
The School Librarian's Role in the Adoption of Open Educational Resources

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Trends in adopting open educational resources (OER) in K-12 schools have opened numerous opportunities for schools to utilize their school librarians in new roles. The purpose of this study is to examine if schools are using their school librarians during the transition to OER use and if so, in what capacity. If not, why? In this study we used Rogers' (2003) diffusion of innovation theory, which describes the importance of change agents in the successful adoption of an innovation. We used thematic analysis and descriptive statistics to examine the research questions. Participants include a sample of representatives from school districts, which have signed on to be a #GoOpen school. Our results show that less than half of the schools use their school librarians in the OER creation and adoption process, but many participants acknowledge school librarians possessed a specialized skill set which could be beneficial in future OER creation projects.

Introduction

The process of adopting open educational resources (OER) is reshaping and redefining the dynamic roles of today's school librarians. Access to open textbooks and other open resources provides K-12 schools with multiple opportunities to utilize cost-effective materials at a time when education funding is decreasing in many geographic areas (Black, 2016). In addition to cost-savings, OER brings a promise "that, if curated and used properly, it supports educators striving to create a cost-effective learning environment that's interactive, dynamic, current, and relevant." (Kompar, 2016, p. 58). A specific skill set is needed in order to effectively locate, evaluate, organize, and promote high-quality OER (Mardis, 2015). School librarians are highly trained in these skills and exhibit additional expertise, including evaluation of print and digital materials and promoting ethical access to all resources. With this opportunity, school librarians are rising on the landscape to provide the crucial skills and instruction needed to bridge the gaps between location, evaluation, access, and implementation of OER.

Because of school librarians' expertise in these areas, schools participating in the adoption of OER would benefit from utilizing their school librarians when undergoing this transition. The #GoOpen campaign led by the United States Department of Education's (ED) Office of Educational Technology (2016b) influenced the recent trend in use of open educational resources (OER) in some K-12 schools across the United States. The #GoOpen campaign advocates for school districts around the country to transition to OER. Currently, 31 states have school districts participating in this initiative. In addition to transitioning to OER, schools who participate in the #GoOpen campaign also agree to replace at least one commercial textbook with an open textbook within one year. Agreeing to participate in the initiative means the school agrees to either locate and use an OER that meets the needs of their district, or develop an OER if they are unable to find one that meets their

needs. For K-12 schools, the adoption process could be enriched by including school librarians as part of the OER initiative team. In this study, we examined whether and in what capacity schools were including their school librarians on their OER initiative teams. We also sought to understand why school librarians were not being included. This study used descriptive statistics and thematic analysis to examine the research questions:

1. How many #GoOpen schools are using their school librarians in their open textbooks adopting process?
2. How are school librarians used in open textbook adoption process for schools participating in the #GoOpen campaign?
3. Why are schools who are not using school librarians choosing not to include them in the open textbook adoption process?

Review of Literature

In reviewing the literature, we noticed several key constructs that provide a background to the OER initiative within the #GoOpen campaign. The main constructs addressed in the literature fall into the categories of the supporting role of today's school librarians, the role of OER in K-12 schools, and the trend of adopting open textbooks in K-12 schools.

Role of School Librarians

The school librarian's role continues to evolve and expand to accommodate the changing information needs of future ready students, who are working toward mastery of the needed skills and dispositions to support future ready learning (Moreillon, 2018). The American Association of School Librarians (AASL) has identified five key roles embraced by school librarians, including leader, instructional partner, information specialist, teacher, and program administrator (American Association of School Librarians, 2018; American Association of School Librarians, 2007). Although leadership is a separate role, it is also embedded into the other four roles (Lee, 2017). The characteristics of these roles include specific services, functions, and duties school librarians embrace in order to meet the varying needs of their school community. As learners' overall information needs change, the specific characteristics of each role of the school librarian must expand to include specific duties. Within the new *National School Library Standards*, AASL (2018) has integrated a framework that demonstrates connections between three sets of standards: standards for learners, standards for school librarians, and the alignments within the standards for school libraries. These work together to support learners' growth and provide a quality educational experience. Each standard represents a one-word Shared Foundations: (1) inquire, (2) include, (3) collaborate, (4) curate, (5) explore, and (6) engage. Each is described with commitment statements which are the "backbone" (American Association of School Librarians, 2018, p. 28) of the standards and shed light on the changing duties of librarians. The standards set and the Shared Foundations are not independent of each other, but looking deeper at each one may help shed light on the depth of the school librarian's duties within each. Within the framework for school librarians, two of the Shared Foundations, curate and engage, directly relate to their role as an information specialist.

