

Pennsylvania Libraries: *Research & Practice*

Practice

21st Century Innovations

Librarians, Trend-Watching, and the Warning Signs of Fads

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With each significant new trend in higher education, librarians immediately consider how to effectively update the delivery of outreach, services, and course instruction. For example, artificial intelligence and geographic information systems are exciting opportunities for librarians to embrace a fresh approach to connect learners and faculty with innovative services and support. But as librarians engage in trend-watching, do they need to concern themselves with fads? Are there warning signs that can be watched before committing to or while engaged with a trend? This practice article shares library level experiences with the trend on MOOCs at Penn State University and experiences at other institutions engaged with Makerspaces and Virtual and Augmented Reality to explore teaching and technology trends and to analyze their impact on the broad educational landscape.

Introduction

With each significant emerging trend in higher education, librarians quickly strategize on how to effectively update the delivery of outreach, services, and teaching. The excitement of “new” may prompt librarians to want to be “the first” on board that colleagues at other institutions will want to benchmark and model. Reference and liaison librarians seek to build relationships, listen to information needs, and connect users to information sources in a rapidly evolving world of information (Johnson, 2018). But how do librarians define trends and fads, and how do they decide to embrace an emerging innovation when it is uncertain if a trend will take hold or fall away as a fad?

The typical pattern of a fad is a sudden quick rise, intense popularity, and a quick fall once the perception of novelty has passed. Although fads are fleeting, it is a good idea not to dismiss them altogether. “Fads indicate popularity and interest among patrons. A program, display, or other products based on a fad could be the key factor for bringing in a new user group, offering the opportunity to hook them on other great library services available” (Molaro et al., 2015, p. 26). The key is to be flexible, and to know when to shift energy towards more lasting innovative trends. In contrast, the pattern of a trend is an identifiable rise of a technology with an explicit goal of solving a problem or filling a need. A trend will show promise of a measurable long life; however, challenges often center on the demands of time management. “Dedicating time to thinking of new ideas...while busy implementing others and maintaining

excellent customer service can be perceived as just one more thing to do” (Molaro et al., 2015, p. 45). The perception of trend-watching being a task to endure may lead some librarians to adapt later if necessary, but following the leader to catch up with a trend may be a struggle.

A 2018 analysis based on trends identified by the Association of College and Research Libraries detailed to what extent academic libraries have adopted 21st century library trends (Catalano et al., 2018). The authors found that as academic libraries have evolved to meet the changing needs of learners in the digital age, the spotlight is now focused on innovations in teaching, technology, and social media. These practices and services facilitate creativity, engagement, and the ability to access resources anywhere and at any time. The authors also identified that the adoption of trends varied by library type. For example, the Association of Research Libraries (ARL) member libraries were more likely to adopt trends. The information gathered by library type can assist librarians in making a case to adopt or avoid some trends. For instance, the goals of ARL libraries to support research may drive the adoption of trends. And, because ARL libraries are typically larger, they may influence the trajectory of trends. On the other hand, smaller non-ARL libraries are nimbler to engage in trend-watching and implementing new innovations.

But regardless of the library type, what basic trend-watching strategies can be used? As librarians consider what trends to prioritize and follow, King (2018b) lists four trend-watching elements:

1. *Develop a plan*
Use the library’s strategic plan to build technology goals and objectives.
2. *Learn from library early adopters*
Follow innovations in blog posts, articles, and conferences and use those ideas as a basic template that can be modified to fit institutional needs.
3. *Conduct a process review*
Examine the technology already in place to determine if something else is needed, then gather information, get feedback, organize responses, and plan next steps.
4. *Address technology overload*
Browse time-saving tools like news feeds, search engine alerts and select email lists at a scheduled time to stay on top of updates.

