"The truth is libraries are raucous clubhouses for free speech, controversy and community."

-PAULA POUNDSTONE

Strategic Library™



Strategic Management of Emerging Technologies in Academic Libraries

» Or...We have this darn 3D printer, now what the heck do we do with it?

KEEP SAFE & STUDY ON

Hosting a late night student success & safety information fair in the library

EFFECTIVE LIBRARY WAYFINDING

Add value to the user experience by providing visual cues to services and destinations.

BOOK CLUBS IN THE USA

Conclusions based on years of research provide details on how book clubs operate today.

THE LEARNING-OPTIMIZED LIBRARY

The library of the future requires new thinking about how learners chose to connect with knowledge.

BY SUSAN M. RYAN AND W. TANDY GRUBBS

We recently wrote a book chapter on the success our university library has had using 3D printing as a collaborative curricular tool. Although the chapter received favorable reviews, one evaluator wrote, "I still don't see how [3D printing] supports the libraries' mission and why 3D printing would belong in the library rather than in some emerging technologies/teaching and learning with technology unit on campus."

That comment gave us a good chuckle what is a modern academic library if not a "teaching and learning with technology" unit? Our library's one-sentence mission statement, in fact, actually includes the words teaching, learning, technologies, and innovation.

At Stetson University's library in central

Florida, librarians, teaching faculty, and administrators have embraced the role of the library in promoting emerging technologies as integrative teaching and learning tools. We are a small, private university with roughly 3,000 undergraduates, a few hundred graduate students, 300 faculty, eight librarians, and 12 FTE library support staff on our main campus. Nonetheless, we have chosen to invest money and energy into innovative technologies such as 3D printing, Google Glass, and virtual reality hardware and software.

Despite our small size and relatively limited resources, our work with emerging technologies, in particular 3D printing, has led to more accolades for the library than anything else in memory. Our 3D printing collaborative work with faculty and students has led to laboratory assignments, student senior research projects, national and state conference presentations, poster sessions, undergraduate research symposia presentations, workshops, a webinar, articles, and book chapters. We have also received two competitive innovation awards, given not for our 3D printing but for our emphasis on collaborative learning opportunities with 3D printing.

Perhaps more important to library managers, it has excited students and captured the positive attention of faculty, university administrators, the Board of Trustees, and donors.

WHY EMERGING TECHNOLOGIES IN LIBRARIES?

Faced with rapidly changing information landscapes and challenges to justify a return on investment, most libraries have defined an increasingly broad mission to support their users' needs in a variety of ways. Providing multiple avenues to achieve learning is completely compatible with what libraries have done through decades of evolving services.

Libraries excel at providing technologies that support access to information in electronic formats, and librarians have generally welcomed technological creativity. More practically, academic libraries are open long hours and have a tradition of interdisciplinary service that lends itself well to housing in-demand technology.

Many librarians have bought into the notion that providing access to emerging technologies is an appropriate set of enhanced services to offer, and we see libraries rushing to stock 3D printers, robotics, mobile technologies, virtual reality tools, and makerspace equipment. Often, however, libraries do not have a comprehensive plan for supporting such technologies, and librarians have given little thought to the desired outcomes of providing such equipment to their users.

When presenting our 3D printing experiences at conferences, we repeatedly hear that many libraries struggle to find the right fit for non-traditional technologies and that they have not yet reconciled the role of new technologies with their library's mission. The refrain seems to go something like this: "We have this darn 3D printer, now what the heck do we do with it?"

The most basic response to this question is to reject the notion of 3D printers as fun new toys and treat them as you would any other teaching and learning tool. Library administrators must ask the question, "How do we promote learning with 3D printing?" Or, in our case as an academic library, we asked, "How do we enhance curricula and promote student learning with 3D printing?"

3D PRINTING AS A LEARNING TOOL

Emerging technologies will constantly evolve. As a result, library administrators must strategically manage emerging or learning technologies using the same principles with which they manage other aspects of their operations. That said, many of these technologies come with unique challenges to support them appropriately.

We offer our library's successful collaborative experiences with 3D printing at Stetson University as an example of how to manage such technologies. If your library is contemplating offering 3D printing (or similar emerging technologies), think through the following questions carefully.

Does this technology support the institutional and the library missions? Compatibility with your mission is critical; if you cannot reconcile what you want to achieve with the technology with your mission, it is not the right fit.

Given Stetson University's emphasis on innovative teaching, experiential learning, and preparing students for real world challenges, we believed that 3D printing could, in fact, be an excellent learning tool fully compatible with our institutional mission. Likewise, our library's mission states that we engage in "teaching and learning, collaboration, and innovation through [our] services, collections, technologies, and facilities." Offering access to hands-on emerging technologies, especially in the form of curricular collaborations with professors, is a new twist that is completely in sync with both missions, which promote learning and innovation.

What's the benefit to the library in offering this technology? As access to information has become ubiquitous, academic libraries have grappled with rapid change. Examples of libraries undergoing transformational change abound, including new missions, the demise of print material, consolidating student support services within the library's facilities, the addition of non-traditional services, and the influence of emerging technologies.

