The Five Laws of OER: Observations from Ranganathan

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S.R. Ramamrita Ranganathan's *Five Laws of Library Science* (1931) has long served as a philosophy for the practice of librarianship. The original five laws remain relevant almost ninety years after they were originally proposed (Ranganathan, 1931). As new modes of information and access, as well as resources and technology, have come into existence, these laws have remained flexible and open to adaptation. However, library literature has not yet situated Ranganathan's Five Laws within the context of open educational resources (OER). As freely accessible teaching and learning resources, OER reflect the core values of Ranganathan's Five Laws; further, viewing OER through Ranganathan's lens offers new opportunities for librarians to situate their OER work within one of the discipline's most foundational philosophies. The following sections introduce Ranganathan's five laws and their recent adaptations and provide a new interpretation of these laws within the context of OER. The implications for situating OER within Ranganathan's Five Laws are also shared.

IMPLICATIONS FOR PRACTICE

1. This work aims to foster a greater understanding of how open educational resources (OER), a relatively new initiative in academia, hearken back to and build upon a foundational philosophy within the discipline that has traditionally embraced open and accessible information sources for users.

2. This work provides a condensed overview of the benefits and challenges of OER in the hopes of giving librarians an entry point to understanding how these resources fit within their own academic library and scholarly communication contexts.

3. This work demonstrates how the creation, evaluation, adoption, and maintenance of OER necessitate collaboration, outlining opportunities to form partnerships that increase access to instructional materials and learning objects.

INTRODUCTION

The expense of textbooks and other course materials can constitute a significant portion of students' budgets. With costs often exceeding $1,000 per year, it is not surprising that many students choose to simply forgo purchasing them. Because doing without the necessary course materials can be a roadblock to student success, academic libraries are addressing this issue by working with faculty to create more affordable materials for their students through the development of open educational resources (OER).

OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge (Atkins, Brown, & Hammond, 2007, p. 4).

Although a relatively new initiative in academia, OER align well with the mission of academic libraries and their culture of equity and access for all library users. OER also meet the standards for library services set forth by S.R. Ramamrita Ranganathan (1892–1972) in his foundational publication, *Five Laws of Library Science* (1931).

Known worldwide for his fundamental thinking in the field of library and information science, Ranganathan was a mathematician and librarian from India whose most notable contributions were the development of the first major faceted classification system, colon classification, and his *Five Laws of Library Science* (1931). The five laws, which form Ranga-

nathan's philosophy of library service, have been adapted widely as the field has developed new technologies and methods. These brief statements form a framework that has made a lasting impression on the field of library science and continue to serve as a model for library organizations today (Ranganathan, 1931):

1. "Books are for use." Ranganathan's first law addresses user access to library materials.

2. "Every person his or her book." The second law proposes that libraries serve all people, and are therefore responsible for adding materials to their collections that fit the range of information needs and views of their users.

3. "Every book its reader." This law suggests that each item in a library has an individual or individuals who would find that item useful.

4. "Save the time of the reader." The fourth law proposes that all users should be able to easily, quickly, and efficiently locate the resources they need.

5. "The library is a growing organism." This law implies that libraries, as institutions, are continually changing and that library materials, methods, and facilities should be updated over time.

The simple wording and essential values of the *Five Laws* have facilitated reinterpretation and reinvention as libraries have embraced technological innovations and new techniques to address users' needs. Since the advent of the World Wide Web in the early 1990s, numerous researchers have successfully repurposed the *Five Laws* to relate to contemporary aspects of library and information science, including distance education (Mishra, 1998), web page design (Croft, 2001), information architecture (Steckel, 2002), digital libraries (Satija, 2003), online electronic journals (Khode & Khode, 2011), and the social construction of technology (SCOT) framework (Carr, 2014).

