ARTICLE

Learning Analytics: Potential for Enhancing School Library Programs

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Introduction

Learning analytics has been defined as "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs" (1st Int'l Conf. 2010). The potential use of data and learning analytics in educational contexts has caught the attention of educators and policymakers at dramatically increasing rates over the past few years. In 2012 the U.S. Department of Education recognized the value of data mining and learning analytics with the issue brief *Enhancing Teaching and Learning through Educational Data Mining and Learning Analytics*. In addition, results from a 2013 survey of administrators conducted by the Center for Digital Education (CDE) indicated that 50 percent of administrators "already see improved student outcomes from its use" and 63 percent considered analytics "a priority" (CDE 2013).

Learning Analytics and School Librarian Standards

Given this rising popularity of learning analytics in K–12 education and its potential "to combine historical and current user data to predict what services specific users may find useful now," school librarians are at a vantage point from which to leverage this emerging discipline to enhance services to patrons, meet their own professional standards, and strengthen existing school library and technology programs (Elias 2011, 4). School librarians in the twenty-first century are tasked with collaborating with classroom teachers to meet school-improvement goals; creating both a physical and virtual learning space that provides 24–7 access to library resources; meeting individual students' reading, informational, and instructional interests and needs; and serving as leaders for their schools' instructional and technology programs, as well as for policy development.

With this challenge in mind, it seems critical for school librarians to not only stay abreast of the emerging new field of learning analytics and its implications for school library and technology programs, but also to use the current affordances that this field has to offer.

The current and potential applications of learning analytics can support school librarians in meeting these objectives and providing their schools with the leadership needed to be effective users of data to enhance the quality of teaching and learning that takes place within their schools. In *Empowering Learners: Guidelines for School Library Programs* (2009) AASL advocates for school librarians to be agents of change to help their schools transform into 21st-century learning environments, paralleling the environment outlined in the Partnership for 21st Century Skills' *Framework for 21st Century Learning*. With this challenge in mind, it seems critical for school librarians to not only stay abreast of the emerging new field of learning analytics and its implications for school library and technology programs, but also to use the current affordances that this field has to offer.

In this article, I will explore how school librarians can begin to explore the rich set of possibilities that learning analytics may offer the practice of school librarianship within the context of some of the key roles for 21st-century school librarians. These roles have been identified in some of the foundational documents from AASL such as *Empowering Learners* (2009), *ALA/AASL Standards for Initial Preparation of School Librarians* (2010), and *Standards for the 21st-Century Learner* (2007) as many states' evaluation standards for school librarians are derived from these documents.

Program Administration and Meeting Diverse Student Needs

Using data to inform decision-making is not a novel concept to school librarians. For years, library circulation software has enabled tracking of useful statistical data, such as circulation rates and analyses of collections, to help school librarians stay informed about library usage and aid in collection-development efforts. With a deeper understanding of learning analytics and the ability to use data for meeting learner needs, school librarians can employ this data in more meaningful and productive ways that enable them to leverage its use to adapt programs to support learning outcomes aligned with schools' goals. For example, school librarians could run a report each month to gauge circulation rates for each homeroom. Students in those homerooms with low or decreased circulation rates could be targeted for programming that encourages them to increase their frequency of independent reading, enabling the school librarian to use real data to tailor library programming efforts to individual needs and make these efforts more purposive.

Future advancements in practical applications of analytics may also assist school librarians down the road with personalization. Recent software developments with library automation products, such as Follett's Destiny Quest, provide students with dashboard capabilities that enable them to keep track of books they have read and see the top ten items checked out at any given time.

Recent trends in the consumer industry allow online shopping entities such as Amazon to make use of the affordances of predictive and business analytics to predict future consumption patterns based on a customer's historical data. Perhaps library resource-

management software vendors will soon capitalize on the use of similar technologies to make book suggestions to readers based on their historical circulation data and interests. This application of analytics would allow school library programs to personalize and cater to each user's individual reading and informational needs. Book vendors will have the capabilities to make suggestions for new book purchases based on a library's current collection and circulation data. It is hard to imagine this capability is far from reality; businesses are already able to achieve this personalization for individual consumers. Although these features are not readily available right now, school librarians can take an active role in making these practices a reality by encouraging their library automation software providers and materials vendors to provide these personalized services.

