2021

If you build it, will they come? Reflections on creating a community college library makerspace

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Abstract:

This article describes one community college library's experience creating and implementing a makerspace. It discusses the setup process, lessons learned, criticisms from patrons and staff, and more.

Keywords: makerspaces, community colleges, college libraries

Introduction

During the past several years, the term "makerspace" has become a part of nearly every librarian's lexicon. Public libraries have added makerspaces at a feverish pace, and makerspaces are now often found in libraries throughout the United States (MakerSpaces in Libraries 2020). However, academic library adoption of makerspaces, while increasingly common, has proceeded at a slower pace. When the library at Hudson County Community College (HCCC) moved into a new building, it sought to capitalize on the positive buzz resulting from having a new space, and decided to establish what was, at that point, one of the first academic library makerspaces in the country.

Background

Hudson County Community College is an urban community college which offers courses in a wide variety of disciplines. Its academic facilities include a main campus in Jersey City, a branch campus in Union City, and an academic center in Secaucus. HCCC also offers classes at several local high schools, and as an institution, takes pride in serving one of the most densely populated and ethnically diverse areas of the United States. As of Fall 2019 HCCC had a total enrollment of 8,002 students (Office of the Secretary of Higher Education 2020). Students at HCCC hail from around the world, representing more than 90 nationalities, with nearly 58% speaking a language other than English at home. In contrast to many community colleges, which often feature a high percentage of older students, approximately 52% of HCCC's enrolled students are under 29 years old.

Literature Review

Discussion of makerspaces in libraries goes back to at least 2011, when Lauren Smedley created a FabLab as part of her graduate studies (Watters 2011). Within this and other early mentions of makerspaces, discussion often focused on the high tech "hackerspace" concept, and noted that libraries who added makerspaces often had desire to show that libraries offer more than books (Curran 2012). As such, makerspaces were often associated with or even synonymous with tech shops, FabLabs, and coworking spaces (King and Porter 2012). That said, the overall goals of these new spaces were often similar: to encourage creativity and maker mindset (Britton 2012). To this end, Loertscher (2012) compared it to the 1960s movement to transform school libraries into "multimedia centers" which, along with "phonograph records, sound filmstrips, and 8-mm silent loop films" would also "create a corner of the library for make and take" activities. Indeed, makerspaces may seem to go back further than that,

with Torrone seeing makerspaces as an evolution of the Carnegie library's purpose of facilitating self-directed learning (Torrone 2011). In addition, American Libraries published a timeline dating the evolution of "making" in libraries as starting with the Gowanda Ladies Social society, which was founded in 1873 "to quilt, knit, sew, socialize, and talk about books" in1873.

In terms of makerspace adoption in college libraries, an early mention of this in the academic context was in Loney (2012) as a tech tidbit in *ACRL News* encouraging librarians to try out a makerspace. Later, Burke, (Burke 2015) profiled several academic library makerspaces, including a community college, a private four year college, and public university and described their activities.

Interestingly, surveys have shown that many schools dedicate space to makerspaces, typically in the library (Nagel 2018). However, college libraries have not been mentioned as frequently in articles about college-based makerspaces. For instance, the magazine of the League for Innovation in the Community College, an important community college organization, highlighted the makerspace at Sierra College in 2018, and then several other colleges with makerspaces in 2019. These articles highlighted partnerships with internal and external stakeholders, including for career and academic preparation, but made no mention of library involvement (Fraser-Middleton 2018, 2019). Indeed, searching Google for college makerspaces quickly yields examples of several college makerspaces with no mention of library involvement, including CSI (Porpora 2018), UW-Madison (University of Wisconsin-Madison 2020), Wheaton College (Makerspace 213 n.d.), and Las Positas (Makerspace 2020).

However, this may be changing. More formal integrations of college makerspaces and libraries have emerged, with the Institute for Museum and Library Services having recently awarded grants to develop formal college library makerspace

competencies and rubrics (Peet 2019). Furthermore, the same makerspaces described by Fraser-Middleton included 87 mentions of libraries in their own report about the impact of community college makerspaces (California Community Colleges 2019).

Establishing a Makerspace: An Idea Begins

During the 2013-2014 academic year, the Hudson County Community College Library underwent the process of moving its physical facility from an aging, converted office building at 25 Journal Square in Jersey City, NJ to a brand-new combination library and academic building across the street at 71 Sip Avenue. This move was highly anticipated by HCCC students, faculty, and staff, especially since the new facility would have nearly twice the square footage of the 25 Journal Square facility.

