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What to make of makerspaces: Tools and DIY only or is there an interconnected information resources space?

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# What to make of makerspaces

## Tools and DIY only or is there an interconnected information resources space?

What to make  
of makerspaces

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### Abstract

**Purpose** – Much has been published on makerspaces: the history, development and progress and how they are used – stories of successes and opinions on their potential. The purpose of this paper is to comment on such publications within the library and information science (LIS) literature and to warn libraries to not only focus on providing physical spaces and tools but to explore the bigger potential of extended, interconnected spaces for information and information resources and “mutations” of makerspaces such as makerlearning.

**Design/methodology/approach** – The contribution is based on a pragmatic and reflective analysis of the LIS literature on makerspaces. The questions are: what to make of the literature, and what needs to be done to enrich the subject literature to support an interconnected approach to makerspaces and information resources and information support?

**Findings** – There is a very strong focus in the literature on libraries as physical spaces for makerspaces, the planning, provision, maintenance and how-we-do-it approaches. Although very important this does not sufficiently explore an interconnection between makerspaces and an expanded information-related involvement of libraries, e.g. in information literacy training, guided inquiry, bridging the digital divide, research (embedded librarianship) and community support.

**Research limitations/implications** – There are many publications on makerspaces in the LIS literature. They however, mostly do not reflect on the opportunities to take a more holistic look at the potential of makerspaces in libraries interconnected to the use of information resources, and information-related support and intervention from libraries.

**Originality/value** – Although there are many papers on makerspaces the purpose of this contribution is to focus on extended input from libraries.

**Keywords** Academic libraries, Libraries, Information literacy, Makerspaces, Creative spaces, Library roles

**Paper type** Conceptual paper

### 1. Introduction

Makerspaces have been widely accepted in academic and public libraries, museums and schools (Brady *et al.*, 2014; Buerkett, 2014; Daley and Child, 2015; Pryor, 2014; Slatter and Howard, 2013). Often they have been accepted in the culture and spirit of the libraries taking initiatives to provide things for making and spontaneous informal learning. The makerspace movement is embraced as a movement that can boost the image of librarians as being innovative and keeping up with trends. Librarians are hailed for embracing new technology, and managing library spaces to support innovation, creativity and do-it-yourself (DIY) activities; makerspaces are filled with laser cutters, 3D printers, sewing machines, bike repair facilities, microcontrollers, circuits, clay and porcelain (Moorefield-Lang, 2014; Pryor, 2014). They are associated with creating, building and crafting and getting hands-on experience in activities ranging from woodworking, sewing and building computers to audio-recordings and video editing (Balas, 2012). There are academic makerspaces (Pryor, 2014) and school makerspaces (Daley and Child, 2015). Mobile “spaces” are taken to children in hospitals (Anon, 2015). Overall the library and information science (LIS) literature is marked by



strong emphasis on “physical” spaces and involvement. The “intellectual” and information spaces that can be aligned with makerspaces currently seem to be less prominent in the LIS makerspace literature, exceptions being Bevan *et al.* (2015), Bowler (2014), Landgraf (2015) and Loertscher (2012).

Makerspaces in libraries are devoted to creative idea development and production, to support for people to access material not normally available in their homes, and to opportunities to join others in creating and making things; thus also to the provision of social spaces for practical and creative activities. They are presented as spaces that focus on hands-on involvement combined with play and especially fun. There is an impression that makerspaces are the alternative for libraries as boring, old-fashioned spaces where people need to keep quiet and which are only open for some. Spaces filled with boring, irrelevant books. Sometimes experts are invited to give talks in library makerspaces – thus extending makerspaces to knowledge spaces.

Makerspaces can certainly lift the status and image of libraries if embraced appropriately. Makerspaces can be embraced by all types of libraries. There are, however, many challenges in terms of how makerspaces are embraced and aligned to the information role and responsibilities libraries have been claiming over many decades and in extending makerspaces to information and collaboration spaces and to mutations of makerspaces such as makerlearning, and even makerempowerment and makercaring. The term makerlearning is used by Moorefield-Lang (2015a, b) among others. When connecting makerspaces to the use of information resources and information-related support by libraries and when acknowledging the value of makerspaces as constructivist learning environments, the potential of makerspaces to be more than DIY and creative spaces and to become empowerment spaces might be explored. The same applies to makerspaces as spaces to explore creative means of caring in a community and society at large, not only acknowledging makerspaces as physical DIY and creative spaces, but exploring the value for applying this opportunity to emotional and caring issues. The concepts makerlearning, makerempowerment and makercaring will not be further explored in this contribution. This is for follow-up work.