Libraries have an increasingly broad mission to support learning in a variety of ways — a mandate that library administrators can use to their advantage. We have found that adding 3D printing with demonstrated student research and learning outcomes allows us to market and promote library relevancy and increase visibility for all of the services we offer.

We have even been able to target fundraising more effectively. Major donors often come from the business community, so emerging technologies with applications to business and industry, such as 3D printing, make sense to them. As a side benefit, creatively and collaboratively developing 3D printing teaching and learning applications has led to numerous publication and presentation opportunities for librarians as well as for faculty and students.

Can we identify faculty collaborators who want to work with this technology? Librarians have long-standing relationships with faculty members—we provide information for their research, collaborate with them on developing the library collections in their fields, work with their students on assignments, and go into their classrooms to offer research instruction. It is less common, however, to develop collaborative technological applications directly related to the curriculum.



Emerging technologies offer exciting collaboration opportunities for both librarians and faculty members. But, as is the case in every joint effort, both parties must benefit from the arrangement. To reach that partnership, we found it was best to begin with one or two faculty collaborators who were willing to involve their students in working with the technology. The opportunities are many: curricular innovation; experiential, hands-on learning; student research projects; interdisciplinary collaboration; cost-sharing; and potential publication and presentation opportunities. When faculty members realize that they will have a proactive library partner who will do much of the work to manage the technology, their enthusiasm may increase.

We also found that we needed to be prepared to present specific potential opportunities to faculty members in a particular discipline. In that process, we found out what had already been done with the technology and what was still being explored. We also took time to know the curriculum in the discipline of the faculty member(s) with whom we wanted to collaborate and shared success stories of what worked with other departments or at other institutions. Most importantly, we let the faculty members know why the collaboration would be beneficial to both them and their students.

Before we bought our first 3D printer, we secured the support of faculty members in the Chemistry Department who were willing to explore with us the potential for 3D printing as a teaching, research, and learning tool. Our preliminary work with chemists convinced us that, in the natural sciences at least, 3D printing assignments and research projects could be developed that truly promoted learning in a new way.

Can this technology add a new twist to something that is already being taught? Collaboration with faculty is essential when deciding if an emerging technology has potential as a teaching and learning tool. Chemists have long used ball-and-stick models to represent molecules, but the Stetson chemistry faculty thought that more accurate three-dimensionally printed models would allow better understanding of how atoms are arranged within a chemical structure (see Figure 1).

Chemistry faculty and students soon realized many other applications for 3D printing, including showing how molecular entities chemically bind and interact in a three-dimensional fashion, interactions that



Figure 1: The C-60 molecule, a carbon fullerene structure commonly known as the Buckyball, is a simple example of 3D printing molecular structures.



Figure 2: Progression from ball and stick computer model to 3D-printable file to 3D printed representation of the chemistry concept of "chiral recognition."

can be difficult to visualize using traditional student model-building kits or two-dimensional computer-generated representations (see Figure 2). The Chemistry Department has since incorporated student use of 3D printing at several points in its curriculum, and students have been presented with opportunities to create different types of chemical models as part of established laboratory exercises, independent study, or senior research.

The initial enthusiasm of the chemists and their students spread to other disciplines, and faculty and students from a number of other fields have integrated 3D printing into their research. Mathematics is another field that lends itself well to the 3D printing of abstract concepts. Imagine a 3D design that starts with a simple cube. Then position another smaller cube on each face and each outer-facing corner of the original cube. Repeat this process again, adding another even smaller cube on each face and



Figure 3: 3D fractal cube design.



Figure 4: 3D-rendered mathematical functions.

each out-facing corner of the previously placed cubes. If you continue this process ad infinitum, what would the final 3D object look like?

Mathematically generated fractal cube designs can be created using computeraided design (CAD) software and subsequently 3D printed. Two examples printed in the Stetson Innovation Lab are shown in **Figure 3**, illustrating the fractal cube design after two (left) and three (right) iterations. The possibilities for representing math functions three dimensionally are almost endless, with several examples shown in **Figure 4**.

Projects have also included a computer science student creating a 3D-printed work-



Figure 5: Student-designed drone.

ing drone (Figure 5), a biology student designing artificial flowers for use in insect scent research, biology faculty reproducing human and animal skeletal samples from their natural history collection (Figure 6), a business student developing a prototype for a new type of shoe clasp, and music students printing working instrument mouthpieces. ticular discipline more accessible through this technology and might their motivation and enthusiasm be positively affected by learning this technology? Evidence suggests that millennial generation learners have high levels of technological proficiency, work well in groups, and have an enthusiasm for emerging technologies. Many millennials very likely learn better in a more visual and experiential environments. Science and

Would students find concepts in a par-



Figure 6: A human skull is scanned (by taking multiple 360-degree photographs) using the free mobile app, 123D Catch, which converts the photos into a computer file that can be "cleaned up" in the freeware MeshLab and converted to a 3D-printable object.

mathematical concepts, in particular, may be hard for some students to understand in more abstract forms. Three-dimensional printing allows students to make many of those concepts "real."

Our experience at Stetson is that student motivation and enthusiasm for 3D printing far surpassed anything we expected, and students took ownership not only of learning 3D printing applications, but also of developing new applications for the printers in the sciences. One chemist commented that in his 20 years at Stetson he had not seen anything grab the attention of students quite like 3D printing.