The best known interpretations of Ranganathan's laws are "Five New Laws of Librarianship" by Michael Gorman (1995) and "Application of Ranganathan's Laws to the Web" by Alireza Noruzi (2004). Gorman (1995) considered how Ranganathan's laws applied to the challenges of librarianship and the future of libraries:

1. Libraries serve humanity;

2. Respect all forms by which knowledge is communicated;

3. Use technology intelligently to enhance service;

4. Protect free access to knowledge; and

5. Honor the past and create the future. (pp. 784–785)

Noruzi's (2004) adaption of the *Five Laws* simply replaced the word *book* with *Web* to describe how, like libraries, the central mission of the Web is to support the information needs of its users. In the spirit of that same mission, our aim in this article is to investigate the ways in which OER support the information needs of the academic community by reducing barriers to access in higher education.

LAW #1: EDUCATIONAL RESOURCES ARE FOR USE

A core tenet of open education is that access to information is a basic human right. The United Nations Educational, Scientific, and Cultural Organization (UNESCO, n.d.) posited this belief when it coined its definition of OER at the 2002 Forum on the Impact of Open Courseware for Higher Education. UNESCO supported the development of freely accessible educational materials in the belief that "universal access to high quality education is key to the building of peace, sustainable social and economic development, and intercultural dialogue" (UNESCO, n.d.). UNESCO therefore regarded OER as an important development in opening educational opportunities to every person in the world regardless of class, race, gender, or economic standing. Similarly, the Cape Town Open Education Declaration (2007) explicitly connected the increased development and use of OER to improvements in the lives of "hundreds of millions of people around the world" who would benefit socially and economically from greater access to information. Groups across the world quickly signed on in support of this vision of universal education; the Organisation for Economic Co-operation and Development (OECD), the Commonwealth of Learning, the Asia-Pacific Economic Cooperation, Carnegie Mellon, MIT, the Gates Foundation, the Hewlett Foundation, OER Africa, the Scholarly Publishing and Academic Resources Coalition (SPARC), and many others provided prominent backing.

Open education challenges the notion that education should be privatized and corporatized, instead contending that information should be accessible for use by all. OER have emerged in the context of reduced funding for public education. Universities and researchers have been pressured to take on corporate sponsorships or seek additional funding by other means (McCluskey, 2017). Some have argued that education should be completely privatized per economist and philosopher Adam Smith's vision, and that this move would improve services for student "customers" (Stanfield, 2012). However, proponents of open education have noted that textbook publishers are particularly adept at exploiting the lack of choice in the supposedly capitalistic market surrounding education (Popken, 2015). Further, in any market built on socioeconomic inequity, poorer students will still struggle to receive an education (Paulsen & St. John, 2002; Provasnik & Planty, 2008). In fact, OER proponents suggest that, as a general population, students are particularly sensitive to cost and often choose not to purchase expensive textbooks. Indeed, survey results indicate that a

majority of students report choosing not to purchase textbooks on at least one occasion due to cost: a choice that students foresee negatively impacting their course outcomes (Florida Virtual Campus, 2016). Therefore, open education attempts to make education accessible to all by removing cost barriers for course materials.

Law #1 in Practice

- Libraries can support increased use of educational resources by creating, backing, or expanding OER initiatives.
- Libraries might usefully reallocate resources to support OER initiatives given the close match between library mission and open education, both of which seek to support equal access to information.

LAW #2: EVERY STUDENT THEIR EDUCATIONAL RESOURCE

If the first tenet of library science as connected to OER proposes that education should be accessible to all, it would follow that the second tenet requires libraries to make available the books and materials required for this education. To accomplish this in the context of Ranganathan's second law, academic libraries must first identify who their community is and determine whether or not library collections and collection development policies truly meet community needs (Connaway & Faniel, 2014, p. 32). Students' access to required and recommended course materials constitutes an unmet need in the academic library community that can be addressed with OER.

