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E-Lending and Libraries
Toward a De-Commercialization
of the Commons

E-lending refers to two types of library services. First, e-lending refers to libraries' digital collections—the content that libraries create, preserve, maintain, and make accessible to their publics. Digital content may include e-books, audio files, apps, web pages, articles in databases, digitized works, works in institutional repositories, and streamable audio or video files. E-content and the infrastructure supporting it is commonly called a digital library. Besides content, e-lending also refers to the devices libraries lend to enable access to collections or other web resources. These devices may include laptops, dedicated e-readers, multimedia tablets, or other handheld gadgets. E-content and e-devices are distinct yet inseparable when discussing commercialization in library services. This essay discusses both the digital content and the digital technology, and it classifies both e-content and e-device lending under the general term of e-lending.

E-lending is attractive for libraries because it enhances information access in particular ways. For example, device lending is a response to real needs and real demands. Some information resources, like government services, employment applications, and self-published e-books, are only available online, and not everyone owns the technology to access them. Around 40% of U.S. adults do not own a laptop computer, about 40% do not own a desktop computer, and 20% of U.S. adults have neither home Internet access nor a smartphone (Zickuhr & Smith, 2013; Brenner, 2013). While libraries provide access to stationary computer terminals and Wi-Fi access within the library,

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these modes of access present barriers to patrons in terms of time and distance (Jensen & Harrington, 2013).

The prevalence of e-lending reflects societal trends. Information producers and consumers increasingly demand mobile, digital devices for information access. As of January 2014, 28% of U.S. adults read an e-book within the last year, and 50% own an e-reader or a tablet. Of those with e-devices, 42% own a tablet computer and 24% own a dedicated e-reader. In addition, 55% of U.S. adults own a smartphone which can be used to access e-books (Zickuhr & Rainie, 2014). E-readers and tablets offer flexibility that analog media does not, like searchability and text-to-speech software. By providing access to e-content and mobile technology to patrons, libraries exist beyond their physical walls, outside of scheduled hours, and offer patrons affordances they may not have with analog materials.

The attractiveness of e-lending notwithstanding, the services often belie commercialized technologies that raise concerns for libraries and patrons. Schiller and Schiller (1988) maintain that understanding how information is commercialized is a fundamental question for library policymakers to consider (p. 154). Such is the case with e-lending. For example, e-lending utilizes mobile devices such as e-readers and tablets, and these devices have certain beneficial features; however, the devices can also be used as trackers that surreptitiously collect patron data and supply it to third-party companies. Closer inspection of e-lending services reveals that their technologies often privilege the interests of capital, not the public good. Librarians must identify how services and technologies commercialize the commons and develop access solutions that avoid ethical and legal problems.

The tensions within e-lending point to a larger conflict between libraries and commercialism. The struggle between libraries and capital has continued unabated for some time, and libraries are the underdogs. Another recent example of the tension between libraries and commercialism is the Google Books case. For the past 10 years, authors, publishers, libraries, and nations worldwide watched as Google, with the complicity of libraries, digitized 20 million books. As of fall 2013, the preservation, access, and distribution of cultural heritage resides in the hands of a corporate entity (Darnton, 2009a, 2009b). Representatives of France and Germany, as well as many other individual observers, protested the unilateralism of the decision-making process, all to no avail.

Schiller and Schiller (1988) observe that, in today's neoliberal information society, decisions about the public good are routinely left to market forces and decided by for-profit entities:

> As computerization and information processing extend throughout the economy, the influence of the for-profit information companies widens. Correspondingly, questions about the production, organization, storage,

and dissemination of information are considered and decided upon at sites in which the public has no presence and the for-profit information sector's perspective receives preponderant attention and support. (p. 150)

The example of Google Books and the view of Schiller and Schiller suggest that the technologies used in e-lending services exhibit their qualities not to benefit the public, but to benefit corporations. If these technologies had been developed through a process of open, non-coercive discourse oriented to the interests of all involved, then the technologies would have developed differently. In the case of the developers of e-lending technologies, "the information industry was and is interested in collaboration with the public library sector only to the extent that it can use it for furthering its own objectives" (Schiller & Schiller, 1988, p. 156).