Is there a demand for the skills related to this technology and would students benefit from learning it? In the case of 3D printing, we found significant evidence that the demand for rapid prototyping (3D printing) skills had sky-rocketed over the past several years and that many companies in a variety of fields need employees with a working knowledge of the concepts behind 3D printing (often advertised as "additive manufacturing" experience).

The focus of higher education today is not only to give students a specific knowledge base in one discipline, but also to ensure that students graduate with a holistic set of skills that will make them marketable in a competitive 21st century economy, including a comfort level with technology and problem-solving. Technologies will emerge, peak, and be replaced by something better, but students must be capable of readily and comfortably adapting to rapid technological change.

Does the library have the budget for absorbing the up-front costs of hardware, software, and equipment as well as ongoing funds to support the technology? Emerging technologies can come with a hefty price tag, and libraries must budget accordingly. While the costs of 3D printers and related supplies are decreasing, the investment can still be significant. Printers range from several hundred to several thousand dollars (for rather limited "hobbyist" level printing) to tens of thousands of dollars (for more reliable, higher-quality printing) to hundreds of thousands of dollars for industrial printing. Spools of filament (the plastic used in most 3D printers in libraries) can cost from \$50 to \$200 a roll. In addition, print times can be lengthy—from a couple of hours to more than 10 hours--which can mean the library can only print a few jobs a day.

Our library started with two MakerBot 2X

» In this age of rapid change, when some university administrators question the value of libraries, librarians must be vigilant about marketing and promoting themselves and their libraries.

printers (about \$2,500 each) two years ago, but the demand for more available print time and higher quality printing drove us to expand our printer inventory significantly. We have since added two more MakerBots, an Ultimaker 2 Ext (\$3,000), a MakerGear M2 (\$1,800), and two Stratasys UPrint SE printers (\$25,000 each with supplies).

Volumes could be written on how to buy the right 3D printer, but the best advice is to thoroughly research options and buy the best quality printer you can afford that meets your library's needs. Although we were able to work with faculty to design and carry out individual research projects with our original two printers, our ability to support structured classroom and laboratory assignments now depends heavily on the availability of higher-end, reliable printers (the Stratasys models). A chemistry class of a dozen students, for example, each of whom was required to print two copies of a particular molecule, monopolized the use of a Stratasys printer for two weeks.

Many printers in today's market are notoriously fickle and have a high rate of print job failures, yet libraries continue to buy these less reliable printers solely based on cost or name recognition. We have learned from experience that a very high print job success rate is one of our "must-haves" when buying new printers in any price range.

Decisions will also have to be made on what type of cost-recovery, if any, the library will require. Most libraries use some kind of fee-for-printing model, although the method of charging varies considerably, including by the print job, by the time on the printer, and by the number of inches of filament used. We have chosen to subsidize all of our printing through an innovation endowment, which cuts down significantly on the need for staff mediation and encourages use of the printers for experimentation.

Does the library have the proper space to offer this service? The use of space is an issue in almost every library, and 3D printing offers some unique environmental challenges. Printers can be noisy and can emit mild odors. While some filament has been deemed environmentally safe, the jury is still out on emissions from other types of filament, so proper ventilation may need to be considered. Printers with dissolvable support filament (such as the Stratasys UPrint SE) require a mild chemical bath (which can be purchased with the printer), rubber gloves, and a nearby sink.

Since 3D print jobs will run for hours with the potential for failure (the equivalent of a paper jam but with a heightened level of complexity), location is important. The printers should be located in an area that can at least be monitored somewhat by staff members without completely monopolizing their time. To that end, we originally carved out space for our 3D printers adjacent to staff offices, but we learned that the noise, odor, and traffic quickly became burdensome. We have since moved employees to other locations, glassed in the area, and hired a full-time manager to oversee the 3D printers and a variety of other makerspace equipment that make up our Innovation Lab.

Does the library have the staff (in sufficient numbers and with appropriate skills) to support this service, and can the library support the level of mediation required to offer this service? Staffing must be carefully planned before taking on any highmaintenance emerging technology such as 3D printing. We dove in enthusiastically, since existing staff was willing to learn to support the printers. But we were unprepared for the high rate of print failures and the level of mediation needed to keep the printers functional. Our student users learned the technology quickly, however, and, especially early in our experience, were sometimes able to troubleshoot the equipment better than the staff. We now have a much more realistic idea of our staffing needs and have addressed most of our early issues with the full-time staff person dedicated to the Innovation Lab, as well as stocking back-up printers.

VALUE ADDED LEARNING

To measure the success of this venture, we go back to our original question: How do we enhance curricula and promote student learning with 3D printing? Our faculty colleagues believe that curricula have been enhanced with innovative 3D printing assignments and research projects that have promoted learning in the sciences. Librarians note the many accolades from our collaborative efforts, and little doubt exists about the high level of student enthusiasm and motivation when working with 3D printing.

Peer-reviewed publications, conference presentations, and poster sessions by librarians, faculty members, and students all validate our work. In this age of rapid change, when some university administrators question the value of libraries, librarians must be vigilant about marketing and promoting themselves and their libraries. It is imperative that libraries define new roles for themselves.