Students consistently express concern over their ability or inability to purchase required and recommended course materials, as well as how these purchase decisions may impact their grades (Senack, 2014). Over time, higher education institutions and academic libraries have started to recognize the substantial cost and access barriers students face when attempting to acquire their required and recommended course materials (Okamoto, 2013; Seaman & Seaman, 2017). Individual faculty members and instructors also recognize that cost is an important consideration for students, with 89% of respondents to a recent survey stating that cost is either "important or very important" when they select materials for their courses (Seaman & Seaman, 2017, p. 9). In terms of cost, the National Association of College Stores (n.d.) estimated that, on average, in 2017–2018, required course materials and technology/supplies cost students $484.00 and $612.00, respectively. In 2018–2019, the College Board (2018) estimated that books and supplies cost students between $1240.00 and $1440.00. In 2018–2019, both Lane Community College (n.d.) and the University of Idaho (n.d.) estimated that students would spend more than $1200.00 on books and sup-

plies, while Washington State University (n.d.) estimated a cost of $960.00 for textbooks alone. Textbook costs not only affect students' finances; these costs may also impact whether and how students choose to purchase course materials. Results from a recent survey of faculty and instructors indicate that 64% of respondents believed "that less than 90% of their students" purchased the course textbook(s) (Seaman & Seaman, 2017, p. 12). When attempting to purchase textbooks for their courses, students often report the need to purchase textbooks from sources other than campus bookstores, acquire used copies of textbooks, rent textbooks, share textbooks with other students, use a library copy of the textbook (if available), use older editions of course materials, and delay purchases or avoid purchasing the textbooks at all (Christie, Pollitz, & Middleton, 2009; Donaldson, Nelson, & Thomas, 2012; Florida Virtual Campus, 2016; Senack, 2014).

Historically, some academic libraries have maintained that textbook purchases are a student's responsibility and have created policies that prohibit their purchase with library funds or their request via interlibrary loan (Gibbs & Bowdoin, 2014; Murphy, 2013). However, in recent years, many libraries have worked to address cost and access barriers by creating course reserves programs. These programs often work directly with faculty and instructors to make at least one copy of a course textbook available in the library; some libraries even use their own collection development budgets to purchase required textbooks from campus bookstores and place them on reserve (Celik & Peck, 2016; DeMartini, Marshall, & Chew, 2018; Greiner, 2012). Just as Ranganathan proposed that libraries should purchase the costly and often inaccessible reference works that would be used frequently by their patrons (Ranganathan, 1931, p. 280), academic libraries' support of course reserves reflects a renewal of the second law and provides a pathway for its connection to OER. Expanding the second law to reflect "every student their educational resource" requires academic libraries to challenge the concept of "[text]books for the chosen few" (Ranganathan, 1931, p. 74), e.g., those who can afford them, those who can purchase them before they are sold out, and those who can access them in a format that meets their needs.

One way that academic libraries can advocate "every student their educational resource" is to redefine their relationships with faculty and instructors and offer support during the course material adoption process (Okamoto, 2013). Surveys show that the majority of faculty members and instructors need more information about OER (Belikov & Bodily, 2016, p. 239; Seaman & Seaman, 2017, p. 16) and that they have various concerns related to the findability, availability, quality, and usefulness of OER for their courses (Belikov & Bodily, 2016, p. 239; Martinez, Doney, & Stoddart, 2019; Seaman & Seaman, 2017, p. 30). Librarians can situate themselves as allies in the course material adoption process by advertising how they can help faculty and instructors find high-quality OER that meet their students' needs (Martinez et al., 2019), while also addressing faculty and instructor concerns

about resource availability and quality (Seaman & Seaman, 2017). Another way to ensure "every student their educational resource" is to encourage OER adoption at all course levels. OER creators and publishers initially developed the majority of their course material offerings for "large enrollment introductory level courses" that would have the greatest impact on the most students (Seaman & Seaman, 2017, p. 32). However, students in advanced, discipline-specific, and upper-division courses also have a need for OER. Course material adoption in these situations may not be as streamlined as selecting a premade OER. Librarians may need to collaborate with faculty members and instructors to support their revision of existing OER or even their creation of new OER. Many faculty members and instructors do not have prior experience with the OER creation process. If librarians are committed to "every student their educational resource," they will need to find ways to support faculty and instructors as they negotiate new processes and potentially establish collaborative relationships with other campus entities, such as centers for teaching and learning.