Curation leader duties. School librarians are natural curation leaders, and this is embedded in their role as an information specialist. These duties involve an array of services to meet information needs, including locating, accessing, and evaluating resources and services, curation of resources and materials, and evaluating and using existing and emerging technologies for teaching and learning needs. These characteristics easily merge with school librarians' role of instructional partner in which they engage in the curriculum development process. This process supports the key

commitment to curate while they strive to make meaning and scaffold learning through "collecting, organizing, and sharing resources..." (American Association of School Librarians, 2018, p. 50) and engage while they model "safe, legal, and ethical creating and sharing of knowledge of products..." (p. 52). Inserting schools' OER initiatives into the mix here is a natural fit, as alluded to by Welz (2017), who stated that, "improving access and the use of learning resources lies at the heart of school librarians' transformational leadership skills [as they] lead beyond their libraries and be willing to commit to the OER movement" (p. 67).

Through a research project funded by the Institute of Museum and Library Services (IMLS), Petrides, James, Godwin, and Mardis (2017) are exploring the school librarian's involvement in OER curation. One key suggestion of the study's preliminary findings is to make OER curation a formal part of the school librarian's role. Based on the study results, the researchers developed a detailed framework to guide school librarians in their OER curation. This framework includes a detailed list of seven non-linear steps of the OER curation process. Steps involve identifying curriculum needs, identifying curriculum frameworks, searching for OER materials, evaluation of materials, building resources with alignment strategies, sharing resources, and protocols for piloting the resources. These steps are to be followed in a reciprocal collaborative endeavor between multiple professionals involved in the educational process. School librarians naturally fit into the process, so expanding upon their leadership qualities to enter the OER scene is key.

Curation also encompasses the collection development and collection management skills of school librarians. Trained in effective techniques to build a collection, school librarians create policies to guide selection, ensure materials are current and relevant, and meet educational goals. The policies also determine how the collection should evolve and change as needed (Mardis, 2015). Specific collection management duties that school librarians model include "scouting, identifying relevance, evaluating, classifying, organizing, and presenting aggregated content for a targeted audience" (Valenza, 2012, p. 20). When these skills are employed, school librarians can help teachers overcome one of the major obstacles with using OER. Chen and Panda (2013) explored Chinese teachers' use of OER and found two major obstacles, the teachers' abilities to locate OER and find the most appropriate OER to meet their needs. When school librarians carry out their roles in collection management and development, they are "constantly refreshing, reinventing, and injecting expertly selected information into students' and teachers' insurmountable quests for knowledge" (Mardis, 2015, p. 30). These skills embrace effective implementation of OER.

Future Ready leadership duties. Since digital tools are becoming more prominent for educational purposes, schools must look for ways to embrace the tools and provide access to learners (Ballew, 2014). In 2014, the Alliance for Excellent Education and the U. S. Department of Education, created the Future Ready (FR) initiative in order to support school districts' commitments to become future ready and embrace digital learning tools and strategies (Ray & Trettin, 2016). Because of direct effort to expand FR, the Future Ready Librarians (FRL) framework (2018) was created, as seen in Figure 1). This provides school librarians with the important opportunity to highlight their crucial role as information specialists and support their duties to ensure students are future ready.

The FRL framework aligns how the school library program supports each of the eight components, illustrated as gears, of the FR framework, as seen in Figure 1.



Figure 1. Future Ready Librarians Framework (Alliance for Excellent Education, 2018).

For example, the FR framework of collaborative leadership highlights school librarians' leadership role beyond the library. According to Ray and Trettin (2016), this "framework provides a clear pathway for teacher librarians, teachers, and administrators who may have an outdated concept of what is possible in library programs" (p. 10). The FR framework of curriculum, instruction, and assessment is highlighted with school librarians' role as curator of digital resources and tools, empowering students as creators, and building instructional partnerships (Alliance for Excellent Education, 2017).

When reflecting on the changing information needs of today's students, Jaeger (2015) made an important statement: today's students want their information now, and they want it electronically; therefore, "our job has never been more valuable and our need is only increasing, students are expecting change and hoping this change includes devices, eResources, and assignments embracing both" (Jaeger, 2015, p. 28). The eResources Jaeger mentioned could involve OER. Identifying and recognizing school librarians' expertise in successfully curating OER content is key. It is possible that librarians can advocate for their position in OER implementation through their ability to address FR challenges embedded in the lens of their roles. For example, one FRL criteria involves curation of digital resources and tools. Moreillon (2018) provided possible evidence of meeting the component Curriculum, Instruction, and Assessment, and states that school librarians should show leadership in selecting, evaluating, and curating resources. Taking it a step further, Moreillon (2018) indicated school librarians should also "mentor colleagues and students in digital curation practices" (p. 103).

Perhaps an important first step for school librarians to demonstrate their expertise and promote their skills in the OER transition process is to join the committees assembled to address the requirements of locating and adopting OER, and in particular with this study, the committees addressing the requirements of the #GoOpen campaign. Participating on a committee allows school librarians to model their leadership skills by helping to select, evaluate, and organize resources.

OER

The increased use of technology in today's classrooms is changing the way teachers provide instruction, the way students learn, and what a classroom environment looks like. From desktop computers to handheld devices, teachers and students are taking advantage of the breadth of knowledge provided through the Internet. While much of this knowledge can be accessed free of charge, it is still mostly copyright protected, providing limited use and dissemination of the content.