Emerging technologies are exciting they generate interest and they promote library relevancy and visibility. Our collaborative and innovative 3D printing initiatives have garnered more attention for the library than anything else we have done. Not only has the project generated student and faculty interest, but it also has captured the attention of donors who understand the need for students to have access to the most current technologies and to develop applied technology skills.

Integrating 3D printing and other relevant emerging technologies into your suite of library services, if done thoughtfully and well, can lead to exciting new paths for the library to support innovative learning.

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Keep Safe & Study On

» Hosting a late night student success & safety information fair in the library

BY KYMBERLY GOODSON AND NANCY RELAFORD

The Overnight Study Commons in UC San Diego's iconic Geisel Library—open 24 hours, five days a week—was inaugurated in Fall 2012 and quickly became a popular hub of student activity well into the early morning hours. By Fall 2014, headcounts taken between 1:00 am and 3:00 am peaked at 473, while those frequenting the space between 5:00 am and 7:00 am reached 185. Clearly, the space serves a need. But do UC San Diego students know how to stay safe when visiting the library late at night, and do they know the library and campus services available to them at those hours (or anytime)?

The Library's Learning Spaces program was exploring ways to promote even greater use of the overnight space, while the Library Safety & Security program wanted to raise student awareness of how to stay safe in the library and on campus during overnight hours. Discussions between the leaders of these two programs, which jointly manage the Overnight Study Commons, sparked a partnership that resulted in the hosting of a Student Success & Safety Information Fair in December 2014, called *Geisel After Dark*.

The Library invited dozens of student support units at UCSD to participate in the Geisel After Dark event as an opportunity to increase awareness of their services among students, and to perhaps reach students who might not otherwise seek them out (see Participating Partners). The event was open to all UCSD students and focused on student resources, services, and safety particularly (though not exclusively) those available during late night hours or 24/7.

Partner units, including those from the library, were encouraged to highlight services they provide during nighttime hours, while also sharing information about services available during the day (see Meeting Goals). Interactive, engaging activities were encouraged to complement informational tabling. A total of 25 library and campus units provided information and interactive activities at the event. Highlights included



Promotional poster for 2014 Geisel After Dark

Geisel After Dark

Event posters identifying the safety- and academicfocused rooms

3D printing from the library, make-yourown-trail-mix by the campus Student Wellness Program, and a hands-on self-defense demonstration by UC San Diego Police.



General library information table.

LOGISTICS

The inaugural event was held in two large rooms and part of the main study area within Geisel Library's Overnight Study Commons. One session was held from 8:00 pm to 9:00 pm on Wednesday, December 3, followed by a second, identical session from 12:30 am to 1:30 am on Thursday, December 4.

Staff from the two library programs hosting the event prepared tabling areas for the partners in two rooms: the safety-focused room housed tables for 12 partners, while the academic-related room housed tables for 13 partners.

While these 25 tables were staffed by employees of the respective campus units,



Comment cards for student feedback and for drawings

a few additional tables were unstaffed, but provided information and giveaways supplied by campus partners. Two additional unstaffed tables near the entrance to the two tabling rooms housed general library information and giveaways and general campus information.

The library also offered free food in exchange for completing a comment card on the Overnight Study Commons. The students were asked simple questions about how often they study in the library between midnight and 7:00 am, what they like best about the Overnight Commons, and how the space could be improved. Useful feedback was received from 273 attendees.

The total number of attendees was estimated by comment card submissions, food and drink consumption, and counters in the doorway of each room (see Number of Attendees).

COSTS

Excluding staff time, overall expenses for the event were estimated at \$1,875, with giveaways and snacks as the costliest items (see Summary of Costs).

FEEDBACK

The library coordinators considered this inaugural event a strong success. To gauge its effectiveness, the coordinators gathered various statistics from the event, and observed and engaged attendees and participants during both sessions. Afterward, academic partners were surveyed about their goals, the value of their participation, suggestions for future such events, and their likelihood of future participation.

Sixteen partnering individuals (across 12 units) responded to the online survey, and nearly all also considered the initiative a success. Twelve of the 16 felt the event was successful or highly successful in meeting the goals they had specified in advance. Twelve also deemed the event valuable in terms of promoting and extending their student support services to student attendees. Only one participating partner was unlikely to participate in a future event, while ten

Participating Partners

In addition to the Learning Spaces and Safety & Security programs, other units in the library were invited to participate in Geisel After Dark. Additionally, the event coordinators identified and contacted numerous support units across campus inviting them to participate, with well over a dozen deciding to do so.