Ranganathan's second law requires that libraries serve all patrons, provide access to collections that represent their needs, and find ways to eliminate as many restrictions to access and availability as possible (Connaway & Faniel, 2014, p. 26). If academic libraries still see "every reader their book" as a relevant guiding principle, libraries are compelled to view course materials as another aspect of library collections. If academic library communities need these resources, OER offer a clear way to challenge cost and access restrictions so that all students can acquire and use the educational resources required for their courses.

Law #2 in Practice

- Libraries can challenge students' cost and access barriers for educational resources by advocating OER adoption and continuing to support course reserves.
- Libraries can encourage faculty and instructor use of OER by serving as allies throughout the adoption and implementation process.

LAW #3: EVERY EDUCATIONAL RESOURCE ITS STUDENT

The third law of library science, "every book its reader," focuses on the intersection of discoverability, equitable access, and the variety of information formats. Ranganathan concentrated this law on the physical object of the book, intending for library materials to be relevant to all members of a community. In many ways, this is the idea that patrons can *see* themselves within a library's collection. By seeing herself within a library's collection, a patron can find an item of interest, no matter how esoteric. This extends to Ranganathan's advocacy for an open stacks design, which allows patrons to physically locate the part of the

library that interests them. Specifically Ranganathan called this "the open access system," wherein a patron "is permitted to wander among the books and lay his hands on any of them at his will or pleasure" (Ranganathan, 1931, p. 300). In this manner, and through the lens of Ranganathan's third law, the library's collection then becomes a more accurate mirror of the community it serves—addressing the needs, interests, and culture from all vantages large and small—and the patron is free to discover the collection without impediment by library design or other concerns. Therefore, every book does indeed have its reader or user. Similarly, the idea of "every OER its reader" is not only a call for open access, but also a reminder that OER are intended to serve the needs of multiple communities. The ability to remix and reimagine content aids in allowing OER to truly reflect cultural, learner, disadvantaged, and disabled learning needs. In other arenas, Ranganathan's third law has been reimagined as a call for format plurality, as not only "every book," but also every medium (Simpson, 2008) or every piece of technology (Noruzi, 2004) its own user. In light of format plurality, "every OER its reader" suggests that OER should be agnostic to format, medium, or platform and made available in a multitude of modalities to increase access and accommodate learning preferences. The third law, therefore, frames OER as necessarily portable across devices and formats to meet users where they are.

In summarizing early conversations around OER, Joyce (2006) addressed particular aspects of OER that speak to the idea of every OER its reader. In working through defining what qualifies as an OER, Joyce (2006, p. 6) identified aspects such as file formats that "everyone can open, copy and paste from, and edit content in, without needing to install proprietary software" as desired qualities for OER. For example, even though OER text might be open, if a user is required to use proprietary means of access via a learning management platform (e.g., Blackboard), viewer/editing tool (e.g., Adobe), software (e.g., Flash), or even access it via computer at all, this calls into the question the openness and accessibility of the content. In a summarizing report to the Hewlett Foundation, Atkins et al. (2007, p. 26) noted the need for object granularity and "object format diversity" to ensure interoperability across devices. In making every OER available to its user, issues of technological infrastructure, format accessibility, and user preference must be addressed to truly consider OER open and accessible to underserved and diverse populations.

Petrides, Levin, and Watson (2018) proposed the CARE Framework as a "set of values and collective vision" to guide OER work and development to better meet the needs of learners and educators. The CARE framework is made up of four elements:

- Contribute: OER stewards actively contribute to efforts, whether financially or via in-kind contributions, to advance the awareness, improvement, and distribution of OER;

- Attribute: OER stewards practice conspicuous attribution, ensuring that all who create or remix OER are properly and clearly credited for their contributions;

- Release: OER stewards ensure OER can be released and used beyond the course and platform in which it was created or delivered; and

- Empower: OER stewards are inclusive and strive to meet the diverse needs of all learners, including by supporting the participation of new and non-traditional voices in OER creation and adoption (Petrides et al., 2018).