As part of the renovation process, HCCC's Dean of Libraries sought ideas from the staff about new ways to take advantage of the expanded space. Two members of the library staff, specifically a librarian and the director of library technology each proposed that the dean establish a makerspace. The dean was intrigued by this suggestion and formed a committee to investigate the feasibility of creating a makerspace.

The committee was comprised of staff from the library and from the student activities department, as well as student representatives who were chosen for their frequency of library use. The committee's first task was to figure out what the makerspace should focus on. At that time, existing makerspace literature primarily discussed makerspaces as places for working with technology and electronics, with arts and craft activities being less highlighted than high tech industrial supplies such as 3-D printers, laser cutters, and CNC milling machines (Inklebarger 2013). However, several members of the library's staff had suggested that HCCC's makerspace should have a more low-tech focus, with an emphasis on arts and crafts programming. After discussion, the committee decided to create a hybrid space with both technology

equipment and traditional art supplies such as paper and clay that could facilitate a variety of activities for either type of program, and allowed for hybrid art and tech activities such as 3-D printing.

To that end, for the initial semester, the library acquired supplies such as a button maker, markers, paints, craft papers, X-Acto-knives, scissors, and Raspberry Pi computers. The library also purchased a MakerBot Replicator 3-D printer and a MakerBot 3-D scanner. Some of the initial supplies were purchased by the library from its technology and office supplies budget, and some were donated by library staff and interested students. In addition, 10 Arduino-compatible micro controllers and 8 SEEED studio electronics starter kits were acquired through a grant from Intel.

Choosing a Location

In terms of physical location, the library chose a room as the makerspace that the college architects had originally designated to be either a workspace for librarians or a conference room. The room's configuration was then setup with computers and the 3-D printer on its periphery, a SMART board at the edge of the room, and a central "conference-style" table. This room was chosen because of its size, design, and central location. After library staff moved into the building, the library's dean held "creativity sessions" where students and staff were encouraged to decorate the space.

Figure 1: Image of the Makerspace, with student created decoration

Creating Awareness

The Library began generating awareness of the makerspace in several ways. First, the dean mentioned it frequently at interdepartmental meetings such as Dean's Council and college-wide meetings such as the All College Council, HCCC's campus governance committee. She also worked with college administration and the HCCC Communications Department to include the Makerspace in all flyers and other promotional materials for the new library facility, copies of which were included in the library and in other campus buildings. Additional PR measures included the design of an informational poster about the makerspace, which was presented at the college's semi-annual professional development event, College Service Day. Afterward, this poster was also displayed prominently in the library to provide faculty, staff, and students with more information about the makerspace and further increase awareness of what programs and activities were offered therein.

This awareness campaign was undertaken deliberately, with several goals in mind. The library thought that a Makerspace in an academic library had the potential to bring in students who would not necessarily have used the facility otherwise. Once familiar with the space and comfortable in the new environment, library staff speculated that these students might be more likely to visit again in the future or use other resources such as the physical book collection or the computers to do their research. Staff also supposed that a makerspace would provide students with exposure to different learning modalities, and allow the opportunity for students to utilize self-directed learning, or participate in a collaborative learning context, depending on the activities offered.

Furthermore, library staff believed that a makerspace would also allow the library to implement a wider emphasis on events/programming, which had been rare in the old building due to space constraints. It also allowed the HCCC Library to develop new partnerships, particularly with the student activities department in the first few years. In addition, the library was able to bring outside facilitators for other events such as book discussions, music performances, art exhibits, and poetry readings, helping the college generate more positive publicity in local news media outlets.

Because makerspaces had not been attempted very frequently in other academic libraries, the HCCC library's staff saw this as an opportunity to try something new in a new space. There was also thinking that it could give students a place to go for stress relief, to have a temporary escape from academic rigors, and allow for something fun and creative that encouraged learning beyond a dedicated academic environment.

Initial Programming

During the inaugural semester in fall of 2014, the makerspace offered 25 events, which included introductions to the Intel Galileo Arduino programming board, 3-D

printing tutorials, DIY greeting card making, graduation cap decoration, jewelry making, a genealogy workshop, and digital photo editing. These events generated a total of 225 attendees. The library requested registration via Eventbrite to try to make attendance predictable but did not find this effective as patrons might register and fail to attend or might not register but still attend. At the branch campus, there was also interest in makerspace programming but no dedicated physical location. With this in mind, the library created a "mobile makerspace" on a converted TV/VCR cart. Due to the space constraints, at this campus, events were often hosted outside the library in the campus's student lounge or in the building's multipurpose room. However, small events were held occasionally in the branch library's group study room.