Library Partners:

- Academic Liaisons Program
- Digital Library Program/Digital Collections
- Learning Services, Making of the Modern World Course Assistance
- Library Safety & Security
- Library Spaces,
 - 3D Printing & Tech Help
- Library Student Jobs
- Maps & Reference Assistance/Research Advisory
 - Chemistry/Science Reference Assistance
 - Help with Citation Resources
- Research Data Curation

Campus Partners:

- Academic Computing & Media Services
- Academic Integrity Office
- Campus Printing Service
- Center for Student Involvement and Leadership
- Community Service Officers / Safety Escorts
- FitLife Personal Wellness Programs
- Kaplan Test Prep & Admissions
- Math & Science Tutoring / Language & Writing Tutoring
- Office for Students with Disabilities
- Office for the Prevention of Harassment & Discrimination
- Office of Student Advocacy
- Sexual Assault & Violence Prevention Resource Center
- Student Health Advocates
- The Zone and the Office for Student Well-Being
- UCSD Police/Rape Aggression Defense (R.A.D.) Training
- Undergraduate Research Portal

A variety of other campus units were invited, but were either unavailable for the event dates or not interested in participating at this time.

were highly likely and the remaining five were somewhat likely to participate. Eleven of the 16 respondents wanted future events to be held three times per year rather than just once.

The coordinators also received positive feedback from student attendees after the event, including this email from a graduate student: "I am writing to thank you, and the library and campus staff for hosting Geisel After Dark. I enjoyed meeting everyone and appreciate the information that various campus offices and organizations offered. I expect to spend more time on campus late in the evening in the next couple of weeks and the coming quarters, so I especially appreciate the effort to ensure campus safety." Students especially appreciated the convenience of the event in alerting them to various campus units, the interactive activities available, the variety of partners who participated, and the free snacks. Comments on the response cards focused more on suggestions for improving the overnight space rather than on the event itself.

IN RETROSPECT

Hosting the event provided the coordinators with a great deal of insight that will assist in offering it again in future years. Scheduling the event earlier in the term and beginning planning well in advance is solid advice. Thinking creatively about the variety of potential library and campus

Meeting Goals

- The library set the following goals for Geisel After Dark:
- Highlight and promote the library's overnight study space.
- Raise student awareness of personal safety while using the library and walking on campus after dark.
- Increase awareness of student support services offered by campus units.
- Encourage the use of campus and library resources, including research assistance.
- Gather student feedback to improve or enhance the Overnight Study Commons.

Participating campus partners offered their own goals for the event in a post-event online survey:

- Inform students of campus units and services available to them during late night hours.
- Promote their services, seminars, website, and programs for students.
- Increase awareness of and attendance at their workshops.
- Raise interest among students in working for their campus unit.
- Talk to students about becoming tutors.
- Allow the opportunity for students to ask questions about the services of the campus units.
- Offer a contact point for library users to report and receive help with library technology issues.
- Gauge student interest in possible new services, including 3D printing in the library.
- Fulfill a recently-enacted administrative charge to offer more nighttime events for students on campus.

partners and emphasizing the benefits to them for participating is also essential to staging a well-rounded and compelling event. It is helpful to contact potential partners early and often and make participating easy and advantageous for them (see Lessons Learned).

NEXT STEPS

The UC San Diego Library will be hosting its second annual *Geisel After Dark* event from 8:00 pm to 10:00 pm on Wednesday, November 4, 2015 (following the daylight savings time change on November 1). A new location will allow for a more centralized layout. But being in a less trafficked area outside the overnight Commons wing will require additional publicity before and during the event. Partners who participated in 2014 will be invited again, along with possible new partners.

The library will host only one two-hour session rather than two shorter sessions this year to make it easier for partners to staff their tables and engage participants. Planning has already begun for the 2015 event, with the hopes of adding a photo booth and additional interactive activities. Finally, consistent funding will be sought to support what is now expected to be an annual event.

Though it does require a fair amount of

	8-9 pm	12:30-1:30 am
Visitors	Safety Room: 549	Safety Room: 372
	Academic Room: 271	Academic Room: 129
Comment cards received	121	152

SUMMARY OF COSTS

NUMBER OF ATTENDEES:

Food & beverages (for attendees and bottled water for participants):	
Prizes for drawings (campus gift cards & various library-branded items:	
Safety giveaways (bags, whistles, water packets, light sticks):	
Printing/publicity:	
Branded tees for library coordinators:	





Students visiting the event



Self-defense demonstration

work, an informational fair of this sort is an effective and relatively inexpensive way to engage library users and promote services and safety. The idea can be tailored to varying levels of staff availability and funding, as well as to a variety of library settings.

Public libraries, for example, could hold an event showcasing library services as well as those available within the local community. The focus could be on user and community concerns, such as services to school-aged children, families, veterans, people experiencing homelessness, and other constituent groups, as well as personal safety and emergency/disaster preparedness appropriate to local contexts.

As another example, a K-8th grade school library could host a similar event after school or in the evening and encourage parent to attend. Participants in this context could share information on student and parent volunteer opportunities at the school, including tutoring and homework





Two partner units set up their tables before the event.