Collaboration and Leadership

ALA/AASL Standards for Initial Preparation of School Librarians document the expectation that school librarians must be able to concurrently fill the roles of instructional partner and educational leader to enhance student learning and achievement in their school communities. The U.S. Department of Education maintains that learning analytics can enable educators "to understand entire systems and to support human decision making" (2012, 13). Unfortunately, the Alliance for Excellence in Education in their report *Capacity Enablers and Barriers for Learning Analytics: Implications for Policy and Practice* stated that the use of data and learning analytics has "not necessarily been able to inform instructional decisions to help ensure equity for individual students" (Wolf et al. 2014, 3). As a school leader, collaborative partner, and curriculum specialist the school librarian should work with school staff members to ensure they have the "knowledge, skills, and professional learning opportunities" to create "a culture of data-informed decisionmaking" (Wolf et al. 2014, 5). In fact, the alliance specifically referenced school librarians as being "critical to their endeavors" for schools and districts (Wolf et al. 2014, 8).

Schools' increased use of online and blended learning models, coupled with the responsibility of the school librarian to be a partner in helping teachers meet their instructional goals, makes the use of learning analytics a viable strategy to help enhance student learning in these new learning environments. A school librarian who understands how to leverage the use of learning analytics to aid teachers and other support staff in providing individualized feedback and interventions to at-risk students, as well as personalizing instruction for all students, will be seen as an invaluable asset to the school community. In addition, with this increased knowledge about students' learning behaviors and assessment data, school librarians will be in a better position to acquire and suggest specific information and technology resources to meet students' individualized learning needs. *Empowering Learners* maintains that school librarians are responsible for ensuring "collection and information access in the school library support teaching and learning by providing diverse sources of information that match curricular needs" (AASL 2009, 39). Recent advancements in online assessment activity and data visualization capabilities make it easy for school librarians to work with classroom teachers to identify their students' curricular and informational needs and ensure

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that these needs are aligned with evidence from this data.

Imagine a scenario in which a school librarian is meeting in a professional learning community with classroom teachers to analyze data from a recent benchmark test. The teachers see many of their students do not yet meet a particular science objective. This identified deficiency creates an opportunity for the school librarian to begin a dialogue with classroom teachers about instructional partnerships and collaboration. The librarian can suggest ways teachers can work with her to create lesson plans and use library resources to help these students meet the objective. School librarians can seek similar opportunities to strengthen their school library programs and increase their visibility and viability within their schools.

School librarians are also in a position to not only further the effective use of learning analytics into their school culture, but also to provide valuable input into important policy decisions that must be made about the safe and ethical use of student data. School librarians are already knowledgeable about privacy concerns regarding student data; therefore, school librarians should take opportunities to serve on school and district committees in charge of policy development in this area, furthering librarians' commitment to modeling the ethical use of information and leading policy development.

Equitable Access to Information

Increasingly, school librarians have invested time to ensure that their school library programs have a Web presence, enabling students, parents, school staff, and other community members to access library resources 24–7. School librarians can take advantage of free resources like Google Analytics to collect and examine enlightening data on the use of virtual resources. Google Analytics is a learning analytic tool that could be used by school librarians to help them meet their goal of providing equitable access of resources in a variety of formats to all patrons. Wei Fang made a case study to investigate how Google Analytics could be used "to improve the design and content of the Rutgers-Newark Law Library's main website" to better meet users' needs and make content more accessible (Fang 2007, 1). The tool ended up providing the librarians and administrators with robust data and reports that enabled them to make better-informed decisions regarding the online services provided to their patrons.

In addition to making resources available through virtual access, according to *ALA/AASL Standards for Initial Preparation of School Librarians* school librarians should "develop solutions for addressing physical, social, and intellectual barriers to equitable access to resources and services" to make information equally accessible to all patrons (AASL 2010, 10). Since we are tasked with meeting the diverse needs of large groups of learners, including teachers, learning analytics can provide a clearer picture of who our learners are so we can better accommodate our patrons' needs.

Recommendations

In *Empowering Learners* one of the key roles identified is that of "empowering learning through leadership." In this capacity, school librarians are expected to "model leadership and best practice for the school community" including being "an early adopter of changes in current educational and technology trends" (AASL 2009, 45). With this charge in mind, it seems today's school librarian cannot afford to be anything but well versed in the use of data and learning analytics to enhance teaching and learning. Therefore, my recommendation is that, if you are not already familiar with the field of learning analytics, investigate its current use in K–12 environments. A starting point would be to read the resources cited in this article. In addition, take advantage of any professional development opportunities centered around student data and assessment systems that your school or district uses.

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Learning analytics is clearly an educational practice that will continue to become a salient feature of 21st-century teaching and learning. Now is the time for dedicated school leaders who are in a position to impact instruction—leaders such as school librarians—to harness the possibilities of these techniques and applications. Learning analytics can, when used appropriately, result not only in a more effective school library program but also benefit the school as a whole.

This article contains only a sampling of ideas and suggestions of ways that data mining and

learning analytics could be leveraged to enhance the practice of school librarianship. As student data becomes more readily available and the field of learning analytics continues to advance, more opportunities will present themselves. It is the responsibility of 21st-century school librarians to be ready and willing to embrace these opportunities.

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