The CARE framework highlights elements relevant to the idea of every OER user. Specifically, when articulating aspects of release, Petrides et al. (2018) contended that OER should support "the broadest possible use and collaborative revision and remix of materials over time. This includes providing tools to allow users to download and share content beyond the course or platform in which it was created or delivered." Making OER available across platforms and modalities informs the 'empower' aspect of the framework in that

> by reducing the traditional barriers to creating and sharing resources and with a commitment to conspicuous attribution, the OER movement benefits and is itself enriched from the broad participation of individuals seeking to share their expertise and contributions with others. In turn, this commitment to new and non-traditional voices will help the OER movement to better serve a more inclusive and diverse set of educators and learners (Petrides et al., 2018).

As libraries are stewards for their collections, making materials available to and reflective of their community of users, every OER its reader is a tenet to guide thoughtful and intentional OER creation and adoption to meet all learner needs.

Every OER its reader suggests that, as educators continue to build and make available learning objects, they must take into account many considerations around technology and diversity. The openness of OER *is* in the spirit of Ranganathan's third law. While Ranganathan advocated strongly for the idea of an "open access library" within the context of his time, the sentiment remains the same: OER and libraries need to remain open as learning objects for patrons to fully realize their potential. In order to best meet the expectations of equitable and inclusive access to education, deliberate and intentional design are essential concerns alongside the development of subject content. Frameworks such as CARE and other best practices for accessibility and open access can serve to truly enable every OER its reader.

Law #3 in Practice:

- Libraries can advocate for the multiplicity of OER formats to accommodate learning preferences and technology access (technology agnostic).
- OER characteristics and content should mirror the communities they serve (community driven).

LAW #4: SAVE THE TIME OF FACULTY AND STUDENTS

Ranganathan's fourth law of librarianship states that resources should be easily discoverable, findable, and accessible. This is one of the greatest challenges facing the widespread adoption of OER on college campuses. Simultaneously, time is one of the reasons that OER use is so important. Many researchers have asked faculty and instructors from institutions of higher education about the barriers they face when contemplating the use of an open textbook in their classroom. In many of these studies, respondents identified time as a major barrier. However, while instructors are faced with the decision to sacrifice some of their precious time to lower the cost of education for students, students are faced with the decision of whether to brave their classes without a textbook because they cannot afford one. The mission of academic libraries is to help both students and faculty succeed, and one of the most pressing challenges today is the cost, in both money and time, necessary to provide students with textbooks and course materials.

Students face many obstacles to success when they cannot access a textbook. Due to the exorbitant cost of textbooks, many students do not buy the textbooks; this can result in earning poor grades or choosing to take fewer classes overall, extending the time they are in school (Hilton, Fischer, Wiley, & Williams, 2016, p. 2). Thus, it would make a significant difference for these students if they had access to textbooks for all their courses. They would not waste their time in a class they were ill-prepared for or spend longer in school as a result of the need to spread out their course load to afford textbooks. Delimont, Turtle, Bennett, Adhikari, and Lindshield (2016, p. 24) have suggested that "it may be that increasing student access to learning materials is connected with their increased academic success" and that OER could be the key to higher rates of student success. Both faculty and students have stated that the student experience is better and more successful because of OER's ease of access and availability (Bliss, Robinson, Hilton, & Wiley, 2013; Delimont et al., 2016). When students have textbooks the moment they need them, they are more academically successful, meaning that OER, with their free and convenient access, are the perfect solution.

The use of OER entails four main *time* barriers: (1) the time it takes to find OER, (2) the time it takes to evaluate OER, (3) the time it takes to create OER, and (4) the time already

invested in another textbook or teaching material. When considering adoption:

> Faculty must not only locate OER, but also evaluate their appropriateness for the given course or lesson they are intended to support, the amount of revision or adaptation that is required, and the overall quality (i.e., accuracy and comprehensiveness) of the resources, and faculty report that this is a particularly time-consuming task (Colson, Scott, & Donaldson, 2017, p. 281).