However, if using an OER, restrictions on use are limited. The Hewlett Foundation (2013) defined OER as,

Teaching, learning, and research materials in any medium-digital or otherwise-that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (para. 7).

Open Textbooks. The use of OER, such as open textbooks in K-12 schools, is increasing (United States Department of Education, 2016b). These resources are a collection of OER that are usually presented like a traditional textbook, but because of the formatting and flexibility, can be organized in numerous ways (Mason & Kimmons, 2018). The creator, depending on their needs and the needs of the institution, decides the format.

One significant difference between an open textbook and a traditional, copyright restricted textbook is the cost. Open textbooks are freely available to anyone with a device and Internet connectivity, whereas traditional textbooks that are copyright restricted are usually only available at a high cost. This aspect of open textbooks has been the focus of several studies (Hilton, Robinson, Wiley, & Ackerman, 2014; Wiley, Hilton, Ellington, & Hall, 2012) which have identified the cost savings potential of adopting and using open textbooks. According to the 2015 analysis of Bureau of Labor Consumer Price Index (CPI) data, the cost of textbooks has continued to rise, showing a 1041% increase since 1977 (Popken, 2015).

A second difference between an open textbook and a traditional textbook is the license. Traditional textbooks are typically copyrighted which limits their use. What makes an open textbook is the open license, which excludes use restrictions while maintaining the creator's intellectual property. With an open license, users can retain, reuse, revise, remix, and redistribute the content (Wiley, 2014). By having resources with these freedoms, institutions are able to provide their students with affordable, high quality, accurate, flexible resources. The flexibility of open textbooks is an important component suggests teachers. Baker, Asino, Xiu, & Fulgencio (2017) described one teacher's statements concerning their perceived use of OER and the benefits. The teacher stated,

I love the fact that we can change it. That is just like, that is my favorite thing ever and because I have been on textbook [adoption] committees before and you're like 'I don't like a third of this book'...whatever works we keep. And, whatever doesn't, we throw out. We find something else. It's streamlined and it's easy. (p. 134)

Having the ability to make modifications, changes, and edits freely and as often as needed makes using an OER an attractive option.

Cost Savings. Saving money is one advantage to adopting open textbooks instead of commercially produced textbooks. Several studies have been conducted to examine the significance of cost saving potential (Hilton et al., 2014; Wiley et al., 2012). Cost saving in higher education directly affects the students, driving down student debt. While the adoption of OER in common education allows administrators to use the money, they save by using open textbooks on other areas of need for their students.

Outcomes. To assess student-learning outcomes, educational institutions use grades, summative and formative assessments, course completion, and standardized tests. Examining student success when using OER is important to address concerns regarding quality. Multiple studies have examined student outcomes and have shown that students using OER perform as well as or better than students who used a traditional textbook (Diaz Lantada, 2013; Feldstein, Martin, Hudson, Warren, Hilton III, & Wiley, 2012; Fischer, Hilton, Robinson & Wiley, 2015; Hilton III, Gaudet, Clark,

Robinson, & Wiley, 2013). The results suggest that if students are at least as successful when using a free resource, why spend the money on a costly, commercially produced textbook.

Perception. User (student and teacher) perception is an important consideration when there is an expectation to use an innovation (Rogers, 2003). Studies of perceptions in both groups have shown students and teachers have a favorable perception of OER because they can increase access, better prepare students, are of similar or higher quality and meet diverse learners' needs (Allen & Seaman, 2016; Bliss, Hilton, Wiley & Thanos, 2013; Petrides, et al., 2011). These studies were conducted after students and teachers used open textbooks in their courses. Another study shows when pre-service teachers use OER in their teacher education program courses, they have a more positive perception and are more likely to want to use an OER in their future classroom than those pre-service teachers who have not used an OER (Baker, 2019).

#GoOpen Campaign

The United States Department of Education's (ED) Office of Educational Technology (2016a) launched its #GoOpen campaign to encourage "states, school districts and educators to use openly licensed educational materials to transform teaching and learning." School districts around the country sign up to be a #GoOpen district and agree to "develop a strategy for the implementation of openly-licensed educational materials, commit to replace at least one textbook with openly-licensed educational materials in the next year, document and share their implementation process" (United States Department of Education, Office of Educational Technology, 2017).

Committees. In order to meet the requirement of replacing at least one textbook with an OER, school districts must find or develop a resource to fit their needs. This is sometimes done through the creation of teams or committees of teachers who work with their state's standards and locate open resources they can revise, curate content from a variety of OER, or write their own OER (Baker et al., 2017). While teachers on these teams are content experts, they may find it difficult to locate the resources they need to facilitate the development of an OER.