Safety-related giveaways

assistance programs, specialized software or tools available for student use, co-curricular clubs and activities, and PTA initiatives. The

Lessons Learned

Consider the following planning tips:

- Use a visible, heavily-trafficked area for the event
- Ensure effective advance and on-site publicity
- Involve library student employees in planning and implementation
- Encourage partners to staff their tables with student workers (informal feedback and observation suggested that students were more likely to approach tables where they saw fellow students)
- Encourage partners to provide inexpensive giveaways and treats at their table (student support units often keep promotional items on hand for events)
- Hang uniform and highly visible posters identifying each partner unit's table (above tables rather than across the front, if possible)
- Feature interactive activities such as games and quizzes, 3D printing, or a self-defense demonstration
- Create branded T-shirts for library and partner representatives
- Invite students to attend while the event is in progress by walking around the library and/or using a public address system to make announcements
- Offer a variety of snacks and beverages (PopTarts & almond butter were big hits, as were individual packets of emergency water)
- Place snacks near the partner tabling area(s), so that students aren't able to just grab snacks and forgo visiting the tabling activities
- Require easy participation for attendees to receive food, such as a short comment card or "passport" stamp for visiting the informational tables
- Provide inexpensive reusable bags for attendees to carry handouts and goodies (drawstring backpacks were imprinted with the Library logo, student safety tips, and campus emergency numbers)

event could also be used to build excitement for future programs, camps, or field trips offered through the school or to provide tips on how parents can best support their children's educational success. To incorporate safety-related elements, a school event could include information or presentations from local police or other groups on bike safety, safety of children while walking home, or children's safety when home alone. Police officers could also simply share the message that they're a community resource available to help local residents as needed.

UCSD's experience hosting *Geisel After Dark* suggests that library users (and partners) will value and enjoy such an event, and appreciate knowing that the library actively supports their safety and their academic success. **ABOUT THE AUTHORS:** With a background in user services at the University of California, San Diego Library and elsewhere, librarian Kymberly Goodson served since 2007 as the UCSD Library's Decision Support Analyst. Upon its establishment in 2013, she assumed the role of program director for the library's new Learning Spaces Program. She can be reached at <u>kgoodson@</u> <u>ucsd.edu</u>.

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Effective Library Wayfinding

» Add value to the user experience by providing visual cues to services and destinations.*

BY WENDY WILSHER

Bffective customer wayfinding is becoming more recognized as a way to add value to the library experience. No matter whether users are looking for an independent service experience or a staff-assisted visit, whether the library is large and complex or small and simple, or whether the library is adequately staffed or run with limited staff assistance and a tight operating budget, good wayfinding can help users achieve the experience they desire.

Wayfinding can be integrated into either new building construction or a remodeling project and can be added as a layer to the fabric of an existing building. In all cases, library users across the country are benefiting from this increased awareness of their needs.

WHAT IS WAYFINDING?

While the term "wayfinding "may be new to some, the task of "finding one's way" has been around for hundreds of years. Today, social interaction brings people together to use spaces and environments that are unfamiliar, ranging from simple to complex in their layout. To help overcome these navigational challenges, people use cues to help them find their way, whether traveling through airports, browsing around a museum, finding a doctor's office, or visiting a library. People will always need to know how to find a destination, to know they have arrived, and to know what is taking place there.

We are also accustomed to navigating a different world—the online world of websites and user information. Exploring this virtual world is another type of wayfinding. People quickly give up when using a website that is hard to navigate and frustrating for users. By comparing this experience with



Figure 1: A sequence of easily to follow directional signs helps users navigate through the library space.

navigating through a real building space, planners can begin to appreciate why the demand for improved wayfinding in all types of spaces is on the increase.

HOW IS WAYFINDING USED?

Embracing the concept of wayfinding means realizing that people, or users, want to go somewhere or find something. In that context, wayfinding is a problem-solving process of getting from place to place until the destination has been reached or the task has been accomplished.

Bringing wayfinding concepts into a project means putting a set of fresh eyes into an environment to view the surroundings and make note of the decisions people have to make when navigating through it. By anticipating user needs, new designs can provide cues that will assist the user in feeling more confident and at ease in the surroundings.

Wayfinding to some means using "signs;" but a good wayfinding solution uses more than just signs—orientation guides, directories, lighting, interior finishes, staff contact points, vision angles, and landscaping—all with the aim of helping users find their way through environments **(see Figure 1)**.

EFFECTIVE LIBRARY WAYFINDING

As a concept and as a resource, wayfinding can help a range of library users attain their goals.

Customer perspectives. Today, many libraries are seeing a shift in their customer expectation patterns. Increasingly, users want an independent, self-service library experience—self checkout machines and payment stations along with easy-to-use computers and print facilities. But being able to achieve this independent goal means a customer must navigate and use the library's collections and services without asking for staff assistance. There will always be customers who want more help with a task. But having effective wayfinding in the library means precious staff time is not spent answering basic questions,



Figure 2: A whole new library wayfinding scheme allows the customer to use the space with ease and make independent decisions.

but is spent instead offering meaningful assistance to those who ask for it.

When a library makes an effort to improve its wayfinding and communication effectiveness, customers view the changes in a positive light—the library cares about its customer's experiences. A library that strives to stay fresh and alert to customer needs puts it at the forefront of great community resources. These perceptions are valuable both in terms of gaining and preserving a strong customer base and securing funds from multiple sources to further service improvement projects.

Staff perspectives. Library staff members often train in a specialty. When these staff members spend their days answering general questions ("where is the restroom?") and dealing with customers who need to pay fees, their role is not very rewarding. Freeing up staff time so these professionals are less transactional in their roles and more customer service focused will lead to staff feeling more valued in their positions.