When Ranganathan (1931) wrote his fourth law, his focus was on open access stacks versus closed stacks; he posited that letting people find their own books saves the time of library staff, as well as patrons. This is almost the exact opposite of open access today, where an overabundance of OER can be overwhelming and difficult for faculty members to navigate. The uncurated and unedited expanse of the Internet is very different from the neatly organized stacks of a library, making it difficult to find the best educational resource for a class. Faculty members also reported needing more time to evaluate OER because many had not been through a review process, and that they did not have enough institutional support to spend time evaluating a curriculum and adopting a new textbook, especially an open one. An engineering faculty member, for example, reported that they "intend to spend the time seeking out, evaluating, and adopting some of these resources once they obtain tenure" (Belikov & Bodily, 2016, p. 241). Perhaps by that point, though, this faculty member will already be accustomed to the textbook used in the intervening years and decide not to change to OER.

The time invested in a textbook or course material is an understandable and significant reason faculty members do not choose to use OER. Delimont et al. (2016, pp. 9–10) reported that "the primary reason for preferring a traditional text was that he/she has taught the course for many years, refining it over time, and so it was not difficult to teach with the textbook." This is perhaps the biggest challenge to overcome, because there is little incentive either the library or the university can provide that can compare to several years of effort and knowledge being poured into a textbook, syllabus, and learning materials. This is a good reason to target efforts for OER use at newer faculty members and teaching assistants. If they begin their instruction careers with OER, they will never have to forsake years of effort for the cause of saving students money.

If there is not an established OER for the course an instructor is teaching, or if what exists is too broad or narrow in scope, faculty members must create their own material. Because universities rarely provide extra time or a reduced teaching load to support instructors in creating open educational materials, providing these would be a major incentive for OER adoption. Aside from all the time it takes to write a textbook, faculty have also "noted that

they needed or acquired special knowledge to develop the resource" (Delimont et al., 2016, p. 9). The time it takes to create an original OER is significant and requires a great deal of dedication on the part of the faculty.

Today, just as Ranganathan first suggested in 1931, libraries could save the time of the reader through the creation of user-centered systems and process improvements for adopting OER. The first way libraries can promote OER is to incentivize their use. A few colleges and universities offer programs that provide financial compensation and curricular support for time spent creating and evaluating OER. Libraries are also well situated to help make OER more discoverable. A research guide, workshop, or helpful email can go a long way in reminding faculty and instructors that there are lower-cost options available for their courses. Libraries can also support OER organizations like OpenStax and Merlot, which make finding an applicable OER more accessible. These sites also share evaluations, which can help convince a skeptical instructor that this free textbook is of good quality. In the end, vocalizing support for OER and encouraging universities and colleges to support OER at the institutional level is the best action libraries can take. Many faculty members have stated that "institutional support for the evaluation and adoption of OER would increase their likelihood to adopt OER" (Belikov & Bodily, 2016, p. 245), which is a logical and unsurprising claim. With a limited amount of time, it makes sense to focus on institutional priorities first.

Law #4 in Practice

- Libraries can support the discovery and adoption of OER by promoting top resources and repositories. Libraries can also work to make evaluations of OER more accessible, which improves their credibility.

- Libraries can incentivize the use of OER by providing institutional support and programs with funding and assistance for the creation, evaluation, and adoption of OER.

LAW #5: OER ARE GROWING ORGANISMS

Ranganathan's fifth and final law is that "a library is a growing organism." The fifth law differs from the previous four in that it "enunciates a fundamental principle that should govern the planning and organisation of libraries" (Ranganathan, 1931, p. 382). Ranganathan identified two ways in which an organism grows: in terms of size and in terms of variation/evolution. In the context of libraries, the former is straightforward. In a healthy library organization, collections, facilities, and staff will all grow. Librarians should include

growth projections in their long-range planning. While the space constraints described by Ranganathan still impact many of today's libraries, these concerns have been lessened to some degree by the shift to digital file storage, such as integrated library systems and digital collections of e-books, periodicals, streaming media, etc.