The drive for commercialized e-lending services is facilitated by computationalist ideology. According to Golumbia (2009), one aspect of computationalism is the unreflective belief that computers are automatically empowering for individuals (p. 181). This faith contains a number of assumptions, including an overemphasis on individual mastery. Golumbia observes that, rather than establish "rhizomatic, 'flat,' nonhierarchical connections between people at every level," computers often increase striation and control by serving the interests of those already in power (p. 153). Golumbia notes that "the powerful are made even more powerful via computational means than are the relatively powerless, even as everyone's cultural power expands" (p. 152). Golumbia (2009) poses a question that librarians should consider: "Does the bare fact that computers can do something mean that it is better to have that thing done on computers than in the analog world?" (p. 225). E-lending services seemingly pose many advantages for libraries and patrons, but it does not follow that libraries should adopt these services unreflectively, without considering how they are commercialized and to what extent they serve the interests of libraries and patrons.

As individuals, as collectives, and as a profession, librarians can disrupt the commercial tendencies of e-lending technologies. E-lending is not inherently commercial, and not all e-lending services are commercialized to the same degree. This essay does not take an economically reductionist or technologically determinist stance. Librarians can still make informed policy decisions about e-lending. There is no reason to think that librarians must concede to the false dilemma presented by commercialism: libraries can both offer access services and maintain ethical values.

The remainder of this essay describes the current state of e-lending services in libraries with a focus on e-books and device lending. This essay then explains how e-lending services often privilege commercial interests over the needs

of libraries and patrons, leading to ethical and legal tensions. Specifically, e-lending services raise issues of privacy, exploitative labor, economic domination, collection censorship, universal access, and critical thinking. This essay concludes with preliminary recommendations for minimizing the commercialism in e-lending and proposes areas for future research.

The State of E-Lending in Libraries

U.S. libraries of all types now lend e-books and the devices to access them. According to the American Library Association, 76% of public libraries offer e-books and 39% of public libraries lend e-readers (2013, p. 8). *Library Journal* (2012b) reports that almost 90% of public libraries lend e-books, a somewhat higher percentage than ALA's estimate. Likewise, school and academic libraries continue to invest in e-textbooks and e-devices. About 95% of academic libraries and 40% of school libraries lend e-books (Library Journal, 2012a, p. 5, 2012c, p. 4; Walters, 2013, p. 189).

Like e-books, e-devices are popular in libraries, and libraries regularly promote their device-lending services in the news. Two notable libraries recently in the headlines are Queens Public Library in New York and Bexar County Bibliotech in Texas. Queens Library lends 5,000 Google Nexus tablets it received in November 2013 as part of Hurricane Sandy relief effort. The tablets contain specially-developed proprietary software (Wave, 2013). Bexar Bibliotech, which claims to be the "first digital public library in America," lends PocketBook e-readers, iPad tablets, and Nook HD e-readers loaded with software tailored to children (Bexar Bibliotech, 2014; Bexar Bibliotech, personal communication, January 24, 2014). These two libraries are examples among many that lend digital devices. Although some libraries cannot afford to lend devices, most libraries either maintain hybrid collections to support print-based information consumption or they eschew print stacks altogether (Calhoun, 2014; Abel, 2009).

Device lending represents a mix of locally-crafted services and standardized solutions. Consultancy, education, and publication about device-lending services is a burgeoning cottage industry. ALA TechSource, for example, offers training workshops on how to implement tablet-lending services, particularly iPads (Miller, Moorefield-Lang, & Meier, 2013). Several librarians in libraries of all types have published case studies describing e-reader lending services created to fit their local situations (e.g., Behler & Lush, 2011; Clark, 2009; Hayman, Bertrand, & Rose, 2011; Jonker, 2012; Mallett, 2010; Savova & Garsia, 2012). Many libraries lend e-readers or tablets of various sorts, and the proliferation of e-lending is supported by a receptive field. Even if they do not lend devices, libraries routinely provide technical support to patrons. Some libraries offer technology petting zoos to introduce patrons to new technologies, or they

hold information literacy workshops. These services facilitate the adoption of commercial technologies by the public. Librarians have become volunteer salespeople and marketeers for commercial technologies.

