help complete an institutional picture of student learning and success?²¹ Conversely, what data are relevant at the library level but may not be significant at the institutional level?²²
- Imagine library data were integrated into learning analytics systems at the institutional level. How might that result in improvements to student learning and success?²³
- What unmet student success needs might be surfaced by the inclusion of library data in learning analytics initiatives?
- How could the integration of librarians into learning analytics initiatives help libraries intervene or improve to help students?
- Other than the inclusion of library data in learning analytics initiatives, in what other ways might libraries become integrated into the learning analytics efforts of their overarching institution?
- How might librarian roles evolve as more institutions (and perhaps their libraries) advance in their learning analytics efforts?²⁴

Asking these questions can help librarians initiate learning analytics discussions internally and engage in broader educational dialogue about learning analytics at their institutions.

Envision Library Data Contributions

Librarians seeking to extend their educational role by exploring potential synergies between library data and learning analytics can conduct an audit of existing library data that could be added to institutional systems and, in so doing, contribute to a holistic understanding of student learning, engagement, and success. To determine what library data might be candidates for inclusion, librarians can inventory the data they collect, investigate the potential utility of each data point in developing a more complete picture of student behaviors, gauge the accessibility of data points deemed relevant, evaluate anticipated security or ethical concerns related to individual data points, and determine an initial list of library data to consider as relevant to learning analytics efforts. A detailed list of data points librarians can consider is available in the LILA report.²⁵

How can Librarians Honor Privacy Values within the Context of Learning Analytics?

As a profession, librarians have long upheld privacy values and ethics as well as institutional or organizational policies and legal requirements. To protect user privacy, librarians have embraced practices of not recording, not maintaining, and/or actively destroying personally identifiable information. Any change in practices involving gathering, saving, or sharing

individual-level data requires thorough consideration and discussion of attendant risks. It is reasonable to be concerned that bad things could happen if individual-level data are improperly secured, not protected by policy, bereft of an appropriate governance structure, or otherwise mismanaged or mishandled. The potential for data insecurity should raise concerns and inspire judicious use of data; it should also serve as an impetus to take action to ensure that any library data included in institutional learning analytics are protected.²⁶ Librarians can mitigate risks and honor privacy values by asking questions, engaging actively in decision making within their institutions, and expanding their knowledge of privacy frameworks and policies.

Asking (More!) Questions

As with aligning learning analytics and the educational role of librarians, asking questions about library privacy concerns is an essential step towards reconciling apparent disconnects in library engagement in learning analytics. Librarians can ask questions about anonymity, confidentiality, and privacy; personally identifiable information; data privacy and security; opt-in and opt-out choices; and institutional data sharing and storage.

Anonymity, confidentiality, and privacy are words that are sometimes used interchangeably in common parlance, but they are not equivalent concepts. Distinguishing among these concepts is essential for meaningful ongoing conversations about library involvement in learning analytics.²⁷ To provide clarity about the use of these terms in an institutional context, librarians might ask:

- What institutional policies, statements, or requirements are relevant to discussions and decision-making with regards to anonymity, confidentiality, and privacy?
- Do these policies, statements, requirements, or statutes require re-examination or updating? What elements are timeless?²⁸

Librarians can also ask questions about the personally identifiable information that is already recorded, maintained, or not actively destroyed by library facilities, practices, and systems, as well as library vendor systems. Knowing more about the status quo enables librarians to have more informed conversations about the future. Questions that can shed light in this area include:

- What data are being collected?
- How long is collected data retained?
- How secure are the underlying systems in which data are maintained?
- What known vulnerabilities exist in the systems that maintain data?
- How are permissions handled and who has (what level of) access to these systems?
- Are there differences between stated data policies and real-world practice?
- Are the practices and policies with regard to the gathering, use, and retention of personally identifiable information shared with the public in a transparent manner?
- How is data in vendor-controlled systems negotiated? Who owns it? Who has access to it? Are there additional costs associated with access or analysis?²⁹

