A case study of scholars' open and sharing practices

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Abstract

Although the open scholarship movement has successfully captured the attention and interest of higher education stakeholders, researchers currently lack an understanding of the degree to which open scholarship is enacted in institutions that lack institutional support for openness. I help fill this gap in the literature by presenting a descriptive case study that illustrates the variety of open and sharing practices enacted by faculty members at a North American university. Open and sharing practices enacted at this institution revolve around publishing manuscripts in open ways, participating on social media, creating and using open educational resources, and engaging with open teaching. This examination finds that certain open practices are favored over others. Results also show that even though faculty members often share scholarly materials online for free, they frequently do so without associated open licenses (i.e. without engaging in open practices). These findings suggest that individual motivators may significantly affect the practice of openness, but that environmental factors (e.g., institutional contexts) and technological elements (e.g., YouTube's default settings) may also shape open practices in unanticipated ways.

Keywords: Openness; open practices; open scholarship; digital participation; case study

Introduction

Open practices in a variety of educational and scholarly settings have gained wide interest and attention by researchers, educators, administrators, and entrepreneurs (Iiyoshi & Kumar, 2008; Weller, 2014; Wiley & Hilton III, 2009). In recent years, many technology-enhanced initiatives have extolled the potential of open practices to improve education. As noted elsewhere, proponents of openness have argued that open practices may "broaden access to education and knowledge, reduce costs, enhance the impact and reach of scholarship and education, and foster the development of more equitable, effective, efficient, and transparent scholarly and educational processes" (Veletsianos & Kimmons, 2012a, p 166). Furthermore, it is often argued that scholarship should be openly licensed for moral reasons, so that the public and all intended users (i.e. other researchers) can benefit from the knowledge generated by researchers, knowledge which is often produced using taxpayers money (Willinsky, 2006). These arguments have led individuals, educational institutions, and governments worldwide to embrace a variety of open practices. For example, numerous universities worldwide now offer open online courses; in 2012 the state of California passed legislation supporting the creation of open textbooks (SB 1052; SB 1053); the Premiers of Alberta, British Columbia, and Saskatchewan signed a Memorandum of Understanding (2014) to facilitate creation, sharing, and use of Open Educational Resources; and in 2009 The Netherlands was one of the first countries to initiate a national policy to mainstream open educational resources (Mulder, 2013).

Even though openness is seen as a desirable and effective approach to address a variety of problems facing higher education (Weller, 2014), researchers currently lack in-depth understandings of open practices performed by individuals in particular contexts and especially in contexts that don't advocate for openness. What might make the status quo more confusing is the fact that sharing is often seen as an open practice, even though sharing practices and open practices differ in one

significant way: open practices have to do with licensing while sharing has to do with the act of making an artifact or activity available to others. In this paper I attempt to help fill this gap in the current literature by presenting a descriptive case study of the variety of open practices employed by faculty members at an institution referred to for the purposes of this paper as Tall Mountain University (TMU). I first explain the meaning of the term "open practices" and review literature relevant to the term. Next, I provide a theoretical perspective to frame openness, describe the context in which this study took place, and outline the methods used to investigate open and sharing practices at TMU. Finally, I describe how open and sharing practices are and are not being employed by faculty members at TMU and discuss the implications of these findings.

Review of relevant literature

The term "open" is frequently used as a modifier to denote that the creation, ownership, use, modification, and sharing of various resources (e.g., a textbook, a syllabus) is governed by liberal licensing policies. Specifically, Wiley (n.d., ¶1) argues that "[t]he term "open content" describes any copyrightable work (traditionally excluding software, which is described by other terms like "open source") that is licensed in a manner that provides users with free and perpetual permission to" retain, reuse, revise, remix, and redistribute the work. These permissions are called the 5Rs. *Open practices* are activities that espouse such an ethos of sharing and transparency. In academic contexts, open practices take three main forms, "(1) open access and open publishing, (2) open education, including open educational resources and open teaching, and (3) networked participation" (Veletsianos & Kimmons, 2012a, p. 2), and include teaching, learning, and research activities. In instruction, they frequently (though not exclusively) include the creation, use, re-use, adaptation, and dissemination of open educational resources (Armellini & Nie, 2013; Murphy, 2013; Nikoi & Armellini, 2012; Tuomi, 2013; UNESCO, 2002).