The United States Department of Education's Office of Educational Technology (2017) released a report that provides ideas for who to invite to be on the OER committee. As of the third edition, the inclusion of school librarians was not present in the report. Included are roles, qualifications, and duties for six members of the OER committee: 1) Subject Area Department Chair and/or Grade Level Lead with the qualifications of organizational skills, Google Docs and Drive expertise, willing to learn new systems; 2) Subject Area and/or Grade Level Team Member with the qualifications of Google Docs and Drive expertise, Haiku Learning Management System expertise, willing to learn new digital systems; 3) Technology Resource Teacher with the qualifications of organizational skills, Google Docs and Drive expertise, innovative drive and ability to troubleshoot, easily learn new systems, experience with training staff on system use; 4) Principal / Assistant Principal with the same responsibilities to co-facilitate committee meetings with Department Chair/Grade Level Leads, attend Subject Area Team Lead meetings, and communicate with subject area team; 5) Senior Director of Learning with some responsibilities to develop scope and sequence format, develop curriculum collection formatting and content guidelines, and ensure selected materials address all standards; 6) Director of Technology with some responsibilities to provide assistance to teams with the integration of new technology-based content sources, coordinate training of new systems as needed, support Site Technology Resource Teachers. The report did not list a recommendation for the inclusion of a school librarian.

Theoretical Framework

The school librarian's role has changed over the years. Professional standards (American Association of School Librarians, 2018) define these roles and include collaborating with educators to ensure students think, create, share, and grow. School librarians not only have a specialized skill set that assists students and teachers with access information, but they also co-teach and collaborate. In his diffusion of innovation theory, Rogers (2003) describes the process organizations go through as they adopt an innovation. Rogers described the importance of a change agent in the successful adoption of an innovation. A change agent is an individual who "provide[s] a communication link between a resource system with some kind of expertise and a client system" (p. 368). The change agent within an organization may fill several roles during the introduction of an innovation to a system. When a school system decides to adopt an OER, librarians may be perfectly situated to fulfill several of these roles of change agent, such as "to establish an information exchange relationship, to create an intent to change in the client and to translate an intent into action" (Rogers, 2003, p. 369-370). Moreillon (2018) looks at the importance of Rogers' theory in describing the process of utilizing professional development training in regard to adopting innovations. She describes the important role of librarians in such an endeavor as, "school librarians can be trusted leaders who inspire their colleagues to action and support their schools in the change process" (p. 22).

Rogers (2003) describes a decentralized diffusion system where there is "wide sharing of power and control the members of the diffusion system" and a "high degree of local adaptations as they diffuse among adapters" (p. 396). Decentralized diffusion systems give the users a sense of control, and the ability to make adaptations allows them to modify as they implement the innovation in each of the various classrooms. Change agents in a decentralized diffusion system are important in order to "create and share information with one another in order to reach a mutual understanding" (p. 401), which is crucial for the successful adoption of an innovation.

Methodology

Participants

The participants in this study include representatives from the school districts that have signed on to be a #GoOpen school. A list of the #GoOpen districts can be found on the U.S. Department of Education's website. We identified the administrators, curriculum and instruction personnel, or faculty identified on the school websites as being responsible for OER. We emailed 89 requests to participate with 20 participants completing the survey, which is a 22.4% response rate. Question one of the survey was about the participant's role in the school, as shown in Table 1.

Table 1. Participants' Positions in Schools

Position	N(%)
Curriculum Specialist	10(50)
Administrator	9(45)
Director of Information Literacy	1(5)
Teacher	0
Librarian	0

These roles vary from school to school because each #GoOpen district has autonomy to make the decision as to which person takes on the responsibility as their OER coordinator.

Instrument

Data for the current study was collected via a questionnaire "in which each subject or respondent is presented with a series of questions according to a prepared and fixed interviewing schedule" (Brace, 2018, p. 2). The items in the questionnaire included both short answer and open-ended questions. Researchers used quotations from the responses on the questionnaire to convey the participants'

perceptions, beliefs, and motivations concerning school librarians and their districts' OER adoption committees.

We used a questionnaire, featured in the Appendix, modified from Bueno-de-la-Fuente, Robertson, and Boon's 2012 study. Robertson (2010) carried out a pilot survey in order to establish reliability and validity of the questions. "An iterative and evaluative process was devised, which included a pilot test with selected experts who could contribute to the instrument's ongoing improvement and final refinement" (Bueno-de-la-Fuente, Robertson, & Boon, 2012, p. 14).

Their survey resulted in a 15-question instrument, of which three were modified to address the research questions of the current study. The questions used from the original study included: (1) "If there is a library or information science specialist in the OER initiative team, which is his or her level of engagement and workplace?" which was modified to, "Was your school librarian(s) involved in any of the adoption, creation, curation processes? If yes, how were they involved?" (2) "If there is NOT a library or information science specialist in the OER initiative team, could you state the main reason," which was modified to, "Was your school librarian(s) involved in any of the adoption, creation, curation processes? If no, why were they not involved?" (3) "In your opinion, how would you rate the past, present and future involvement of the library and librarians in your OER initiative?" which was modified to, "Thinking about your school librarians and the process of adopting, developing, or curating an open textbook, what skills do your schools librarians possess that you believe could help you in the process?" (4) "If there is a library or information science specialist in the OER initiative team, which is his or her level of engagement and workplace?" which was changed to, "Does your school have certified a certified school librarian?" The changes to the question were made in an attempt to modify the terms and titles to fit a school librarian instead of an academic librarian and to provide open-ended questions instead of multiple choice.