Librarians can also consider what personally identifiable information may be recorded, maintained, or not actively destroyed by library-, institutional-, and vendor-controlled facilities, practices, and systems in the future. If librarians wish to learn more about student-library interactions and plan to collect new or different data in order to do so, librarians should also consider how granular and identifiable that data needs to be.³⁰ For example, do librarians need to know *that* a user accessed a library resource, service, or facility? Or do librarians need to know the *specifics* of that access (resource type? subject? title?), detailed information about a service transaction, or the precise time or place of facility use?³¹

Librarians can gain more information about how their institutions address data privacy and security concerns by asking questions, such as:

- What data are the overarching institution, or individual units within the institution, maintaining?
- What systems are included?
- What policies are involved?
- What practices are employed?
- What safeguards are present?
- What governance structures are in place? Who controls collected data? Who is responsible for decision-making with regard to the gathering, use, and retention of data?
- Who has access to the data? What is the process for others to gain access?³²
- Are informed consent policies and procedures up to data, accessible, and understandable to users?
- Are opt-in or opt-out choices presented to users? Does opting-out truly remove a user from data gathering and analysis?
- Does the library possess access controls that allow librarians to oversee the visibility and use of any library data that may be shared at the institutional level?
- How do the data security and/or policy protections of the institution and the library compare? Which is more robust?³³

Using these questions, librarians can become more familiar with current library and institutional data practices and take concrete actions to mitigate privacy risks. Librarians who know how library-, institutional-, and/or vendor-controlled systems gather, maintain, secure, store, and use data are better prepared to be transparent about these practices, communicate them to others, and educate students and other stakeholders so that they can make informed decisions;³⁴ these are all roles that both align with professional library values and enable librarians to be proactively involved in institutional uses of learning analytics in order to support student learning, engagement and success.

Engaging in Institutional Decision-Making

Armed with the answers to these questions, librarians can honor their professional values by engaging in learning analytics initiatives at the institutional level. Librarians are well-qualified to participate in learning analytics and navigate its attendant privacy issues;³⁵ they also already

partner with other campus professionals that likewise value privacy and are well-versed in FERPA, HIPPA, and other regulations that underpin higher education student data privacy policy.

Potential pathways for librarian involvement in privacy-related institutional decision-making are myriad. The possibilities include:

- Connecting with learning analytics personnel, committees, and systems at the institutional level³⁶
- Directly advocating for data security and privacy
- Shaping the policies governing the deployment and use of learning analytics³⁷
- Consulting on meaningful, parsimonious inclusion of data in learning analytics systems³⁸
- Investigating systems to determine how data are gathered, maintained, secured, stored, and used³⁹
- Determining who owns or has access rights to data maintained in institutional- or vendor-owned systems
- Working with institutional procurement officers to ensure that data ownership and access rights are part of vendor contract negotiations⁴⁰
- Educating students and other stakeholders and advocating transparent and accessible policy statements

Expanding Knowledge of Privacy Frameworks and Policies

Finally, librarians can enact their roles as protectors of privacy by expanding their knowledge of privacy frameworks and policies. Numerous authors have suggested that librarians broaden their knowledge of privacy policies and procedures, at both the library and institutional level.⁴¹ Sources librarians can investigate include those found in Figure 1. The Library Learning Analytics Project also provides a detailed list of resources in a “privacy toolkit.”⁴² All of these resources can aid librarians in preparing to take an active role in institutional learning analytics.

7 Things You Should Know About How Learning Data Impacts Privacy

<https://library.educause.edu/resources/2017/5/7-things-you-should-know-about-how-learning-data-impacts-privacy>

ALA Code of Ethics

<http://www.ala.org/united/sites/ala.org.united/files/content/trustees/orgtools/policies/ALA-code-of-ethics.pdf>

Association of Institutional Research Code of Ethics and Professional Practice

<http://www.airweb.org/Resources/Pages/Code-of-Ethics.aspx>

Consenting Adults? Privacy in an Age of Liberated Learning Data

<https://er.educause.edu/articles/2017/1/consenting-adults-privacy-in-an-age-of-liberated-learning-data>