Similar principles are evident in open research practices, most notably in open access publishing, which makes scholarly work "freely and openly available online with no unnecessary licensing, copyright, or subscription restrictions" (Yuan, MacNeill, & Kraan, 2008, p. 2). Such practices are expected to foster the transparency and visibility of ongoing research projects at all stages of development (Esposito, 2013; Hayden, 2011), including the sharing of data and research materials (Eich, 2014; Nature Publishing Group, 2013). Open practices are often accomplished or accompanied by academic activity on digital environments and online social networks, and these are often considered to be integral to networked scholarship (Veletsianos & Kimmons, 2012a, 2012b). While open practices often espouse sharing, it is possible for the sharing of scholarly materials to occur without any of the 5R permissions. For example, many of the massive open online courses offered by providers such as Coursera and edX prohibit users from retaining, reusing, revising, remixing, and redistributing content, even though they do allow unfettered enrollment.

The majority of the literature on open practices has focused on the *perceived* benefits of the movement, such as broadening access to higher education, enabling personalized learning, and enhancing opportunities for collaboration and networking (Nikoi & Armellini, 2012; Schreurs *et al*., 2014; Yuan *et al*., 2008). Few studies however have provided empirical results to support their claims, with the exception of the burgeoning empirical literature on open textbooks and open access publishing that shows a variety of positive outcomes (e.g., Eysenbach, 2006; Hajjem, Harnad, & Gingras, 2005; Gargouri *et al*., 2010; Robinson, Fischer, Wiley & Hilton III, 2014; Zawacki-Richter, Anderson, & Tuncay, 2010).

The literature has also identified potential barriers to open practices. Such barriers are both systemic and individual (Scheliga & Friesike, 2014). For instance, OLCOS (2012) notes that the

creation of OER could be inhibited by the lack of mechanisms for rewarding academics for their involvement in OER creation and dissemination. Bossu, Bull and Brown (2012) argue that a major barrier to the OER movement may be a general lack of understanding of the movement among higher education professionals. Of notable mention here is the Open Educational Resources Research Hub, whose aim is to research and gather research on the impact of OER. De los Arcos, Farrow, Perryman, Pitt & Weller (2014) reported that general knowledge of well-established OER repositories appears to be low and only about 13% of educators create and publish resources with a Creative Commons license. A recent survey by the Babson Research Group (Allen & Seaman, 2014) reveals similar findings by showing that the majority of faculty members (between two-thirds and three-quarters of those surveyed) are unaware of OER.

Further, Ehlers (2011, p. 1) describes potential barriers for individuals as "lack of institutional support; lack of technological tools for sharing and adapting resources; lack of users' skills and time; lack of quality or fitness of the resources; and personal issues such as lack of trust and time." At an institutional level, Murphy (2013, p. 203) suggests a possible "lack of compatibility between the philosophy of OER and existing institutional cultures and priorities", and OLCOS (2012) observes that a lack of business models may inhibit OER uptake. Like the literature on the benefits of open practices, however, much of the literature on these challenges is speculative and based on little empirical evidence, perhaps because of the relative novelty of this area.

In my review of the literature I was not able to identify any in-depth case studies examining faculty members' open and sharing practices at any particular educational institution. A small number of studies have examined how institutional policies can support open practices. Nikoi and Armellini (2012, p. 180) for example, argued that educational institutions should "embed an open practices section into main strategy documents, such as the learning and teaching strategy, and provide expertise and resources to enable those practices to take hold." Empirical research on the impact of institutional policies on open access (OA) is also lacking, but one recent study found that institutional mandates for OA do indeed encourage OA practices (Vincent-Lamarre, Boivin, Gargouri, Larivière & Harnad, 2014).

This study attempts to address the lack of research in this area by describing the range of open practices engaged in by faculty and staff at one institution without a stated OA policy, thereby providing a natural case study of the diffusion of open and sharing practices. As such, this research seeks to expand scholarly understanding of openness in institutional settings.

Theoretical framework of openness

Wiley and Hilton III (2009, ¶1) have argued that every educational institution must address "openness as a core organizational value if it desires to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education." Today, countless organizations—including journals (e.g., Nature Publishing Group, 2013), scholarly societies (e.g., Eich, 2014), funding agencies (e.g., NSERC, 2014), and government- and intergovernment-supported groups (e.g., OLCOS, 2012; OPAL, 2011, UNESCO, 2002)—have embraced open practices. These advocates often value openness for its practical benefits and present openness as an instrument for reaching such important goals as reducing costs, increasing impact, and enhancing access. Nonetheless, open practices often remain under-theorized in the literature, which I believe is a detriment to the field. Other researchers have recognized this as well, and have sought to provide theoretical bases for openness (e.g., Deimann & Farrow, 2013). The theoretical perspective provided below is intended to provide a lens for framing the open practices examined in this study.