Data Collection

The questionnaire featured in the Appendix was distributed via email to all 89 potential participants using digital survey software. The software generated a report containing the recorded responses from the 20 participants (22.4% response rate). The questionnaire included open-ended questions allowing for short answer responses and explanations to the questions, which we analyzed to gain an understanding of the participants' reasons or motivations when deciding who to include on the committees, as well as gain insight into their perceptions of school librarians and their roles within the institution.

Data Analysis

During the thematic analysis of the open-ended responses shown in the Appendix, we suggested, defined, constructed, and decided on codes as we analyzed each open-ended response. Using a data analysis method described by Corbin and Strauss (2008), the researchers conducted constant comparison to find common threads among responses. One member of our research team first coded the data first and sent it to be reviewed by the other members of our team, independent of each other. If differences were noted, we reconciled them via consensus (Syed & Nelson, 2015). Examples of these codes include curation, citation, collaborate, evaluation, organizing, research, vetting, copyright, technology, and information literacy. Once the data were coded, we "added, eliminated, and/or collapsed" codes that were the same or similar (Bloomberg & Volpe, 2008, p. 100). This was done by adding more specific categories, subcategories, under each broad category. We then combined the codes into three themes: (1) beneficial skills for OER creation, (2) skills useful for committees, (3) committee roles.

Results

Requirements for school library certification vary among the states. Some states require certification and a master's degree, while others require a bachelor's degree with certification (American Association of School Librarians, 2017). Other factors, such as funding, play a role in determining if a school has a certified librarian. One example is in Oklahoma where they are facing a financial crisis in education, which led to the elimination of funding, \$33 million, for textbook adoption (SDEMedia, 2016). This crisis prompted lawmakers to relax on certification requirements (master's degree plus certification) by not penalizing schools for failing to meet certification requirements. These factors are reflected in this study.

Beneficial Skills for OER Creation

Of the 20 participants, only 17 (89%) reported they had a certified school librarian in their school, and of those 17, only 8 were involved in the adoption process. Therefore, only 40% of school districts represented in this study use school librarians for their OER adoption process.

The participants, both those who include school librarians in OER committees and those who do not, listed several skills they perceive the school librarian possesses that would be beneficial to the creation and/or adoption of an open textbook. The participants who listed beneficial skills agreed that school librarians are most equipped to assist with research, copyright, multimedia, and text selections across content areas. In response to one of the open ended survey questions featured in the Appendix, a school administrator gave the example, *"In our district, librarians have developed a digital citizenship curriculum as well that we consider a part of our OER initiative."*

Additionally, multiple participants identified the school librarians' "awareness of a wide variety of resources" and "ability to curate resources." One survey participant who identified himself or herself as a principal explained in response to the openended survey question, *"Their [school librarians'] ability to cite information is always valuable. They could also probably compile a list of repositories to reduce teachers' search time. They also have to be collaborative and enjoy working with other educators."* In the open-ended responses, participants also identified the skills possessed by qualified school librarians' help in assisting with the discovery and evaluation of OER though their knowledge of readability measurements, student interests, and research tools such as databases.

Skills Useful for Committees

Even though the participants in this study believe the school librarian possesses several beneficial skills, librarians were sometimes not included in the committees formed to create and adopt open textbooks. The participants stated they did not include their school librarians in the process because of three main reasons: 1) the school was early in the process and had yet to invite the school librarian to be part of one of the committees, 2) the school librarians were too busy with other projects (i.e., *"They are usually hosting small school activities or helping with testing,"* explained a participant who identified themselves as a curriculum specialist), or 3) the school only included content experts on the committees. One participant stated, *"It was more important that we have content experts developing math texts."* Another participant stated in an open-ended question response that the school librarians were not included because they had a "reliance on secondary teachers and department members for materials selection."

Committee Roles

While nine (53%) of schools with certified school librarians did not include them in the creation and adoption process, eight (47%) did invite the school librarian to be a part of the committees. The school librarians served in a variety of roles on the committees. The most frequently reported role

for the school librarian within the committee included curating content from other OER and, then, helping to organize the information. The school librarians' ability to conduct research in order to effectively locate and review the content for appropriateness allowed them to fulfill the needed role of vetting content and ensuring the committee follows copyright laws. With the increased use of OER, but limited training on what they are or how to ethically use a variety of copyright materials, knowledgeable committee members are necessary to ensure copyright infringement does not take place. Copyright infringement may have serious consequences such as imprisonment and/or fines (United States Department of Justice Offices of the United States of Attorneys, n.d.). Thus, the inclusion of someone who is knowledgeable in copyright laws, such as a librarian, is important.

School librarians possess other skills, which are beneficial to the committees on which they were included. Other valuable roles of the school librarian include "using their knowledge of Google Suites," which are often used to create and disseminate the OER, evaluation rubrics, information literacy, and technology. Most of the participants stated the "content specialists" were included on the committees. While school librarians are not typically experts in any one content area such as science, history, math, or English language arts, they do typically understand each grade level content standards, since they frequently work with classroom teachers on lesson development and provide resources for students and teachers to meet content standards.