Although each element may appear simplistic, they require considerable effort, buy-in, and sustainability measures. True trends like social media take time to emerge, but there are warning signs to help distinguish emerging trends from fads. King (2018a) also lists the three warning signs of fads:

1. *A service stops being updated*
For instance, Google Reader was not significantly updated for years, and Google ultimately dropped the service.
2. *Use of a service is diminished*
For example, Myspace accounts were deleted or abandoned as users migrated to Facebook, Twitter, and other (newer and better) social media platforms.
3. *Technology is too difficult to use*
As a case in point, Second Life never became popular because of its level of difficulty. Minecraft, however, is easy to use and has attracted a strong virtual world audience.

Librarians may choose to envision these warning signs as evaluative checkpoints. Since “warning signs” may imply an advanced alert, it can be argued that if librarians wait until an innovation declines, the information comes too late to serve as a real warning. Librarians may also note that while a tool or service may be a fad, the idea behind the

tool or service may be part of an emerging trend. In King's (2018a) example of Google deactivating Google Reader, other news feed services such as the cloud based Feedly, have taken the place of what Google Reader used to provide. Second Life can also be thought of as a fad that represents a trend-worthy idea. While Second Life did not take off, virtual and augmented reality (VAR) has. HTC Vive, Oculus Quest, and other headset providers offer user-friendly VAR systems designed to enhance the virtual experience.

Not all trends take hold and grow at every institution that adopts them, giving way to a modification of the trend or discontinued efforts in favor of another project deemed more strategic. As librarians consider how the trends versus fads question shapes their activities, they may find different conclusions for varying reasons specific to their individual institutions. Factors may include staffing considerations, budgetary constraints, and administrative support. In applying King's models, it is important for librarians to decide how it will work best in their libraries.

While related articles on library trends and fads can be found in the literature, it is difficult to determine any clear systematic plan or model that can be compared with King's models. To promote discussion within the library profession, this practice article applies King's (2018b) trend-watching approach and King's (2018a) warning signs of fads to three 21st century innovations: Massive Open Online Courses (MOOCs), Makerspaces, and VAR. In each case, one or a small sampling of academic libraries have followed a collective shift to emphasize advancements in teaching and technology. Applying King's models help reveal any potential ongoing impact on the broad educational landscape.

Massive Open Online Courses

In 2012, librarians initially thought that MOOCs would become a learning environment that academic libraries would adopt. Not just another online course, MOOCs were 1) *massive*, with no registration cap, 2) *open*, with widely available open electronic resources (OERs), 3) *online*, with no face-to-face requirement; and 4) a *course*, with a pedagogically designed learning journey (Gore, 2014). The problem was the basic challenge for librarians to integrate and promote open e-sources as they were accustomed to licensed materials. Wu (2013) points out that "MOOCs aspire to offer education and related study materials for free to anyone in the world. Libraries, however, are legally bound by license agreements with vendors to ensure that only eligible users...can access the proprietary electronic journals and online databases that cost millions of dollars a year" (p. 577). Unlike more manageable trends, MOOCs were a staggering game changer. Librarians were faced with global learning communities on a scale never experienced before.

In the spring of 2015, a librarian at Penn State University (PSU) volunteered to serve as a Coursera Community Mentor to assist learners enrolled in MOOCs and to collaborate with Coursera on future MOOC programming. This opportunity provided the librarian with valuable inside information from other mentors on where library instruction and other services for MOOC learners and educators may be needed. By that fall, the librarian conducted a voluntary informal survey, supported by Coursera, that asked three questions of approximately 40 mentors supporting online learners in diverse MOOCs:

1. Have you received questions from learners about their research needs (citing sources, etc.), accessing licensed materials, and/or copyright issues? (98% responded)
2. Have you received any other questions that you believe fall in the realm of library support? (95% responded)
3. If you have received any of the above questions, how are you answering them? (75% responded)

Table 1
Informal Survey Results

Q1	Q2	Q3
27 = No	23 = No	26 = varied responses
11 = Yes	13 = Yes	4 = N/A
1 = N/A	2 = N/A	