The Makerspace Matures

As the semesters continued, makerspace programming evolved due to changing library needs and changing student interest. Each semester, the committee continued to meet, and discussed issues such as deciding how many events to host, how to best generate interest and awareness, and how to balance self-directed open hours versus facilitated workshops. To try to balance these needs, the library adopted a schedule which included both workshops and regularly scheduled open hours which allowed students more freedom to drive their own projects and learning.

Along with this, several challenges emerged. First, as the college faced an enrollment crisis in 2016, staff who left the organization were not replaced, and it was often a challenge to have enough library employees to staff both the service desks and the makerspace, especially at peak usage times for students. In addition, when employees needed to use sick days, staffing proved to be an even greater challenge, as not every staff member had the requisite knowledge and experience for each type of

workshop. As a result, in these circumstances, events were occasionally cancelled if a replacement facilitator could not be found.

Another significant challenge was managing space and controlling conflicts. Initially, library staff thought the new building's facility would have adequate space to meet the needs of the entire library community. However, a conversion of a part time staffer to full time status resulted in one staff member having to use the makerspace as a temporary workspace, which resulted in disruptions both to the employee's work and to events hosted in the makerspace. In addition, other staff who needed to utilize larger spaces for other projects would sometimes use the makerspace for their work activities, and as a result, staff sometimes became confused about which supplies were stored for makerspace activities and which ones were stored for other projects, as well as whether tools such as book carts could be moved to facilitate different makerspace furniture setups without disrupting the work of colleagues.

The library also faced several problems with obtaining supplies for the makerspace. Certain vendors would not agree to use purchase orders and payment accounts, and the college limited access to departmental credit cards to high level administrators outside of the library. As a result, library staff had to purchase many supplies from vendors with their own funds and be reimbursed by the school. Other vendors had to be ruled out entirely, as they would not complete required paperwork, such as New Jersey Business registration certificates, or would not allow tax-exempt purchases in-store.

The library also faced some supplier problems, especially in terms of its 3-D printer. The HCCC library's initial 3-D printer was a MakerBot Replicator, but this proved unreliable as its key extruder part frequently jammed, rendering the printer inoperable. The library soon learned that this was a common issue among MakerBot products of this generation (Robertson 2016). Since this machine broke down so often,

the library eventually decided to purchase a second 3-D printer. A decision was made to choose a different manufacturer and to purchase this printer from an educational vendor who was already setup in our purchasing system. This vendor's purchase process was easy, and the product was delivered quickly. The other product, while technically competent, was much less popular with students due to its complicated user interface, and lack of integration with MakerBot's Thingiverse ecosystem for downloading and sharing 3-D creations.

Expanding Programming and Activities

After the initial semester, new makerspace uses also emerged. At the behest of student affairs and student government, the library experimented with activities that were not strictly educational, such as a video game tournament, which utilized the room's built-in SMART board and employee and student provided video game consoles. In addition, the Makerspace became a default conference area for library staff meetings, as well as for library related, but not maker-specific events, such as a book club. These uses spawned their own challenges, especially with other departments. While having a designated room as a makerspace allowed the library to keep control of a room built as a conference room that other departments were eager to try to claim, it also created conflicts with departments such as art and STEM, who wanted the makerspace's resources, especially its 3-D printer and Mac computer, to be reserved for their assignments rather than open to the college community.

Criticism

Running a makerspace was not without criticism, which has been frequently seen in other makerspaces. For instance, Gutsche noted that makerspaces can be messy, and may require training library workers in new skills and workflows in which they are

reluctant to do. In addition, these makerspaces may require skills outside of the typical library worker's skillset (Gutsche 2013) Farkas noted that libraries should exercise caution when opening literature, as makerspaces fit in a library "hype cycle" which sometimes causes libraries to over-invest in new fads, rather than focusing on their core strengths as institutions. Moorefield-Lang (2015) also noted that maintaining adequate staffing can be one of the most significant challenges for a makerspace.

HCCC saw these issues in its own implementation of a makerspace. For instance, some staff noted that they felt like the makerspace took away from the library's instructional mission, and that it cost money that could be better spent on other resources such as subscription databases, audiovisual technology, or print books. There was also concern that certain events created noise, especially if the door to the makerspace were left open.