Fully acknowledging the importance to report and explore the practical issues of installing makerspaces, etc. this contribution intends to encourage librarians to acknowledge the challenges and pitfalls that are faced in ensuring that makerspaces are not exciting and glamorous physical add-ons, but opportunities to create spaces that also draw on information and information resources, information-related support by libraries and holistic incorporation of makerspaces into constructivist environments, i.e. environments where one is free to explore and learn. Steele (2015) notes a link to learning commons and Sheridan *et al.* (2014) note alignment with learning environments. Such links need to be explored in more detail in library makerspaces.

Over centuries libraries moved from the traditional books-on-chains physical spaces to digital and virtual spaces. Care should now be taken that by embracing the makerspace movement as currently presented in most of the literature, access to physical spaces and material (e.g. Harris and Cooper, 2015), although in a very different and exciting format, should not again become the core focus of libraries. Libraries are more than physical spaces, and libraries are more than access.

## 2. Noting how makerspaces are presented in library literature

The LIS literature focuses very strongly on the practical and hands-on nature of the use of makerspaces (Good, 2013; Mack, 2014; Pryor, 2014); the learn-by-doing. Events incorporating makerspaces are arranged along with hands-on opportunities, expert

talks, play and having fun. Although play and fun offers excellent opportunities to build social-emotional competencies these do not often feature strongly in discussions on makerspaces and as motivations for libraries to introduce makerspaces.

Although not always explicitly stated, makerspaces are shown as constructivist spaces. Few publications explicitly note the need for books, information, ready-reference and other information resources, an exception being Pattee (2014) reporting on the reconsideration of collection building for youth. In providing makerspaces libraries are noted for making the spaces and tools available (Moorefield-Lang, 2015a, b). The focus is on space management (Harris and Cooper, 2015; Landgraf, 2015), specific skills such as the creative arts, and contexts such as educational contexts (Bowler, 2014; Buerkett, 2014), and on tools such as 3D printing, and the value of makerspaces (Balas, 2012; Moorefield-Lang, 2014). The focus is also on the use of makerspaces for specific groups such as the youth (Batykefer, 2013; Pattee, 2014) and people with disabilities (Brad *et al.*, 2014), different library types (Mack, 2014), models of makerspace that works (Good, 2013) and encouragement for the use of makerspaces (Harris and Cooper, 2015).

Informal learning (Landgraf, 2015), in combination with other spaces such as learning commons (Loertscher, 2012) or in alignment with informal learning (Bowler, 2014; McDermott, 2012) does not feature strongly. Exceptions are the work by Bevan *et al.* (2015) reporting on the use of makerspaces with the STEM disciplines (Science, Technology, Engineering and Medicine). They refer to “educative inquiry-based learning”. The use of makerspaces for all types of academic disciplines should however be explored – ranging from “practical” disciplines to theoretical disciplines, and those with a strong combination of theory and practice such as LIS and communication science.

Although many initiatives for raising awareness of makerspaces as well as preparing librarians to embrace makerspaces are reported as support to promote makerspaces in libraries, the emphasis of the current body of LIS publications is on supporting libraries to adopt an appropriate makerspace model (Good, 2013), to consider agreements with users (Moorefield-Lang, 2015b), and on practical issues (Brady *et al.*, 2014). The emphasis is on providing physical spaces, providing physical tools, ensuring an environment encouraging “trying”, “doing”, “creating spontaneously”, “enjoying”, “having fun” – but not so much on learning, or with reference to the traditional role and responsibilities of libraries related to information resources and information literacy.

### **3. Libraries as more than physical spaces and opportunities for making and doing**

Although the very essence of makerspaces lies in “creativity”, “informal”, “without pressure”, and “try-and-fail-and-try-again”, the argument we want to present is that especially when facilitated by libraries there should also be opportunities to extend to information, information resources and knowledge that can be explored in equally “fun” and even formal ways. It is important to appreciate the fulfilment and enjoyment when building something with your hands. All societies are, however, under tremendous pressure to create jobs and to improve employment opportunities for all. They face many calls for improving and promoting quality of life. There are pressures for capacity building, nourishing creative thinking and encouraging people to explore entrepreneurial opportunities. In academic libraries there are pressure to support research opportunities and to contribute to building community capacity and collaboration. Embedded librarianships are encouraged. It thus seems necessary for libraries to move beyond merely providing spaces and tools, but to ensure that they do

not take away the elements of fun and informality. The need for extended makerspaces especially applies to academic libraries. The following are a few suggestions:

- extending the physical spaces to virtual spaces of interaction and creation, with links to digital libraries especially links to relevant web sites, and open access publications;
- subtly promoting hardcopy collections in the library – “old-fashioned” book displays, but in different formats;
- offering encouragement for socialising, cooperation and the building of personal networks for people spending time in makerspaces and offering support in extending such support to virtual communities of collaboration and blogs and question and answer sites;
- raising awareness for the importance of motivation, encouragement and self-efficacy in facing challenges in doing and creation, and exploring subtle ways to link this to finding information such as examples, pictures, sketches and even stories or others’ experiences;
- acknowledging the power of informal spaces for exploration and creation, but also raising the issues of ethical conduct in “making” things; and
- exploring the value for libraries to fulfil a provider role (i.e. space and tools) but also an empowerment role in terms of society at large.