While not specifically about device-lending services, a substantial body of literature about Amazon e-readers developed as a result of a 2009-2010 partnership between Amazon and several universities. The participants in the studies included Princeton University, the University of Washington, Arizona State University, Case Western Reserve University, Pace University, Reed College, and Darden School of Business at the University of Virginia (Anson & Connell, 2009; Princeton University, 2010; Arizona State University, 2009; Case Western Reserve University, 2009; Pace University, 2009; Reed College, 2010; University of Virginia Darden School of Business, 2010; University of Washington, n.d.). The stated purpose of the user studies was to determine the viability of Amazon's new e-reader, the Kindle DX, in a college environment. Student participants used the devices in all of their classes to access their course materials. Importantly, several serious issues with e-reader usability came to the fore in these studies. As a result, Kindle DX never succeeded in the education market. The results from these user studies are further discussed in more detail later in this article.

Discussion about e-lending cannot avoid identifying the corporate interests involved in the development and distribution of e-content and e-devices. Currently, two corporations dominate U.S. e-book sales: Amazon controls 58% of the market share and Barnes & Noble controls 27%. Apple accounts for only 9% of consumer e-book sales. In addition to e-book sales, Amazon and Barnes & Noble also lead in sales of e-readers: Amazon Kindle accounts for 67% of sales and Barnes & Noble Nook accounts for 22% (McCracken, Townsend, & Keehner, 2011). Other e-readers on the market at the time of this writing are Sony Readers, Kobos, and PocketBooks. Amazon controls 70% to 80% of online sales of e-books (Barry C. Lynn as cited in McChesney, 2013, p. 131).

As stated above, Amazon and Barnes & Noble lead the consumer e-book market, but the library market for e-books is also governed by two vendors: EBSCO and ebrary (Primary Research Group, 2010). Another central player in e-book distribution to libraries is OverDrive. OverDrive, partnered with Amazon, claims 90% of the public library market for e-book distribution. Insubstantial competitors to the OverDrive monopoly in public libraries are 3M Cloud Library and Baker & Taylor 360 (Seave, 2013). In school libraries, the e-book field is more competitive. Numerous vendors compete for e-book transactions in school libraries, including Follett, Gale, Scholastic, and Ingram (Enis & Bayliss, 2013).

With the seeming exception of the school library e-book market, e-book industries in libraries suggest monopolistic trends. Robins & Webster (1988) observe that "the media industries, and, more importantly, the whole of the

electronics, telecommunications, and data-processing industries, are undergoing a process of convergence and integration" (Robins & Webster, 1988, p. 63). In a deregulated marketplace, corporations cooperate and merge to reduce risk, avoid competition, and fix prices. This kind of market presents libraries with inflated prices and few commercial options for e-lending solutions.

E-lending marks a significant moment in library history. Libraries, the institutions entrusted to collect, organize, preserve, and make available information recorded on various media, from clay tablets to papyrus scrolls to vellum codices, now maintain digital collections, distribute e-resources via the cloud, link to online data, and enable mobile information access. These features of digital information seem to suggest a revolution in terms of information access: digital information is not tied to any single medium; it can be instantly copied and transmitted at little marginal cost; and it is flexible in ways analog-bound information is not (e.g., searchability; text-to-speech capability; font size changeability; reflowability). For libraries at least, digital information requires relatively little physical storage space compared to physically-tied information. Libraries recognize the affordances of digital information, and through e-lending services, they attempt to make it available to the public.

The paradox of the digital information "revolution" is that information is monetized and restricted now more than ever. Libraries that could conceivably provide information access in unprecedented ways face underfunding, and the digital media that promise new affordances also increasingly require information that is commoditized and monetized. Monopolistic trends in the information economy threaten the mission of libraries to provide free services to the public. Through the Internet and the World Wide Web, information can be distributed and produced rapidly, cheaply, and in great volumes, but industries have also capitalized on opportunities to monetize information in unprecedented ways (McChesney, 2013).