This research views openness, open practices, and open scholarship as emerging practices (Veletsianos, in press) and sociocultural phenomena situated in specific contexts and cultures and influenced by the environments in which they take place. This perspective is based on previous work in social learning theory (Brown, Collins & Duguid, 1989; Vygotsky, 1978) and the social shaping of technology viewpoint (Dutton, 2013; Oliver, 2013; Selwyn, 2010). A sociocultural perspective on openness, open practices and open scholarship views these practices as being socially shaped, and the technologies used to enact openness as necessarily, if not always intentionally, embedding their developers' worldviews, values, beliefs, and assumptions into their design and the activities they support and encourage. By recognizing that open practices are shaped by social, cultural, economic, and political factors, this perspective rejects the notion that such practices are deterministic and holds that, with adequate information and evidence, learners, instructors, and researchers have the agency to accept or reject any particular technology or practice or to find alternative uses for it that will better serve their needs. By adopting this view, as Knox (2013, p. 27) observes, "[r]ather than promoting 'openness' as a transcendent societal ideal, or as an essential quality embedded within Internet technologies, research could begin to engage with the ways that individual agencies, social systems and technological production are deeply involved in each other." This perspective is shared by others in the literature. For instance, in their historical look at openness, Peter and Deimann (2013) show that openness is a technological, social, economic, and cultural phenomenon. As an example to illustrate this premise, they argue that books, 17th century coffee-houses, and mail services—developments that supported the opening of education—were developed partly because society deemed them to be important, and not simply because technological innovations made them possible.

Context: Tall Mountain University

In this study, open practices were investigated in the context of Tall Mountain University (TMU). TMU is a North American public, not-for-profit university that offers undergraduate and graduate degrees and enrolls between 4,000 and 8,000 students per year. The majority of TMU's courses are taught online, giving digital technology a strong presence at TMU. Nearly all courses are offered on a well-known learning management system. Instructional support for online offerings and pedagogical innovation is provided by a centralized unit consisting of instructional technologists, learning designers, and other support staff, hereafter called the Office for Teaching and Learning. The Office for Teaching and Learning works closely with faculty members, who are generally expected to spend 40% of their time on research, 40% on teaching, and 20% on service.

This institution was chosen as a research site because, similarly to a large number of other educational institutions, openness is not one of its "core organizational values," like Wiley and Hilton III (2009) suggested. The institution does not have policies mandating or encouraging openness, which makes this case study a "most-likely" design to support the theoretical assertions made pertaining to openness. If no institutional policies exist to encourage openness, and we recognize that openness is a sociocultural construct, then we should expect to see both the presence of openness at TMU as well as evidence of openness being shaped by a variety of environmental factors.

Methods

The goal of this study is to understand in what ways academics at TMU may engage in open practices and sharing. It does not examine whether academics at TMU engage in open practices

in other ways, such as using open access literature for professional development purposes. The study therefore posed the following research question: Do academics at an institution with no discernible policies supporting openness share scholarly materials online in an open format? In this paper, '*scholarly materials*' refers to both teaching and research artifacts (c.f. Boyer, 1990; Hutchings & Shulman, 1999).

Data collection

To gather evidence for this investigation, I employed ethnographic data collection *methods* to examine academics' scholarly artifacts and presence and the licenses for use assigned to such artifacts. In other words, I observed digital artifacts and presence (e.g., publications, participation on public social media sites) and identified the licenses attached to each one.

The process I used to collect data was as follows: First, I identified and created a case file for 30 randomly selected faculty members at TMU. Next, I used Google to search for scholarly artifacts by combining the institution's name and each faculty member's name (e.g., "Jane Doe" Tall Mountain University OR TMU). I then examined the first 50 results from this search to identify whether each result was indeed related to the named faculty member (e.g., by examining listed affiliations in publications, email addresses, etc.) and whether the result was an open scholarly artifact (i.e., whether an open license was attached to it). If the result included evidence of an open practice, it was saved offline in the individual's case file for analysis. I followed the same process (search, examine, archive) using Google Scholar. Finally, those results were complemented by (a) examining each individual's institutional profile page, (b) investigating all results generated by searching the university's website for the keyword "open," and (c) examining the library's website. At the end of this process, each case file comprised of open scholarly materials identified via the methods described above.