The preceding are only a few suggestions. The use of makerspaces in libraries should become, and should be approached, as more than just once-off doing and creating opportunities. It needs to be extended to capacity building and empowerment – preferably in spaces that are separate from the physical spaces of makerspaces associated with exploration, fun and absence of pressure to excel. In academic contexts, learning and research commons offer possibilities. In other contexts, e.g. in public libraries, hubs and reading clubs might offer possibilities. There are in fact many possibilities when extending the “maker movement” to alignment with other “movements” that have been embraced by libraries and other contexts for nourishing communities of interest, growth and empowerment such as clubs, hubs, communities of practice and commons. Wine clubs, reading clubs, golf clubs, vintage car clubs, pottery classes, scientific hubs, IT hubs and library and research commons offer many possibilities. In this way the “maker” focus can also be extended to a focus on social interaction, sharing and gaining new knowledge ... and these again can be brought back to makerspaces.

Library surveys on user needs can be used to collect data on the activities users would like to explore in makerspaces. The more important issue and challenge would be to also collect input from non-users of libraries and how to get them interested in using makerspaces and libraries. It is also important to determine who should be approached – adults, students, children or teens? Working professionals, housewives or the homeless? In the public library spectrum it is important to reach the whole community. In academic contexts it is equally important to not only reach out to students and faculty, but also to consider the needs and interests of supportive staff regarding makerspaces. A study by Molopyane (Molopyane and Fourie, 2015) on workplace information literacy in academic contexts noted that it should ensure to reach the “poorest of the poor”.

In reflecting on the use and value of makerspaces there are many issues of concern libraries can reflect on such as the socio-political potential of makerspaces when hosted by libraries. Makerspaces can be associated with social capital, power

play and power dynamics. Social and emotional coping and competence in such active and creative spaces can be explored also with consideration of the emotional and affective associations that has been made with human information behaviour. When taking on the opportunities and challenges noted in this paper and extending the potential of makerspaces to involve the use and sharing of information, careful consideration should go into not forcing makerspaces into restricted and pressurised spaces.

The use of makerspaces has been reported for diverse fields such as the STEM fields (Bevan *et al.*, 2015). The question arises, how LIS students can get involved, and how they can get to explore their future roles in creative ways, to ensure that they do not merely become the “providers and maintainers” of makerspaces.

#### 4. Conclusion

Makerspaces should be fully embraced, but on the terms of libraries and information services and their very strong alliances to reading, literacy, seeking, organising, using and sharing information. An exciting and “cool” opportunity to get people into libraries and boosting the image should not be missed – but not at the potential cost of portraying librarians once again as providers only. Not at the cost of shifting from an image of providers of books and information to providers of (maker)spaces and tools – only.

Makerspaces, especially in academic contexts should not just be approached as spaces of making and creating, when presented by libraries, they need not be only social spaces, but should be collaboration spaces, and learning spaces aligned with information seeking and extended knowledge, and sharing spaces for creating and disseminating new knowledge and experiences, e.g. on “how-you-did-it”, “how-you-created” and where to from the “moment-of-creation” – entrepreneurship. The issue for libraries to consider is how makerspaces can be combined with extension initiatives such as learning commons, research commons and embedded librarianship.

The philosophy behind makerspaces should be explored to see how it can, in the contexts of libraries and especially academic libraries, be aligned with the philosophy behind libraries and the role and responsibilities of librarians. There are many research questions that need to be explored:

- RQ1. How do people experience themselves in makerspaces and how does this impact on their self-efficacy and information behaviour?
- RQ2. How can makerspaces be aligned with information literacy skills and information literacy training?

Without intruding on the very nature of the power and drawing element of makerspaces, libraries should explore extending (not turning makerspaces into) into learning, social and sharing spaces. There are numerous opportunities for research if a mind shift to the use of makerspaces in libraries are explored. Starting points would be systematic reviews on specific slants to the use of makerspaces in libraries and other contexts, investigating whether the adoption of makerspaces are spontaneously leaps of faith and excitement or embedded in evidence-based-decision making, whether makerspaces promote social inclusion or whether they widen the gap between those that have and those that do not have, it is, bridging the digital divide or helping to bridge the gap.

Libraries should explore the bigger potential of extended, interconnected spaces for information and information resources and “mutations” of makerspaces such as makerlearning.

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