As far as evolution is concerned, Ranganathan provided the example of the shift from chained books in the medieval era to libraries with circulating collections in the early twentieth century. Contemporary variation in libraries can be seen in library types (e.g., a public library versus a research university library). The principle of the library as "an instrument of universal education" (Ranganathan, 1931, p. 415) serves as the common thread throughout differing iterations of libraries.

While Ranganathan's fifth law discusses the library organization as growing and fluid, books, periodicals, and card catalogs provide a type of physical stability that may not be present in today's digital collections. For example, even though physical collections may ebb and flow during acquisitions and weeding processes, digital collections can be changed more suddenly based on licensing agreements and new or lapsing subscriptions. Digital resources, which may resolve many of the space concerns discussed by Ranganathan, also introduce the issue of impermanence.

OER are most often found in a digital format. To users who prefer print materials, this can make OER unattractively nebulous. Unlike other digital resources, libraries do not need to negotiate or pay for OER subscriptions (although for-profit OER companies do exist). However, access to OER can still be lost if the library does not have its own copy. The digital, space-saving nature of OER also reduces the incentive to weed a collection. If not adequately maintained, it is easy for an OER repository to become cluttered with many broken links and out-of-date resources. Librarians who work with OER are already well aware of the challenges of such repositories.

Open licensing of OER complicates the issue of growth further. On the one hand, an open license allows any user to download and retain a copy of the work, which adds potential permanence. The work can also be copied and redistributed ad infinitum, which adds potential growth. However, if and when the open license grants permission for the revision and remixing of a work, the work itself may change in radical, unpredictable ways. Otto (2008) argued against the common metaphor that "ideas are property." Instead, content creators should see themselves as the "parent" of an idea, with the expectation and understanding "that the idea's development is not complete when the parent's act of creation is done" (Otto, 2008, p. 126). Open licenses give creators the ability to rethink the very nature of their intellectual property. By allowing others to create deriva-

tives, copyright holders give their works the freedom to grow and evolve far beyond their initial iteration.

Ranganathan's fifth law also recommends that librarians plan for the growth of the library in terms of changing and growing staff. By engaging in OER or textbook affordability initiatives, academic libraries have the opportunity to increase their impact and involvement on campus. Many libraries are recognizing the need for specialized OER librarians to assist users with access to and use of OER. This presents an added challenge for librarians working at institutions where the personnel budget is not a growing organism.

The growth and evolution of the resources themselves may require even greater consideration from librarians. Novel questions, beyond typical reference or research concerns, may arise for a librarian working with OER. For example, should the library host its own copies of OER files or link to copies hosted by other institutions? What should libraries do when the original work is revised? What is the difference between a revision by the original author and a revision by a different author? How should revisions be reflected in the item's record? How do libraries deal with versioning? Who is going to do the metadata and repository maintenance work?

It is useful to consider OER as a growing organism in terms of expanding OER collections, evolving open licensed works, and increasing need for OER-related labor. In framing the fifth law, Ranganathan (1931, p. 382) stated that "an organism which ceases to grow will petrify and perish." While there are many challenges for librarians working with OER, it seems unlikely that the intersection of librarianship and open education will slow down any time soon.

Law #5 in Practice

- Libraries can support the discoverability, adoption, and use of OER by updating and maintaining repositories.
- Libraries can further engage with OER by hiring specialized librarians, reworking position descriptions, and engaging with affordability initiatives across campus.

CONCLUSION

Ranganathan's *Five Laws of Library Science* has remained flexible and open to adaptation as new modes of information access, resources, and technology have come into existence. As the previous sections demonstrate, OER break barriers to education by offering low-cost,

high-quality educational materials. However, when compared to traditional course materials, OER have a number of adoption and maintenance related challenges that have implications for library practice. Contextualizing OER within Ranganathan's *Five Laws*, one of the discipline's most enduring philosophies, gives libraries the framework to examine their role in OER and how they can best meet the needs of students. By advocating for OER and making them more discoverable, collaborating with faculty to support OER use and creation, and incentivizing OER use through institutional support, libraries can demonstrate their commitment to making education accessible to all students.

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