The phrase "mobile technologies" is a particularly striking word in critical theory and political economy literature. While librarians associate mobile technologies with notions of enhanced access, "mobility" can also refer to the novel ways that capital permeates our everyday lives. Borrowing from Jean Paul de Gaudemar, Robins and Webster (1988) explain that the forces of capital "mobilize" populations for the production of surplus value (Gaudemar as cited in Robins & Webster, 1988, p. 48). In other words, "capital seeks to influence, not ideas or profits, but the very rhythms, patterns, pace, texture, and disciplines of everyday life" (Robins & Webster, 1988, p. 46). The mobile technology used in e-lending is potentially a form of control, not freedom. Robins and Webster (1988) warn that,

> through information technologies, with their wide-ranging applications,
> social life opens up to more effective colonization; the rhythm and

social space of everyday life become, potentially, subject to a more certain and effective codification according to the prevailing relations of power. (p. 57)

It is through the mobile technologies in e-lending that capital potentially "invades the very cracks and pores of social life" (Robins & Webster, 1988, p. 54). Librarians must consider how to avoid capitalistic mobilization in e-lending services. What follows is an evaluation of e-lending technologies in terms of their commercialization. After identifying how the services are commercialized, alternatives to these models become thinkable.

Commercialized E-Lending
Privacy, Surveillance, and Patron Data Collection

A central concern raised by mobile e-lending services is patron privacy. For example, libraries that subscribe to OverDrive, the popular e-book service, require that patrons register with their Amazon accounts in order to check out Kindle-formatted e-books. Through OverDrive, Amazon harvests data about patrons' reading habits that it can then use for its own purposes, like targeted recommendations. Alternatively, Amazon can share the data with the government for perceived law enforcement purposes. Libraries who offer OverDrive do not control patron data that is stored on AWS servers. OverDrive claims 90% of the public library market, and many academic libraries also subscribe to the service, so the issue of privacy and OverDrive affects many library patrons.

Issues of privacy are not only raised by OverDrive. Any interactive device loaned by libraries can be used as a tracker/recorder (Andrejevic, 2007). Using library-loaned e-devices, commercial entities can gather much more focused data about readers' habits than just what they read. Barnes & Noble, Amazon, and Google not only track customers' reading selections, but also how much of an e-book they read, how long they spend reading, and what search terms they use to find a book. Amazon records and publicizes the most-highlighted passages within e-books (Amazon, 2013). Alter (2012) reports that "book apps for tablets like the iPad, Kindle Fire and Nook record how many times readers open the app and how much time they spend reading." The privacy concerns raised by interactive technologies are especially significant issues for all the libraries who lend iPads or other tablets with apps.

With e-books and e-devices, every device is a Nielsen household or TiVo machine—there is no need for sampling. Individual preferences and behaviors are readily harvested, creating hyper-focused consumer data. If, via library devices, patrons log into the tablets they use, then they also share with third parties their search terms and browsing history. E-lending enables consumer data collection and surveillance:

Decentralized, sequestered, privatized activities and lifestyles are monitored from the diverse centers of power/administration. In the panoptic structure of the electronic grid, we find expressed that pattern of centralization and decentralization—of concentrated power and fragmentary impotency—which, we have argued, is the heart of that emerging configuration of social relations referred to ideologically as the "information society." (Robins & Webster, 1988, pp. 61-62)

Focused data is increasingly valuable to commercial enterprises, and its collection through e-lending services parallels trends of narrowcasting and media segmentation in the television industry (Curtis, 1988, p. 95). Curtis (1988) observes that "there is a clear and rapid trend toward collection, storage, and use of massive quantities of specific individual information for the purpose of discriminating among segments of the public on the basis of differences in their motivations and likely political and economic behavior" (p. 103). This personalized, individual data is used to produce and distribute targeted product ads and political campaign ads (Duhigg, 2012).

Librarians have traditionally been very concerned with issues of surveillance, privacy, and data collection. The data sharing facilitated by e-lending should raise eyebrows. Card-carrying ALA members should care about e-lending and privacy: the ALA Code of Ethics has emphasized the value of privacy since 1939 (American Library Association, 2014a), and today's ALA Code exhorts librarians to "protect each library user's right to privacy and confidentiality with respect to information sought or received and resources consulted, borrowed, acquired or transmitted" (American Library Association, 2014b). Libraries that lend tablets and e-readers most likely violate ALA Code. It will be a challenge for libraries to maintain patron privacy while also providing patrons access to interactive media.