Libraries operating with a minimal staff can especially benefit from effective wayfinding. These libraries need some customers to have an independent service experience since there simply is not enough staff hours in a day to assist customers with the basic questions and tasks.

Marketing perspectives. A good wayfinding scheme helps to define a library's space, making it more appealing, coherent, and welcoming. It helps to communicate to customers that the library is organized and professional in its approach (see Figure 2).

IMPROVING THE WAYFINDING EXPERIENCE IN LIBRARIES

Wayfinding can be applied at a variety of levels, ranging from improving the navigation of a specific area to adopting wayfinding solutions to an entire library. Consider these examples of projects that a library could adopt:

Quick improvements: Provide professional staff with name badges so customers can easily and quickly find a staff member for assistance. Place user information at self-service points, providing information at payment stations or self-check-out kiosks to allow customers to quickly and easily use these facilities with confidence (see Figures 3 and 4). Prepare easily updateable customer information maps and directories and place them strategically as a quick reference point for customers (see Figure 5).

Moderate Improvements: Create a great first impression by making sure that the library is easy to find in the local environment and that the entry doors are visible and clearly identified **(see Figure 6)**. Improve one aspect of the user experience such as stack navigation and stack end labels or computer user information. Establish easily identifiable staffed information points to help customers who need assistance find a resource with ease and confidence.

Complex improvements: Create a fully legible library through a building-wide improved wayfinding scheme. Begin with a study of how the library space is navigated, which forms the basis for the new wayfinding strategy. Continue to review pre-visit in-



Figure 3: Overhead signs locate a library service.

formation, staff interaction with customers, terminology used verbally and on signs, flow routes, and obstacles throughout the library space. Pay particular attention to traversing to various building floors, and identify and define what services are available on each floor, wing, room, or areas. Think of the wayfinding scheme as a key layer in the fabric of a library. Done well, it will help to create a sense of place and comfort to customers.

THE VALUE OF WAYFINDING

Libraries incur costs no matter whether they choose not to incorporate the elements of wayfinding into their buildings or decide to embrace its concepts. A good wayfinding designer or staff champion will work with the library and its customers to generate a scheme that complements the library and is within the desired budget.

Hidden costs. How many times a day does a customer ask library staff for directions to a service or facility? Are they meaningful or will the customer need to ask for further guidance along their route? How often does a staff member accompany a customer to the service or facility they are looking for? How often does staff explain methods or procedures that could be better communicated graphically? How long does staff spend putting up temporary signs to identify collections or answering questions about out-of-date collection labels? Add up these minutes and libraries will be quite surprised at the significant hidden cost of having poor wayfinding in the building.

Direct costs. Depending on the layout of the library building and the specifications for a new wayfinding scheme, wayfinding can pay for itself in a matter of months. The



Figure 4: Step-by-step directions help users navigate the library's on-line catalog.

cost of designing, specifying, fabricating, and installing a new wayfinding system depends on many factors: the scale of the library, the complexity of navigational routes, whether other interior cues are already present, the materials chosen, and the overall look and feel desired. Most importantly, the concept must fit within the library's overall vision.

Funding Sources. Today's libraries are working with budgets from a variety of funds, such as operating budgets, major improvement budgets, donations, and endowments. When libraries are run on a low operating budget, customers may be forced to use self-service options. To improve this experience, effective wayfinding—funded through an improvement budget or a donation—can help reduce the more basic questions asked of staff and, in turn, save precious staff time to work with customers who need individual assistance in completing a research project, for example.

GETTING STARTED

Before embarking on a wayfinding project, a library's staff can pursue several options that will make designing the plan and estimating the time and funds needed to complete the project more realistic.

Analyze wayfinding needs and desires: Begin by analyzing the existing space (if there is one) and understanding customer and staff needs. This phase could be completed as a separate project to help decide the main wayfinding goals, establish a project overview, and prepare a budget.

Compare to other libraries: Look at what other libraries are doing in terms of improving their user experience and customer information. Ask them how they assembled projects, who they consulted, and what they learned from the process.

Consult with a wayfinding designer: Seek out someone who has experience working on wayfinding projects of a similar size and nature, who is familiar with the intricacies of libraries, and who has experience in specifying projects of a similar budget.

Justify the project: Depending on which source is funding the proposed project, look for ways to predict and justify the expenditure. A wayfinding designer who has completed similar projects would be helpful in putting together the background information and project justification.

Assemble a project team with goals and a budget: Elicit staff buy-in to the goals of the project and groom a project champion who will help ensure the new wayfinding features function as intended. The selected team should have a good understanding of the library's vision and goals for the future so the designed scheme meets the desired needs, budgets, and timeframe.



Figure 5: Updatable orientation maps allow users to locate where they are in the library and find their desired destination.



Figure 6: Clear, external library identification helps set the tone for the library experience.

DESIGN AND INSTALLATION

Once the wayfinding analysis, the project overview, and the project team come together, a fully integrated wayfinding solution can be developed. The design and specification process is a detailed one and, once complete, a wayfinding designer can help a library find and choose suitable fabricators.