Ethical Use of Student Data for Learning Analytics Policy

<http://www.open.ac.uk/students/charter/essential-documents/ethical-use-student-data-learning-analytics-policy>

Ethics and Privacy in Learning Analytics – a DELICATE issue

<http://www.laceproject.eu/blog/ethics-privacy-in-learning-analytics-a-delicate-issue/>

Ethics and Privacy in Learning Analytics

<http://epress.lib.uts.edu.au/journals/index.php/JLA/issue/view/373>

IMS Global Learning Data & Analytics Key Principles

<http://www.imsglobal.org/learning-data-analytics-key-principles>

JISC Effective Learning Analytics - Using Data and Analytics to Support Students

<https://analytics.jiscinvolve.org/wp/>

JISC Code of Practice for Learning Analytics

<https://analytics.jiscinvolve.org/wp/2015/06/04/code-of-practice-for-learning-analytics-launched/> and <https://www.jisc.ac.uk/guides/code-of-practice-for-learning-analytics>

JISC Literature Review

http://repository.jisc.ac.uk/5661/1/Learning_Analytics_A-_Literature_Review.pdf

JISC Taxonomy of Issues

<https://analytics.jiscinvolve.org/wp/2015/03/03/a-taxonomy-of-ethical-legal-and-logistical-issues-of-learning-analytics-v1-0/>

The Learning Analytics Landscape: Tension Between Student Privacy and the Process of Data Mining

<https://www.carnegiefoundation.org/blog/the-learning-analytics-landscape-tension-between-student-privacy-and-the-process-of-data-mining/>

NISO Consensus Principles on User's Digital Privacy in Library, Publisher, and Software-Provider Systems

https://groups.niso.org/apps/group_public/download.php/16064/NISO%20Privacy%20Principles.pdf

NIST Cybersecurity Framework

<https://www.nist.gov/cyberframework>

SPEC Kit 360: Learning Analytics

<https://publications.arl.org/Learning-Analytics-SPEC-Kit-360/>

University of California Learning Data Privacy Principles and Recommended Practices
<https://library.educause.edu/~media/files/library/2016/12/learningdataprivacyslides.pdf>

University of Maryland, Baltimore County – Use of Student Data
<https://my3.my.umbc.edu/about/studentdata>

University of Michigan Learning Analytics Guiding Principles
<http://ai.umich.edu/learning-analytics-guiding-principles/>

University of Michigan Library Privacy Statement
<https://www.lib.umich.edu/library-administration/library-privacy-statement>

Figure 1. Examples of Learning Analytics Privacy Policies and Related Resources

Conclusion

As higher education institutions expand the use of data to support student learning, engagement, and success, librarians have an opportunity to determine ways in which they can honor and enact their roles as educators as well as protectors of privacy. By taking concrete steps including asking questions, participating in institutional initiatives, and deepening their knowledge base, librarians can determine potential pathways for engagement in learning analytics in support of students that will unite, not divide, the essential roles librarians play in higher education.

¹ EDUCAUSE Learning Initiative. *7 Things You Should Know about Analytics* (Louisville, CO: EDUCAUSE, 2011), <https://library.educause.edu/~media/files/library/2010/4/eli7059-pdf>.

² Megan Oakleaf, *Library Integration in Institutional Learning Analytics* (Syracuse, NY: Syracuse University Press, 2018), 60.

³ “Data Doubles,” accessed March 1, 2019, <http://datadoubles.org/>.

⁴ “Library Learning Analytics Project,” University of Michigan, accessed March 1, 2019, <https://libraryanalytics.org/>.

⁵ “CARLI Counts,” Consortium of Academic and Research Libraries in Illinois, accessed March 1, 2019, <https://www.carli.illinois.edu/products-services/carli-counts>.

⁶ “Connecting Libraries and Learning Analytics for Student Success (CLLASS),” Institute of Museum and Library Services, accessed March 1, 2019, <https://www.imls.gov/grants/awarded/lg-97-18-0209-18>.