As an example of ALA's public stance against surveillance, consider the following: on February 11, 2014, members of the American Library Association received an email from Ted Wegner, Grassroots Coordinator in ALA's Office of Government Relations. The email, titled "The Day We Fight Back," urged members to take action to "fight back against mass surveillance" by contacting legislators in support of the USA FREEDOM Act, a bill that if passed would restrict the National Security Administration's collection of telephone and Internet metadata (Ted Wegner, personal communication, February 11, 2014). The bill and ALA's resolution in support of it were responses to revelations about the NSA's international surveillance programs (Edward Snowden, n.d.; Library of Congress, 2014). ALA reported tens of thousands of calls, emails, signatures, Tweets, and Facebook shares in response to the email (Day We Fought Back, 2014).

While many librarians may have supported ALA in their resolution of the

Act, they should also consider how they aid surveillance and data collection every day. Not only do libraries record circulation data, they also document driver license numbers, addresses, and enlist police to track down recalcitrants. Librarians who also act as passport agents see more personal, official documents—driver's licenses, birth certificates, immigration papers—than typical NSA employees do. Recoupment officers for libraries regularly testify in court to recuperate stolen, lost, or damaged public assets. Libraries install video cameras for security, and librarians "purposefully watch" profiled patrons in the stacks and in computer labs. Libraries actively support the surveillance state in these ways, and now they also distribute trackers to record consumption. It is difficult for librarians to maintain a stance against surveillance while also staffing the panopticon. Rather than protecting patron privacy, e-lending seems to support the collection of patron data that becomes the private property of data collection firms (Andrejevic, 2013, p. 150).

Reflection on libraries' data collection practices presents questions like what data libraries should collect, how the data should be stored, and how the data should be used. In order to answer these questions, it might help first to clarify terms like "privacy" and "surveillance." The problem is that not only are these terms fuzzy to begin with, but they are also contested terrain in a neoliberal, commercialized landscape. In the age of "Big Data," data is a resource that librarians feel pressured to exploit. The process of identifying new resources to monetize and reworking definitions of traditional values to justify these uses is popularly termed "innovation."

Exploitation of Patrons' Digital Labors

Closely related to concerns for privacy and tracking are issues of digital labor. Digital labor refers to recording and monetizing patrons' online behaviors. Corporations track and record patrons' clicks and views and use them to further commercial interests. Patrons' online behaviors create surplus value that can be considered a form of labor. Mosco (1989) calls these data "cybernetic commodities." Andrejevic (2013) calls them forms of "estranged free labor." The tracking and recording of patrons' online behaviors is exploited labor both because patrons are not compensated for it and because the data is used against patrons to reproduce capitalism.

The digital labor of patrons' reading and browsing habits represent a "colonization of leisure" (Robins & Webster, 1988, p. 44). Robins and Webster (1988) propose that

"leisure" will become amenable to arrangement by capital, which can now access the consumer via electronic/information consoles capable of penetrating the deepest recesses of the home, the most private and

inaccessible spheres to date, offering entertainment, purchases, news, education, and much more round the clock—and priced, metered, and monitored by corporate suppliers. In these ways, "free" time becomes increasingly subordinated to the "labor" of consumption. (p. 55)

This invasion of capital into leisure spheres seems particularly enabled by the e-devices loaned by libraries. Through the conduits of e-devices, patrons are tied to commercial channels. McChesney (2013) warns that "If you're not paying for something, you're not the customer; you're the product being sold" (p. 148). This is certainly the case with some library services.

Perpetuation of Harsh Labor Conditions

E-lending not only facilitates new forms of post-industrial labor, but also perpetuates dead labor in its traditional, industrial forms. Libraries that offer e-lending must consider the labor conditions under which the technologies were created. Amazon, for example, maintains non-union, harsh warehouse conditions (Soper, 2011; McChesney, 2013, pp. 136-137). The quick, cheap distribution of the product used for e-lending depends in part on worker exploitation.

Many technologies used in e-lending originate from offshore sites, especially China. Factories owned and operated by Taiwan-based Foxconn are key producers of the technologies used in e-lending, including the technologies used in products sold by Dell, Hewlett-Packard, Apple, Acer, and Sony (Ross, 2013, p. 28). Foxconn factories are removed from human rights overseers. In 2010, 18 migrant youth workers in Foxconn's Longhua factory campus in Shenzhen, China committed suicide in protest of the harsh factory conditions there. The protests occurred in the wake of a speed-up to produce more iPads (p. 28). Sweatshop conditions and suicide protests are a steep price to pay for offering e-lending services in libraries.