From the responses, it was clear that over half *did not* receive specific library questions or library-related questions. Three quarters of the respondents addressed how they attempted to answer questions that *were* specific library questions or library-related questions. Varied responses included using Google and/or Wikipedia, relying on the course discussion forum, reaching out to Coursera, posting supplemental materials, referrals to local libraries, and use of free sites such as APAStyle.org. One notable response asked if universities who initiated the specific MOOC for Coursera would welcome online library questions from Coursera learners. This is an insightful query since PSU had developed five MOOCs for Coursera and the Penn State University Libraries (PSUL) was consulted in the development phase of at least one of those courses.

King's (2018b) trend-watching strategy to "develop a plan" was central to PSULs adoption of service to MOOC learners and educators. In addition to volunteering as a Coursera Mentor, the librarian also offered LibGuides for learners and educators with free e-resources. But applying King's (2018a) warning signs indicated some shaky ground related to use of the service. From 2015 through 2018 the librarian found that the online mentoring statistics generated by the Coursera intranet indicated a steady decline in student questions in the mentoring forum. This decline could be attributed to the several reorganizations within Coursera to manage, recruit, and train mentors. During the same timeframe, the librarian also found that general interest and questions about MOOCs fielded at the PSUL reached a peak and then steadily declined. Requests to contribute to projects both internally and externally to the PSUL diminished. Queries from learners and practitioners who found their way to the librarian's two MOOC LibGuides for those respective audiences, or providers seeking inclusion on the LibGuides, also diminished. From 2015 through 2018 LibGuide statistics show a total of 1,228 views for the educator's guide with the last significant peak in March 2017. The learner's guide had a total of 907 views with the last significant peak in June 2018. There are many MOOC providers and many institutions committed to developing MOOCs, but not every trend is sustainable at every institution. An analysis of library support at other universities invested in MOOCs should be undertaken to answer the trend versus fad and sustainability questions. But since PSU's adoption of five MOOCs in 2013, additional courses have not been created. That, together with the decline in use of library support, indicates that expending further time and resources at the library level no longer seems prudent.

Makerspaces

Twenty-first century innovations also include a shift in service and/or repurposing of space to engage patrons through personalized librarians, shared spaces, learning commons, and other service units. One example is engaging patrons with the technology of makerspaces to encourage experimentation with a variety of equipment, software programs, and tools with positive educational outcomes. Born from a DIY culture (Davis, 2018), makerspaces have been adopted in all types of libraries. Although location and staffing vary, 39% (n = 39) of ARL libraries and 11% of non-ARL libraries (n = 18) offer these services (Catalano et al., 2018). Johnson (2018) describes the incorporation of

library makerspaces through three examples of librarians' roles in the 2018 article *Connections, Conversations, and Visibility*. At Indiana University, a librarian conducts programming on new and emerging technologies with a maker cart, while at Appalachian State University, a makerspace that pairs a sewing machine with a 3-D printer is staffed by information technology (IT) employees within the library. North Carolina State University's libraries have makerspaces with extensive equipment and multiple exhibit spaces to display learners' makerspace work, and staffing is provided by personnel from a Makerspace unit and a Learning Spaces and Services unit. Similar programming and new ideas yet on the horizon are all part of the upward trend and data collection of makerspaces and librarian education.

A comprehensive and comparative study on college and research libraries (CRLs) makerspace programs revealed several observations. Davis (2018) explains in her findings that "...data suggests that the population is increasing; a growing number of CRLs are involved in the makerspace movement" (p. 16). Davis further summarizes that more than two dozen CRLs were planning to soon develop makerspaces, and were buying equipment, hiring dedicated staff, offering educational opportunities, and supporting community initiatives. Similarly, Maceli's 2019 study found that a growing number of makerspace courses were added to American Library Association accredited Master of Library Science programs. Whether formal master's programs eventually give way to a more creative approach in line with the makerspace movement itself remains to be seen, however, makerspaces have a solid following and potential for continued growth.