In addition, some college faculty and members of the administration who were not associated with the library expressed concern that a library committee was the body that decided which programs were offered each semester, rather than a faculty committee. These faculty and administrators suggested that each academic discipline should have the opportunity to schedule and host their own events without partnering with the library. This sentiment was understandably opposed by library administration, who felt that allowing programming without partnering with the library would negate the library's role in running a space which its staff created, and did not come to fruition. Some library staff also expressed concerns that makerspace programming required too many hours of staff time, and that the space could be more useful if it were reserved for other types of collaborative work like meetings, library instruction, or as for office space for library staff.

On HCCC's branch campus, staff felt that the distribution of makerspace resources was unequal since the library's branch campus did not have a permanent makerspace and had to rely on a "mobile makerspace" or "makerspace on a cart" setup. Finally, there was concern that a makerspace could be physically dangerous, as it had had tools like scissors and X-Acto knives. The room at the main campus also did not dedicated vent hoods, so library staff were unsure if the 3-D printer's fumes would be a problem. In discussing this, library staff found that the PLA used by HCCC's 3-D printers was less dangerous than the ABS plastic popular with many other models at the time, but to mitigate the danger, library staff also decided to keep the makerspace door open and a fan on when the printer was in use. Also, of note, several students requested the library make soldering irons available and host electronics workshops that incorporated soldering. Upon trying to purchase this equipment, the library's purchase request was denied after the Information Technology department informed library administration that this could open the college up to liability concerns.

Working with Student Schedules

Another important challenge was finding days and times that work with students' schedules. This was particularly complicated because HCCC is a commuter school with a sizable population of students who are part-time and/or who work in addition to going to school. In an effort to optimize future scheduling decisions, the library used statistics from each semester's program Eventbrite registration and attendance in order to provide guidance for making scheduling decisions in future sessions and seeing which days and times were the most popular. That said, this method was not foolproof, as student schedules and interests seemed highly variable from semester to semester.

Who is Allowed in the Makerspace and When?

As the makerspace became more popular, another challenge was determining who could use the makerspace, and when. Initially, library administration and the programming committee wanted this space to be reserved for students only. But soon a few other constituencies expressed interest in using it, specifically faculty, alumni, and members of the public. After considering their requests, due to space constraints, the library thus decided that makerspace events would typically be targeted at students only, but for certain events, these other groups were allowed on a case-by-case basis, depending on registration, whether the event was full, and if one of these interested participants contacted the library to express interest in a particular event. In addition, members of the public, who sometimes expressed interest in using this facility, were periodically granted access through open houses and on certain special events such as New Jersey Maker's Day.

The issue of when people could use the makerspace also arose. As with many libraries, students are often in competition for study space, and when the makerspace was empty, library staff often found students using it as study space. These students would also be "kicked out" when events occurred, which irritated the students and created ill will with library staff. As a result, library administration decided this space had to be kept locked when not in use, which seemed to mostly mitigate this issue.

Developing and Maintaining Partnerships

One of the most positive aspects of the makerspace was the way it helped the library develop partnerships with other departments, especially the Student Activities department and the Communications department. Each of these helped promote programs and provided additional support. More specifically, student activities were helpful from the start, offering their insight into their experience with what scheduling

worked best, and what students reported as interests. They also helped us to promote events by including makerspace workshops in their weekly e-mail blast to students and helped to co-host several events as well. This partnership proved especially helpful when a reorganization put the library into the Student Affairs Department, as it meant that several library employees now had strong existing relationships with colleagues from another administrative unit.

Another key partnership was with the Communications department, who designed flyers for specific programs and events, as well as guidebooks to promote each semester's activities. These advertising materials were shared on bulletin boards and on the college's intranet (also called the Portal). They also helped cross promote events on the college's social media pages, which segued well with the library's own promotion of events, the library's social media pages, and the library's use of its blog to provide additional details about events.

Due to having a makerspace, the library also improved its communication with professional organizations. Several librarians learned and shared best practices at state conferences and these partnerships were further honed and strengthened through participation in statewide initiatives such as NJ Maker's Day.

Conclusion:

The creation of a makerspace at HCCC introduced a novel and worthwhile added service at a community college library. While it increased staffing requirements, and faced occasional criticism, it challenged staff to learn new skills and created new ways for students to utilize library facilities and engagement with the library, while also helping promote a new space.

Acknowledgements:

Thank you to Carol Van Houten, Kate Bellody, James Cox, Jennie Pu, and all the HCCC library staff who hosted events in the makerspace staff for their feedback and information.

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