This data collection method was chosen because it enabled an examination of the presence and prevalence of open practices in situ. The alternative methods that were considered for this study (e.g., interviews, surveys) posed a number of problems that could have biased the results and were thus rejected. For instance, given that prior research suggests that faculty members are relatively unaware of Creative Commons licensing (Allen & Seaman, 2014), a survey approach to this study may not have yielded reliable results. Interviews were rejected as a data collection method because it was assumed that if faculty members' are unfamiliar with creative commons licenses, the faculty members that would have responded to an invitation for an interview would be those who were familiar with, and thus who were more likely to make use of, creative commons licenses. Thus, collecting evidence of open practices via web searches provided an effective and reliable alternative.

Data analysis

Data were analyzed in an iterative manner. First, I examined all artifacts to gain a broad picture of the types of open materials discovered. Next, I engaged in a process of coding each individual artifact according to possible categories in response to the question, "What open practice does this artifact represent?" The data was coded using an open coding scheme based on my existing knowledge of open practices because it allowed for iterative, interactive, and comparative features. Some artifacts fit into more than one category and were thus assigned multiple codes. Once all artifacts were examined, I studied the created codes and consolidated them into a smaller number of categories that described the open practices identified as being used by faculty members at TMU. The process of assigning codes to pieces of data and then consolidating codes into a smaller number of categories is called thematic analysis. Each theme describes a finding and summarizes the codes that fall under the theme.

Limitations

The research process described in this paper has three limitations worth noting. First, it is possible that TMU academics are engaged in open practices that were not revealed in the document analysis and discovery methods described above. Second, even though Google Scholar has been used by other researchers in literature discovery methods and appears to provide extensive coverage of the literature (e.g., Anderson & Shattuck, 2012), the reliance on Google services may influence the results in two unique ways: (a) it is unclear on what is and what is not included in the Google Scholar index, and (b) Google search uses a filtering algorithm which may influence the results retrieved. Finally, this study is descriptive and as such it does not provide insights into why academics may or may not engage in these practices.

Findings

More than one third (12) TMU faculty members included in the sample have published at least 1 piece of scholarship in an open access peer-reviewed journal or self-archived their work on personal or institutional websites. Although TMU provides an institutional digital repository, this mostly hosts student theses and dissertations under open licenses. Fourteen faculty members were found to disseminate their scholarship via personal blogs, websites, microblogs, and social networking sites. For example, some faculty members maintain their own blogs, while others participate on social networking sites such as Academia.edu, ResearchGate, and Twitter. Slideshows from academic conferences, peer-reviewed papers, and other research artifacts were shared on these spaces. While sharing scholarship via social media is not necessarily an open practice, and in many instances social media participation did not involve scholarly sharing, in some cases what was being shared was open scholarship.

TMU faculty were also found to create and use/reuse Open Educational Resources (OER) in the form of courses, workshops, training materials, assignments, activities, and syllabi. These were often posted on social media sites (e.g., lectures posted on YouTube). The research also indicated that (a) the Office for Teaching and Learning supports and encourages the practice and (b) the practice has been in existence since at least the late 2000s. The use of open educational resources appears limited to open access peer-reviewed literature and open textbooks, which appear frequently in faculty members' publicly available syllabi, as earlier research also found (Hilton III, Lutz, & Wiley, 2012). The study also uncovered a small number of larger-scale open teaching activities occurring at this institution, such as institution. Four open online courses offered by TMU faculty members.

Faculty members appeared to favor certain open practices over others, and to not engage in a number of other open practices. For instance, I observed no instances of data being shared with open licenses. I also observed differences and similarities between individuals' practices. For example, I did not find that any individuals shared all of their course syllabi in an open fashion (or at least posted all of them on a centralized space). I also observed that some individuals enacted some practices (e.g., published research in OA venues) but not others (e.g., openly license their presentation slideshows). This finding would seem to illustrate Wiley's (2009) observation that openness is a continuous construct, in the way that a door can be "wide open" or "open one centimeter," and Ehlers' (2011, p. 6) claim that "educational practices are never entirely closed or open" and that "within educational organisations, patterns and configurations of educational practices exist which, taken together, constitute a diverse landscape." In this instance, it appears that not only is the configuration of openness diverse on an organizational level, but it also appears to be diverse on an individual level with individual faculty varying in the degree to which they enact openness.

Significantly, it also became evident that a number of the studied instructors and researchers make scholarly materials available online for free (e.g., a syllabus shared on a personal blog, a commissioned report published on a personal website), but these materials are frequently provided without an accompanying license or are licensed using the default options provided by the technologies used to share such content. For example, I encountered numerous instructional videos posted on YouTube that were assigned the "YouTube Standard license," which permits YouTube to distribute videos, enables authors to retain copyright, and allows users to view the videos.