King's (2018b) trend-watching element of "developing a plan" is reflected through the creative measures taken to implement makerspaces in the above institutions. Makerspace services are not diminishing, but rather positioned for continued growth. There is also no indication that the technology is too difficult, although maintenance and staff time are considerations. As the number of library makerspaces grows, King's (2018a) warning signs could be applied to the challenges associated with supporting the learning potential and assessment of makerspaces. In their 2019 study, *An Assessment Matrix for Library Makerspaces*, Cun et al. state that there is a very small amount of research on developing assessment tools that can measure learning in library makerspaces. Without assessment instruments to gauge the use, maintenance, and sustainability of makerspaces, librarians may see all three warning signs seep into their best laid plans. However, an assessment matrix developed for Cun's study represents how summative and formative feedback can help librarians and learners understand and succeed in the learning opportunities provided by makerspaces. The matrix may also help librarians integrate library makerspaces into assessment practices already in use to identify learner needs. Future iterations of the matrix can be used in libraries with a range of maker activities, learners, and librarians to determine if makerspaces are contributing to learning and to provide librarians with information to guide future developments. The outlook for makerspaces is very good, indicating a growing trend with a sustainable impact in higher education.

Virtual and Augmented Reality

Work in the field of VAR can be traced back several decades, but the first true virtual reality experience was the Oculus Rift headset in 2013 (Pope, 2018). Although designed for gaming, it paved the way for current devices used for educational purposes. Librarians have partnered with instructors to design course content where students not only physically use the VAR device but use them to develop tools according to their disciplines. Pope (2018) highlights one example where "A psychology professor used virtual reality equipment as a way to discuss exposure therapy" (p. 9). A more common classroom application in higher education is virtual field trips. Since educational applications generally take longer to create, librarians and instructors will have more opportunities to improve learning experiences across multiple disciplines as new applications are released. For example, *Google Earth VR*, *The Body VR*, and *Boulevard* are educational applications reaching students studying geography, anatomy, and the arts.

Research on the educational uses of VAR is limited and focused on specific purposes. For example, a study by Sample (2020) examines innovations in online tutorials for nontraditional and international graduate students by implementing a combination of augmented, virtual, and mixed reality. The intent is to reduce student stress in information literacy instruction. Another study by Hannah et al. (2018) positions VAR in the evolution of collection needs and curation, specifically with 3D objects. But what is the current state of VAR programming and adoption? Pope's (2018) survey yields preliminary information. Out of 101 responses, 64% were from academia, with the remaining coming from public libraries, school libraries, and special libraries. The survey did not offer results specifically to academic libraries, but of the total respondents, 44% had some form of VAR program in their libraries and 34% were either in the beginning stages of creating a program or were interested in starting one. Most of the remaining 22% who were not considering VAR cited a lack of interest within the library itself or opposition from colleagues. The survey also revealed that of the libraries who had VAR, over half had VAR installed permanently, while others reported having mobile options. Survey questions related to increased learning and engagement from the use of VAR revealed a significant interest in 1) *experimental free play*, 2) *exploration in classes*; and 3) *exploration of VAR development* – particularly gaming. Survey questions also addressed challenges and lessons learned, revealing concerns in 1) *staff expertise*, 2) *training users*; and 3) *time constraints*. The final survey question polled what libraries intended as next steps. Many stated that they planned to look for ways to expand their programs by purchasing more devices or implementing more focused educational programming. Some specifically indicated wanting to create a makerspace first as a kick-off point into VAR. Overall, most respondents were positive about the future of VAR in their spaces and anticipate more advancements.