Restrictive Economic Models

Logging into an Amazon account to borrow a Kindle e-book from a library not only shares private user data with a commercial entity outside the library; it also maintains false scarcity of an abundant resource. Copying and distributing e-books requires insignificant marginal costs for vendors, but logging into Amazon activates digital rights management coding on e-books to ensure that copies of each e-book title are only viewed on devices registered by the patron. Kindle e-books can be read on Amazon-sold Kindle e-readers or by Kindle apps downloaded onto other compatible devices. OverDrive's e-book distribution system privileges commercial interests over the interests of libraries and patrons by limiting access. The 1 copy, 1 patron model sustained by OverDrive is an

anachronism from the analog world that is maintained by industries solely to maximize profits.

Libraries that use OverDrive must not only pay for the service, but they must also pay for each title they make available for borrowing. In this model, libraries do not own the books they make available through OverDrive, and if they discontinue the service, they lose access to the materials they paid for. As libraries invest more and more into a specific vendor's services, the vendor increasingly binds the library to the service and can force steeper prices.

Binding libraries to specific technologies is a central marketing strategy for e-content and e-vendor manufacturers. Companies hope to tie libraries to a particular device where the library is then limited to purchase proprietary content from the provider. Amazon, for instance, used heavy front-end investment when marketing Kindle Fires. The company lost money on sales of the devices betting that it would reap profits from content sales after binding consumers to the device (Naughton, 2011).

That e-lending services result in such restrictive economic models is paradoxical. After all, it is conceivable that digital information can be easily and cheaply reproduced and transmitted:

> Most [economic analyses of information] have led to a number of apparent paradoxes. Most obvious is the theoretical circumstance that, after the first transfer, the marginal cost of information, per se, is zero. Economic optimality conditions would then require that for information to be distributed optimally to more than one consumer, the marginal cost of such information must also be set at zero, making information essentially a free good. However, in the absence of revenues from its transfer, there is no incentive for the private production of nonexclusive information (there would still be incentive for the production of information as long as that information was limited to a single consumer). There would thus seem to be no way in which nonexclusive information, as an economic good, would be produced in the private market in a manner that would be efficient and socially optimal. (Bates, 1988, p. 80)

Bates wrote before the advent of DRM and licensing models. Today, commercial entities transform information from a nonexclusive, public, non-rivalrous good to an exclusive good and restrict its distribution using DRM, copyright law, and contract law. These technologies of control create information scarcity. Indeed, e-books and other technologies utilized in e-lending represent "closed, proprietary systems devised to establish and maintain artificial scarcity, so as to give immense power to private monopolies" (McChesney, 2013, p. 127). Like the Internet, e-lending technologies have been "commercialized,

copyrighted, patented, privatized, data-inspected, and monopolized; scarcity has been created" (McChesney, 2013, p. 218). Due to the commercial nature of many e-lending technologies, libraries have few options in how they provide their services.

Censorship and Partiality in Collections

E-lending solutions often depend on content hosted and distributed by third-parties. Libraries often do not control what content is available for licensing. The collection is therefore outside of a library's control. Commercial entities have incentives to make available the content that most libraries will consume, and therefore third-party content providers are unlikely to invest in product that has only limited potential for return. The vendors therefore focus on pushing the cheapest, most popular, least controversial product to libraries. This type of collection development conflicts with a library's mission to maintain impartiality and make available information representing a wide variety of perspectives and interests.

Libraries' control of the collections is limited not only by what content is made available, but also by what content remains available. In legal terms, e-content like e-books is often licensed to libraries, not sold. It is often the case that vendors' terms of use enable vendors to control libraries' access to the content they have licensed, leading to third-party censorship. For example, in 2009, Amazon deleted legally-purchased titles from customers' accounts without notice. Evidently, Amazon did not have the rights to market the books. Ironically, one of the titles was George Orwell's *1984* (Claburn, 2009). One student sued Amazon in response because his annotations were deleted along with the book. The case was settled without a ruling on whether Amazon can legally delete titles from customers' accounts. Again, in 2012, Amazon deleted a customer's account without warning, most likely due to Amazon's perception that the customer violated her account's terms of use (King, 2012). These scenarios suggest that e-book vendors control the transaction terms to such a degree that they can censor a library's collections and make only profitable information available.