OER Development

As part of the #GoOpen initiative, each school district has three options when deciding on how they will obtain an open textbook, (1) write all content for the textbook (2) write some content and use some content that has already been created and openly licensed, or (3) use only content from an existing OER likely found in a repository, such as CK-12 or OER Commons. All participants in the current study said they curated all or part of the content in the open textbooks they created (Figure 2) with zero percent reporting they wrote the complete resource, which would require content experts. However, the two selected methods of creation included an aspect of curation, which is one of the most frequently named skills librarians possessed that could help in the adoption process. The reported frequency (100%) of curating resources to develop an OER suggests being a content expert is not vital to being an effective participant on an OER adoption team.

Discussion

Signing up to be a #GoOpen school is an important first step in moving toward the adoption and use of OER in K-12 school districts. School districts may decide to move away from traditional, commercially licensed textbooks to open textbooks for a variety of reasons. *Author et al. (2017)* found one school that decided to begin using open textbooks because of three main characteristics of OER and the needs of the district. First, they believed the flexibility, or being able to modify the content to keep it accurate and relevant, was an important characteristic. Baker et al., (2017) explained the flexibility of OER as, "The capability for the teachers and the district to change the open textbook as the need arises" (p. 134). This district updated their OER in a shared Google Document at least annually with users maintaining notes about needed updates throughout the year. Secondly, the district chose OER because of the accessibility or the students' ability to access the digital version of their open textbook outside of school. While the district provided printed copies to their middle-aged students, having the option of accessing it digitally is important for their student population. Lastly, the district chose OER because of the cost saving potential they provide. While creating open textbooks is not always a free endeavor (the school spent "approximately \$1900 in substitute pay" per Baker, et al., 2017, p. 131), OER are typically significantly less than purchasing new commercial textbooks. No matter the school district's reason(s) for signing up to be a #GoOpen school, each district "commit[s] to replace at least one textbook with openly-licensed educational materials in the

next year" (U.S. Department of Education, Office of Educational Technology, 2016b, para. 5). While some participants stated they have already adopted OER, others are still very early in the process and have yet to adopt an OER, as seen in Table 2. To meet this requirement, school districts must create the most effective committee possible.

Table 2. Number of OER Adopted

Number of OER Adopted	Districts N (%)
0	10(50)
1	2(10)
2	2(10)
3	3(15)
6	1(5)
12	1(5)
20	1(5)

While the United States Department of Education Office of Educational Technology (2017) provides school districts with a "Launch Packet," districts maintain the autonomy to design and implement an approach that meets the needs of their individual districts. Districts decide who will coordinate their efforts to meet the requirements of the #GoOpen campaign. We found that either a curriculum specialist (50%) or an administrator (45%) typically took on this responsibility, as depicted in Table 1. Additionally, the schools must decide on who to include on the committees, which subjects and grade levels to begin writing an open textbook for, how to create the open textbook (curate from already written OER, write their own textbook, or a combination of both), and which platform they will use to host their open textbook.

Consideration of whom to invite to be on the committee should include members who not only have content knowledge, but also those who could act as change agents to assist in the diffusion of the innovation (Rogers 2003). Reflecting on the first research question of how many #GoOpen schools are using their school librarians in their open textbooks adopting process, only eight of the 17 school who have a certified school librarian on the committee. School librarians may not be content experts, but they have a skill set that could prove beneficial in the creation process, as well as access to teachers with whom they collaborate and co-teach with on a regular basis. The skill set and relationship school librarians have with a wide variety of stakeholders and potential users makes them an ideal member of the OER committee and allows them the potential to act as a change agent during the adoption process.

According to the results of the survey, 78% of the school districts used a combination of writing content and curating content from OER. The remaining 22% used OER already created and adapted to meet the needs of their district. Considering that 100% of the school districts chose to curate at least part of their open textbooks, and curating materials was the most frequently mentioned skill in the survey responses that school librarians possess, the inclusion of a school librarian on a committee would be beneficial. School librarians are responsible for teaching students how to effectively locate, evaluate, and use information (American Association of School Librarians, 2007). While school librarians are not typically content specialists in any one subject, they possess a set of skills that would seem to address a need when creating open textbooks.

School Librarians as Change Agents

School librarians are well positioned to fulfill multiple roles in a school setting because of their skill set which consists of actions and components that support personalized student learning, as Figure 1 showed. The role of school librarians is shifting to include involvement in school-wide curriculum and instruction, collaboration with teachers and administrators, and curation of digital resources. These roles not only allow school librarians to provide personalized student learning

within the walls of the library, but their influence can be seen throughout the school. With the evolution of their role as an educator, librarians have a unique position to also act as the change agent (Rogers, 2003) needed to help facilitate the adoption and diffusion of an innovation such as open textbooks in a school system.