This investigation also uncovered open practices at the institutional level. For instance, the institution makes heavy use of an open source learning management system to support all online and hybrid learning activities. Further, the Office for Teaching and Learning supports and promotes a number of open source digital tools to support instructors in creating more effective and engaging learning designs. The library also provides access to open scholarship, uses a number of open resources for its day-to-day instructional operations (e.g., instructional videos), and publishes a number of its own instructional resources in an open fashion. Finally, some staff members at the institution contribute code customizations to the open source community and publish papers in open access journals, although these activities appear to be limited.

Discussion

This investigation offers a case study of open and sharing practices in a natural setting conducted to contribute to our current understanding of openness in higher education. In the course of this investigation, I discovered that even though a number of academics at TMU engage in open practices in the absence of open access mandates, policies, or advocacy at the institutional level, the majority of them do not do so. The rest of this section investigates the implications of the findings.

Even though some open practices are enacted at this institution, there is limited evidence for open practices being prevalent. While faculty members appear to be somewhat present and to share some of their work online, the presence of openness seems to be limited to (some) academics publishing their work in open access formats. Given these results, and having no evidence as to potential initiative or policies at this institution, it does not appear that openness is infused at this institution.

These results suggest that individual (rather than systemic) motivators may be significant drivers of openness in the higher education context. Although I used a different methodology than Scheliga and Friesike (2014), who found that both individual and systemic barriers exist to the adoption of open science, our findings are consistent in that they highlight the influence of individual agency in the practice of openness. Future research in this area should further explore the ways individual and systemic influences impact open practices, including institutional policies, personal values, and mindsets that motivate academics to engage in open practices in general. Such investigations can provide valuable insights for the increasing number of institutions developing open policies and systemic approaches to openness.

A valuable direction for future research would be to examine which open practices are becoming standard in academics' lives and which are still emerging, and why academics engage in some open practices but not in others. For instance, are some practices professionally safer than others, or perceived to offer greater professional, personal, or societal returns than others? Are some practices driven by pragmatic concerns and others by philosophical beliefs? What guides individuals choices pertaining to openness and how do faculty members rationalize their choice to enact some practices in the open but not others?

The finding that academics share materials online for free but with no explicit open licenses is one that provides a rich area for inquiry. Some of the observed faculty members may have intentionally shared their materials online without an open license. However, given that recent research suggests that though most faculty are very aware of copyright licensing, they are significantly less familiar with Creative Commons licensing (Allen & Seaman, 2014), posting content online without a license or with the default license may reflect faculty members' lack of understanding of creative commons licensing and may not necessarily reflect their desire to retain copyright. Further, prior research in a variety of fields, including educational technology (Dron, 2006), suggests that default settings have a powerful impact on human choice and behavior (Kesan & Shah, 2006). In the instance of YouTube, for example, it is likely that faculty, for a variety of reasons, use the YouTube default option without much consideration. Future research in the domain could examine (a) the impact of interventions to educate faculty about creative commons licensing and (b) faculty members' choices regarding licensing, especially in the context of YouTube and other sites that allow for the sharing of user-generated content that is often used in scholarly endeavors.

The findings presented in this paper do not provide conclusive evidence to reveal whether faculty members' demonstrated their agency to accept or reject particular practices. In fact, the choice of open access publication outlets was the only open practice observed frequently in this study, and is the only area in which one could argue that faculty members demonstrated their agency to make an open choice. However, faculty members' sharing of free materials online without open licenses suggests that environmental factors also influence the practice of openness; even though YouTube allows individuals to select a Creative Commons license for their videos, its default setting may strongly shape how content is shared. Future research in this area could investigate the degree to which this theorization applies elsewhere and explore how culture, politics, and economics mediate openness.

Finally, the findings presented in this paper should encourage researchers to further explore open practices in situ and further explore how, why, and by whom open practices are enacted in various environments. How representative is the TMU case? To what extent are these results unique to TMU and how may these results change over time as open practices are becoming increasingly popular and mainstream?

Conclusion

In this paper, I described a number of open and sharing practices enacted by faculty at TMU and discussed the implications of individual practices in relation to systemic motivators, relational practices, and technological issues. Although some practices were more common than others, this inquiry suggests that openness is a limited practice at TMU. To better understand openness, the reasons for its presence and lack thereof, as well as its impact, implications, and realities, more research into the open and sharing practices of faculty members is necessary.

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