Access Barriers for Patrons with Disabilities

The e-content and e-devices used in e-lending are designed by corporations to maximize profits. These technologies are marketed to the masses without considering adaptive options for everyone. The technologies are not designed with the interests of perceived marginal populations in mind, including those with disabilities. For example, e-readers like Kindle Keyboards are not especially tactile, the buttons are small, and there is no voice navigation. It is

difficult for patrons with arthritis to use them, and some devices can be useless for blind patrons.

The inaccessibility of e-readers was revealed in the wake of the Kindle DX pilot studies. Besides gathering users' views on the viability of Kindle e-readers in academic settings, an unforeseen consequence of the Kindle DX pilot project was legal trouble. Several of the participating universities received cease-and-desist letters from blindness organizations, and the National Federation of the Blind and the American Council of the Blind filed a joint discrimination lawsuit against Arizona State University (National Federation of the Blind, 2009). The lawsuit against ASU was settled in 2010 out of court. Failure to offer accessible resources to blind students violates sections 504 and 508 of the Rehabilitation Act of 1973. For ASU, e-lending restricted access for some patrons.

Other publicly-funded organizations that loaned inaccessible e-reader devices, including the Free Library of Philadelphia and the U.S. Department of State, faced similar situations (National Federation of the Blind, 2012a, 2012b). According to blindness organizations, the e-lending violated the Americans with Disabilities Act and Rehabilitation Act of 1973 because the Kindle devices do not have voice navigation menus, making them inaccessible to blind patrons. The inaccessibility of some e-lending solutions raises ethical and legal concerns. At this point, commercial entities cannot always be forced to develop universally-accessible technologies.

Hindrances to Deep Engagement with Texts

Several characteristics of e-lending suggest that it hinders critical thinking and deep engagement with texts. Considering how and for what purposes the technologies were designed, this is no surprise. E-devices and e-content form a channel designed by commercial entities to push product to consumers, maximize consumption, and generate profits. Through e-lending, then, "commodified entertainment and services will be pumped into the individual household in a steady, metered flow" (Robins & Webster, 1988, p. 54). Within this logic, there is no incentive to create media that promote critical thinking, reflection, and deep engagement with texts.

One way e-lending hinders critical thinking is though poor annotation features. While it is possible for readers to highlight, bookmark, and record notes within an e-book's digital text, the annotation features of e-readers are limited compared with those offered by print-based media. Critical and deep engagement with a text requires extensive annotation. For readers to think with a text, readers must be able to speak back to it, draw connections and ideas from other texts, physically draw in the margins and between lines, and record notes in quick, idiosyncratic ways. This type of reading results in extensive marginalia, including words, diagrams, pictures, and lines. E-texts have not

sufficiently developed to allow for the annotation required to deeply engage with a text's content. The insufficiency of annotation features in e-readers was a central finding of the Kindle DX pilot studies of 2009-2010. The Kindle DX has a larger screen compared to regular e-readers, and the device uses a physical keyboard on the bottom of its front face rather than a touchscreen keyboard. Amazon hopes to use the DX to penetrate the education market. In the pilot studies, however, student participants found the annotation features insufficient. It was difficult to type in notes using the small keyboard (Princeton University, 2010). Students would have required computers to sufficiently annotate their e-books and e-textbooks.

A second hindrance of e-lending to critical thinking is the lack of "flipability" using e-books and e-devices. Using e-books, it is difficult to skim and flip through pages in a non-linear way. Readers studying for tests, following citations, and using texts for research must perform non-linear reading. Print materials make non-linear reading simple: readers using print materials can easily flip back and forth between chapters, end notes, references, table of contents, and indices. Readers using print materials can use sticky notes to create different place markers. This type of reading is not sufficiently possible with e-texts. E-books and their delivery devices were designed to augment speedy, superficial reading and maximize consumption.

In addition to poor annotation features and the disablement of non-linear reading, some devices used in e-lending do not sufficiently display pictures, images, charts, and diagrams that are essential for understanding a text. Dedicated e-readers that use e-ink, for example, only display images in black and white. This is a significant disadvantage for students or researchers who wish to engage with, say, a chemistry textbook. In addition to not displaying color, some e-readers only allow for reading PDF in a cumbersome way. Unlike other e-book formats, PDF is not reflowable. The problem is that PDF is the standard format for publishing scholarly work. In effect, some e-reading devices inhibit the transmission of scholarly knowledge.