⁷ Gráinne Conole, Dragan Gasevic, Phillip Long, and George Siemens. “Message from the LAK 2011 general & program chairs,” In *Proceedings of the 1st International Conference on Learning Analytics and Knowledge* (Banff, AB, Canada: LAK, 2011).

⁸ “*Integrated planning and advising for student success (iPASS)*,” EDUCAUSE, accessed on March 1, 2019, <https://library.educause.edu/topics/information-technology-management-and-leadership/integrated-planning-and-advising-for-student-success-ipass>.

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- ⁹ ECAR-ANALYTICS Working Group, *The Predictive Learning Analytics Revolution: Leveraging Learning Data for Student Success* (Louisville, CO: ECAR, 2015), <https://library.educause.edu/~media/files/library/2015/10/ewg1510-pdf.pdf>
- ¹⁰ Phillip Long and George Siemens, "Penetrating the Fog: Analytics in Learning and Education." *EDUCAUSE Review*, 46, no. 5 (2011), 31-40, <http://er.educause.edu/articles/2011/9/penetrating-the-fog-analytics-in-learning-and-education>.
- ¹¹ Megan Oakleaf, *Library Integration*, 11, 68.
- ¹² ECAR-ANALYTICS Working Group, *The Predictive Learning Analytics Revolution*.
- ¹³ Megan Oakleaf, *Library Integration*, 11.
- ¹⁴ *Ibid*, 10.
- ¹⁵ *Ibid*, 10.
- ¹⁶ Megan Oakleaf, "The Library's Contribution to Student Learning: Inspirations and aspirations," *College and Research Libraries*, 76, no. 3 (2015): 353-358; Megan Oakleaf, "Dangers and Opportunities: A Conceptual Map of Information Literacy Assessment Tools," *portal: Libraries and the Academy*, 8, no. 3 (2008): 233-253.
- ¹⁷ Megan Oakleaf, *Library Integration*, 12.
- ¹⁸ *Ibid*, 16-18.
- ¹⁹ *Ibid*, 73.
- ²⁰ Megan Oakleaf, "Getting Ready and Getting Started: Academic Librarian Involvement in Institutional Learning Analytics Initiatives," *Journal of Academic Librarianship*, 42, no. 4 (2016): 472-475; Megan Oakleaf, *Library Integration*, 73-75.
- ²¹ Megan Oakleaf, *Library Integration*, 64.
- ²² *Ibid*, 63.
- ²³ *Ibid*, 20.
- ²⁴ *Ibid*, 73.
- ²⁵ *Ibid*, 33.
- ²⁶ *Ibid*, 61.
- ²⁷ Lisa Janicke Hinchliffe, "Privacy in user research: Can you?" Scholarly Kitchen (blog), September 5, 2018, <https://scholarlykitchen.sspnet.org/2018/09/05/privacy-in-user-research-can-you/>; "Library Learning Analytics Project."
- ²⁸ Megan Oakleaf, *Library Integration*, 61.
- ²⁹ *Ibid*, 62.
- ³⁰ *Ibid*, 62, 65.
- ³¹ *Ibid*, 62.
- ³² *Ibid*, 62.
- ³³ *Ibid*, 63.
- ³⁴ *Ibid*, 64.
- ³⁵ *Ibid*, 26.
- ³⁶ *Ibid*, 72.
- ³⁷ *Ibid*, 27.
- ³⁸ *Ibid*, 64.
- ³⁹ *Ibid*, 72.
- ⁴⁰ *Ibid*, 72.

⁴¹ Lisa Janicke Hinchliffe and Andrew Asher, "Analytics and Privacy: A Proposed Framework for Negotiating Service and Value Boundaries," Presented at the CNI Fall Meeting, Washington, D.C., December 2014; "SPEC Kit 360: Learning Analytics," Association of Research Libraries, accessed March 1, 2019, <https://publications.arl.org/Learning-Analytics-SPEC-Kit-360/>; Kristin A Briney, "Data Management Practices in Academic Library Learning Analytics: A Critical Review," *Journal of Librarianship and Scholarly Communication*, 7 no. 1 (2019): 1-39.

⁴² "Library Learning Analytics Project."