Rogers' (2003) diffusion of innovation theory explains the need for a change agent in order to increase if an innovation will be adopted and the rate at which the adoption would occur. Since school librarians would not only be part of the committee, but they also have contact with most, if not all, parties who would be involved with the implementation of the innovation (OER), they are uniquely situated to be the needed change agent. Having established rapport with teachers, school librarians are in a position to help guide teachers through the Five Stages in the Innovations-Decision Process (Rogers, 2003).

In answering the second research question, how are school librarians used in open textbook adoption process for schools participating in the #GoOpen campaign?" an examination of the data revealed that when school librarians are included as part of the committees, their curation, technology, vetting, locating, and copyright skills are helpful as mentioned by one participant in this study, who identified themselves as an administrator, when they noted, "*They helped to vet the resources and define best practices for validating information that is found online to address copyright concerns.*"

The third and final research question, why are schools who are not using school librarians choosing not to include them in the open textbook adoption process?, the reasons for not including school librarians on the committees, but included comments such as that school librarians are not content specialists, are too busy, or there was an oversight on the part of the head of the committee.

Limitations

In this study, we used descriptive statistics to answer research questions from a limited participant field. Participants were representatives from the K-12 school districts in the United States that have signed on to be a #GoOpen school. At the time of the study, 89 identified school districts from 31 states were included and invited to participate, but only 20 participants responded. The 22.4% response rate is a limitation of this study. However, we believe those who participated provide helpful insight into the perceptions of the roles of the school librarian.

The participants represent the #GoOpen school districts involved in the OER initiative, but there is no identification of the time frame of the transition within the process. Some participants may have already completed the requirement to replace at least one traditional textbook with an open textbook within one year, while some may be in the beginning stages of the process. This may result in a lower frequency of utilizing the school librarian in the process. It may also explain why some school representatives chose not to participate in this study.

We designed the survey instrument to address the research questions. We created this instrument with a low number of questions in order to keep the process simple for participants and to focus on the research questions. The low number of questions may be a limitation of this study.

Implications

With continued training, research, and sharing of information between school districts that have been successful in creating and adopting open textbooks, it is hoped that more school districts will realize the skill set school librarians possess that would be beneficial to the OER committees and invite them to be a part of the process. One participant acknowledged their school district's oversight in not including their school librarian in the process,

We attended a Go Open exchange two years ago when we were introduced to the idea of including librarians in the OER process. We realized how great of an oversight we had made. Moving forward we will work to include this amazing human resource.

Many educators assigned to lead OER implementation projects are in an administrative role such as assistant principals, principals, and curriculum specialists. This study introduces an opportunity to discuss the benefits of including school librarians. This discussion may help encourage the extension of more invitations to serve on the committee to school librarians who possess the skills that would be beneficial to the ethical development of high-quality resources.

Conclusion

Increased use of OER in K-12 settings is due in large part by the United States' Department of Education' Office of Educational Technology #GoOpen campaign (2016b). Schools have access to a "launch packet" to help get them started but the USED gives them autonomy to determine how they will accomplish their goal of implementing OER. One decision they make is to determine who will be on their #GoOpen committee. Schools look to content experts to assist in the curation and writing of the information but often overlook other faculty, such as librarians, who possess skills that could help in the process. One participant explained why they did not involve the school library stating,

The etexts we have created to date are for high school math. It was more important that we have content experts developing math texts. As we transition to development of additional content areas we will involve librarians as appropriate for curating text and multi-media selections licensed under creative commons.

When asked about librarian skills which could be beneficial in the adoption process, committee leaders exhibited an understanding of these skills but still neglected to invite school librarians to help with curation, technology, copyright, or vetting. All of these skills are needed to complete an OER adoption/development project. Participants made statements about skills school librarians possess that they believe could contribute to the process such as, "Librarians are most equipped to assist with research, copyright, multi-media, and text selections across content areas. In our district, librarians have developed a digital citizenship curriculum as well that we consider a part of our OER initiative." Another participant explained, "They have knowledge and access to resources, subscriptions and OER, that a content teacher may not be aware of," and "the tech skills were huge. She has a firm understanding of the Google And Apple echo systems and that was critical to us as we housed everything in Google Sites and use the iPads are the primary method of instructional delivery." These types of statements illustrate examples of how school librarians can be helpful and may possess specific skills other committee members may not possess.

While some participants described the lack of school librarians as "an oversight," other participants attributed the absence of school librarians on the committee as part of their, "reliance on secondary teachers and dept. members for materials selection." This indicates purposeful decisions on not inviting the school librarian to serve as a committee member. It is hoped that this study, which highlights unique skills school librarians possess that could be beneficial to the OER development and adoption process, will encourage districts to include school librarians in their OER adoption process. It is also hoped that future versions of the "Launch Packet" provided by the United States Department of Education's Office of Technology (2017) will be updated to include school librarians in their list of people to include on committees created as part of the #GoOpen initiative. An expectation of joining the #GoOpen campaign is that each district will share their experience in the process. The hope is that the school districts that include school librarians in the #GoOpen committee will share that information, encouraging other school districts to consider how school librarians can help and highlight the school librarian as an obvious choice for inclusion on future OER initiatives.