Among King's (2018b) trend-watching strategies, "learning from library early adopters" and "addressing technology overload" are key to tracing VAR development. For example, progressing from the early beginnings of gaming and entertainment to educational applications. The direction of VAR seems limitless, but it is not immune to the warning signs of a fad. Technology has been difficult, with equipment being one of the greatest challenges. Pope (2018) explains that competitors are edging ahead of each other to improve headset optics and comfort at varying price points. Easier controllers and better graphics are also considerations. Aside from this warning sign, virtual reality also has safety concerns. Unlike augmented reality where a user can maintain a sense of the real world around them, virtual reality users are fully immersed to the extent of possible disorientation, imbalance, and nausea. On the other hand, users of augmented reality experience user fatigue from an overwhelming commitment to purchase more and more applications for their device. Another concern is accessibility to those with disabilities. Pope (2018) states that many devices are based in visuals which would limit usability for the blind. While sound and tactile experiences may be available, those with disabilities may have issues experiencing the full application. Nonetheless, Pope (2018) concludes that VAR is on the cutting edge of technology. As VAR improves, user experiences will be enhanced, be more accessible and affordable, and reach a broader audience across multiple educational disciplines. VAR is a significant growing trend that holds promise to be integrated into industries, everyday life, and education.

Discussion

The examples of MOOCs, Makerspaces, and VAR serve to illustrate how to apply King's (2018b) models of trend-watching and King's (2018a) warning signs of fads. But when trends are adopted and actively in use, it is inevitable that additional challenges will arise. Like any routine duty or ongoing project, the responsibility for implementing trends will have a direct impact on skillsets and workload. Johnson (2018) questions how one librarian can have all the skills needed to constantly keep up with evolving pedagogies and research methods as well as rapidly developing tools and technologies. While librarians do not necessarily have to be experts in every emerging technology, they do need to have a fundamental understanding in existing and new areas in order to connect learners and faculty to the ever-changing landscape of information and the experts associated with them. With this shift comes the

additional burden of managing increased workloads. If librarians need to be experimental and swiftly undertake new and emerging trends, something else will likely need to be elbowed aside. Applying King's (2018b) trend-watching strategies may help by providing a starting place to mitigate workload, targeting partners, and adopting a team approach where possible. For instance, larger institutions may be able to develop a shared plan with their IT units to oversee makerspaces and VAR. As librarians strive for balance, patterns will emerge to help them identify why some innovations gain traction while others fade away.

But can librarians really separate lasting trends from passing fads? Frustratingly, the answer is not simply black and white. Harder yet, hindsight is 20/20. The good news is that librarians can develop a coordinated plan that incorporates the goals and objectives of their libraries. Molaro et al. (2015) posits that lasting trends will likely have a correlation with the strategic plan of their libraries. For example, a library may implement a five-year strategic plan to enhance STEM programming with makerspaces. Time spent positioning trends in this framework is time well spent. Passing fads will not likely hold direct importance in a library's strategic plan, however, leveraging fads can be beneficial and attract new users. Librarians will want to be cognizant of how fads may help shape their future activities.

Conclusion

Academic libraries play a large role in helping their institutions adapt to a changing world. They transform themselves, keeping pace with the changing economic, social, and technological aspects of society. They exist to promote access to resources to learn, grow, and discover new things (Rosa & Storey, 2016). It is recommended that librarians continue to keep an eye toward the future and expect emerging trends and associated technologies as commonplace throughout their careers. Their efforts would benefit from being captured in systematic research, with an investigation of multiple universities and trend versus fad applications to aid in reaching a general conclusion on this topic. Similarly, additional research findings may reveal other models to contribute to the literature and contrast with King's models to help librarians assess what will work best for their institutions. Until then, this investigation may implement King's (2018b) trend-watching elements as strategies to stay on top of future technologies and approaches to teaching. The trend-watching elements may also provide a framework for working through staffing and workload issues as well as unexpected challenges. Librarians may also apply King's (2018a) three warning signs of a fad as evaluative checkpoints to help evaluate and strategize trends already in place to leverage future activities. In doing so, librarians will continue to empower those they serve with the latest and best innovations in teaching, technology, and exciting new areas of engagement.

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