A final hindrance to critical thinking presented by some e-devices used in e-lending is the presence of advertising. Amazon Kindle, for instance, includes banner ads on the opening screen. Only consumers who can afford to pay extra can purchase devices that do not display ads. While it is not yet the case that ads appear within texts while reading, the advent of ad-viewing while reading is not unimaginable. Needless to say, forced ad viewing while reading would be extremely detrimental to critical engagement with a text.

De-Commercializing E-Lending Services

If libraries retain e-lending services that utilize commercialized technologies, then at the very least libraries should inform patrons how the technologies share

personal information, hinder deep engagement with texts, support exploitative labor practices, and promote one-sided economic models. Many patrons are not aware of these issues. Raising patron and staff awareness can be accomplished though workshops, circulars, signage, and reference interviews. Libraries that offer commercialized e-lending services should provide patrons with informed consent so they can consider the risks and potentially opt out. Libraries could choose only to support publishers, vendors, and manufacturers that offer fair economic terms, ensure patron privacy, and support ethical working conditions for their employees.

Another way for libraries to de-commercialize e-lending services is to avoid providing them. Librarians could identify ways to disable tracking and data collection components on the devices they lend. To aid in accessibility, libraries can lend only devices that offer adaptive features. There are many online guides to assist with these decisions (e.g., Royal National Institute of Blind People, 2014). Libraries can form consortia to increase collective bargaining power. Consortia can effectively boycott commercialized technologies that do not serve the interests of patrons and libraries. Libraries could also lobby to pass legislation that would require modifications to commercialized technologies. For example, the California State University system now requires that any vendors to the system must provide accessible technologies (California State University, n.d.). The central problem with commercialism in libraries is the fundamentally-divergent interests of the two. In order for libraries to best meet patrons's needs, libraries and commercialism must remain distinct: "commercialism and an honest, democratic public sphere do not mix" (McChesney, 2013, p. 102). As long as libraries do not control the means of information production and distribution, commercialism will continue to corrode library services.

One way for libraries to approach this dilemma is to appropriate knowledge infrastructures. "Infrastructure" derives from Marx's base/superstructure metaphor that focuses attention on the economic base of society and the maintenance of oppressive social relations by ideology (Althusser, 2001). Infrastructure is also a term propagated by the National Science Foundation in their cyberinfrastructure initiatives (e.g., Atkins et al., 2003). "Knowledge infrastructures" has a broader meaning, encompassing not only hardware but also norms, practices, and individual behaviors (Edwards et al., 2013). Infrastructure could be a useful metaphor for developing alternative e-lending models in libraries.

Public libraries, for instance, could draw from the institutional repository and open access movements to create local means for storing and making accessible digital information. Libraries with local infrastructures of this sort become publishers who can decide the terms of use most conducive to library and patron interests. Many academic libraries have adopted roles as micropublishers (Horava, 2008), but public libraries can also join this movement.

Alternatively, instead of creating localized and distributed system of infrastructure, public libraries could also pool resources to form a jointly-owned, national infrastructure for information publication, storage, and distribution, or contribute to currently existing organizations. The $100 million that libraries annually spend on OverDrive subscriptions, for instance, could be redirected to fund a grassroots e-content provider and e-device design center (Seave, 2013). Libraries on the ground would serve as a distributed R&D lab network system for generating new e-content and e-device solutions. Librarians who work with patrons everyday are the professionals best positioned to design solutions that fit library and patron needs. By unifying to create their own grassroots design center, libraries could eliminate the need for dealing with commercial middlemen.

Conclusion

Future research on e-lending can address how the services are commercialized and how commercialization can be minimized. Further research might consider how "mobilization" leads to increased access rather than the facilitation of capital. While the commercialism of library services is not new, and it does not seem likely to abate in the near future, librarians can nevertheless choose less-commercialized options from more-commercialized ones. The potential for collective action to form a shared, jointly-owned and operated e-publishing and e-device design center is one approach that deserves further elaboration. The funding streams and organizational network for such a system have yet to be conceived. Seizing the means of information production seems to be libraries' best approach to avoid commercialism and better serve the information needs of patrons.

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