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Appendix. Survey Questions with Results

Q1 - 1) What is your position?

Response	N(%)
Curriculum Specialist	10(50)
Administrator	9(45)
Other (Director of Information Literacy)	1(5)
Librarian	0
Teacher	0
Total	20(100)

Q2 - Has your school adopted an open textbook?

Response	N(%)
Yes	10(50)
No	10(50)
Total	20(100)

Q3 - How many open textbooks has your school adopted?

6
3
2
3
1
Around 20
We are using OER resources in ELA, Math, Science in grades 6-12
approx. 3

Q4 - Do you plan on adopting new open textbooks in the next 2 years?

Response	N(%)
Yes	6(60)
No	4(40)
Total	10(100)

Q5 - How will you get the open textbook?

Response	N(%)
write it all	0
used one you found on an open textbook repository (e.g., CK-12)	1(17)
combination of writing it yourself and taking parts from an open textbook repository	5(83)
Total	6(100)

Q6 - How did you get the open textbook(s)?

Response	N(%)
wrote it all	0
used one you found on an open textbook repository	2(22)
combination of writing it yourself and taking parts from an open textbook repository	7(78)
Total	9(100)

Q7 - Does your school have a certified school librarian?

Response	N(%)
Yes	17(89)
No	2(11)
Total	19(100)

Q8 - Was your school librarian(s) involved in any of the adoption, creation, or curation processes?

Response	N(%)
Yes	8(47)
No	9(53)
Total	17(100)

Q9 - How were the school librarians involved?

- Curating of resources and support for organizing materials
- They are part of the team selecting and curating materials. The content teachers are doing the creation of content.
- Helped with finding resources.
- Research, guiding resources
- support the finding of the materials.
- They helped to vet the resources and define best practices for validating information that is found online and helping to address copyright concerns.
- Consultants, committee members
- Our library media specialist has been involved in the entire process. Around four years ago we went 1:1 iPads 6-12 with the idea that we would use the funds from textbooks to fund the iPad program. We have created and curated our own digital content using OER resources. We follow the textbook cycle. Our librarian is let if the curriculum team.

Q10 - What skills do your school librarians possess that helped you in the process?

- What skills do your school librarians possess that helped you in the proces...
- Knowledge of OER, Google Suite for EDU, and digital copyright laws
- Knowledgeable about resources, current on copyright rules/requirements, familiar with resource evaluation rubric, and familiarity of standards
- Research skills
- curation skills, connectivity
- Google Support
- Copyright expertise, information literacy, search skills
- Openness to explore new options

Technology and Curriculum**Q11 - Why were the school librarians not involved?**

- The etexts we have created to date are for high school math. It was more important that we have content experts developing math texts. As we transition to development of additional content areas we will involve librarians as appropriate for curating text and multi-media selections licensed under creative commons.
- An oversight on the part of the team that coordinated the work
- We have not started the process yet. The high school librarians will be invited along with our district librarian
- They are usually hosting small school activities or helping with testing. Generally they always seem busy with many other things.
- We are in the early stages of a state initiative. No librarians were on the committee.
- Just beginning the process
- reliance on secondary teachers and dept. members for materials selection
- It was a math unit that teachers had created prior to our latest librarian beginning.

Q12 - Thinking about your school librarians and the process of adopting, developing, or curating an open textbook, what skills do your school librarians possess that you believe could help you in the process?

- Thinking about your school librarians and the process of adopting, developi...
- Librarians are most equipped to assist with research, copyright, multi-media, and text selections across content areas. In our district, librarians have developed a digital citizenship curriculum as well that we consider a part of our OER initiative.
- The same as above, plus contacts with other librarians in districts that are a part of #GoOpen.
- Everything listed in the previous answer as well as familiarity with technology tools and competence in providing professional learning to peers
- They have knowledge and access to resources, subscriptions and OER, that a content teacher may not be aware of.
- Awareness of a wide variety of resources, resource curation
- support, guidance to resources
- We do not have a librarian.
- Lesson Planning
- Copyright expertise, information literacy, search skills
- see above
- Masterful curators
- Their ability to cite information is always valuable. They could also probably compile a list of repositories to reduce teachers search time. They also have to be collaborative and enjoy working with other educators.
- Librarians could help by assisting with the discovery and evaluation of OER.
- readability expertise, student interest

- For us, the tech skills were huge. She has a firm understanding of the Google And Apple echo systems and that was critical to us as we housed everything in Google Sites and use the iPads are the primary method of instructional delivery.
- elementary: time and tools to search for OERs
- She has since talked with them about creative commons and OER.

Q13 - Any other comments:

- We attended a GoOpen exchange two years ago when we were introduced to the idea of including librarians in the OER process. We realized how great of an oversight we had made. Moving forward we will work to include this amazing human resource.
- no
- We rely on librarians to lead the work of finding and vetting. We want them to be seen as resources, not as people who will do the work of the adoption.