It is valuable for a library to have a longterm plan especially if there are several libraries in the group requiring improved wayfinding. Cost savings can often be achieved when a fabricator is bidding for a larger quantity of work. The future plan will also have a bearing on the materials and processes specified since they can affect cost and ease of roll-out immensely.

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ABOUT THE AUTHOR: Wendy Wilsher is an internationally recognized wayfinding and information design consultant who specializes in working with libraries to help improve their customer experiences through the use of wayfinding. She can be reached at **info@wilsherdesign.com**.

Book Clubs in the USA

» Conclusions based on years of research provide details on how book clubs operate today.*

BY DAVINA MORGAN-WITTS

n annual survey of regular book read-A ers conducted in April 2015 recorded more than 3,600 responses in a two-week period.** One of the key points of interest was to understand book clubs, including their evolving needs, who participates, and where they meet. These results were combined with previous surveys, book club interviews and social networking feedback, and parsed through fifteen years of experience examining book clubs to create a white paper, "Book Clubs in the USA." A number of findings summarized in this paper yield information that can be used by librarians to strengthen their existing book club or start a new one.

BY THE NUMBERS

Between 2004 and 2009, book club participation increased significantly **(see Figure 1)** while the demographics of those surveyed remained constant. In the six years since 2009, the percentage of respondents in a book club has remained effectively unchanged, indicating that book club participation has stabilized.

Book club participation increases with age. Two factors leading to increased participation levels are time and a desire to connect. While many participants first get involved in book clubs in their 30s, empty nesters and those well established in their careers have more time and are open to building new adult connections, while retirees tend to have more time than when employed and welcome the intellectual



Figure 1: Book club participation has increased significantly in the last eleven years.



Figure 2: What are the qualities of a good book club read?

challenge that book clubs bring.

Of respondents with a two-year degree or less, 43 percent belong to a book club. This number rises to 55 percent for those with an undergraduate degree, and jumps to 63 percent among those with a graduate degree or higher.

Also, 45 percent of respondents with household income of less than \$50,000 belong to a book club, compared to 58 percent of those in households with income above \$100,000. But the correlation is not as

Publisher's Note: Many public and K-12 libraries host or administer book clubs for various groups of patrons. Libraries use these clubs to meet a variety of goals:

- Encourage persons from the community or school to use the library.
- Allow participants to know their librarian in an informal setting.
- Enlighten the group about the resources available at the library.
- Encourage members to expand their reading choices.
- Provide a social outlet for like-minded as well as diverse participants.

No matter why a library chooses to run a book club, librarians who serve as leaders can tailor the format in many ways. In general, how do most book clubs operate and how can they be structured to provide the best outcome for participants?

The results in this report can assist in answering these and other questions.

strong as that seen for education and age, which is in large part because the highest penetration of book club membership is among the 65+ age group who are most likely retired and living on relatively lower income than during their working years.

Statistical and anecdotal data show that the majority of book club members are women. While men may be in the minority, they are no less involved than their female counterparts. When men in the sample were asked what they like about book clubs, common responses matched those of women: a book club gets them to read a variety of books that they would not read otherwise and that the discussions were enjoyable. A number reported that their perceptions of book clubs changed when they joined one. The majority of men in a book club, and those interested in joining one, want to be in a mixed group of men and women.

Among those who read at least one book a month, it is difficult to discern a difference in reading habits between book club members and non-members. While some in book clubs are highly prolific readers, others will only read their book club selection. Equally, there are both light and heavy readers among non-book club members. Book club membership is less a factor of how much a person reads and more to do with whether they enjoy discussing books with others and whether they have had the opportunity to be part of a group that suits their interests.

PUBLIC BOOK CLUBS

Book clubs open to all in public venues (such as a library) are invaluable to those interested in participating but who either do not have the opportunity or the desire to join a private group, with the potential for social angst and long-term commitment. Many book clubbers whose first experience in a book club was in a library-hosted group are still happily participating years later while others have joined a different group or started one of their own. Considering that nearly one-third of book clubbers surveyed belong to more than one group, some simply join additional groups with maintaining their connection to the first.

Interestingly, half the men surveyed who are not in a book club but would like to be say that they would prefer a club that met in a public place, with a number specifying the library. Only 15 percent would prefer to meet in a home.

WHAT BOOK CLUB READ

Statistically speaking, 70 percent of clubs read fiction most of the time. However, it is too simplistic to assume (as some not in book clubs do) that book clubs are bastions of "women's fiction." The reality is that the amorphous qualities that book clubs look for in their books result in interest across a range of genres and types, including serious and "light" books, fiction, nonfiction, classics, and bestsellers.

Book club choices are influenced by both the personal reading preferences of individual members and the simple fact that some genres produce more books suitable for discussion than others, but few, if any genres





Figure 3: Who chooses the books a book club reads?

are off limits to clubs. A fascinating aspect of conducting in-depth interviews with book club members over time shows not only how varied the world of book clubs is but also how the choices of individual groups expand over time. Clubs that start off reading "safe bets" start to explore new avenues as the groups' tastes and confidence grows.

In another interesting finding, 80 percent of book clubs read local authors at least occasionally, and many enjoy hearing firsthand from authors, local or not. A note of caution: while clubs enjoy hearing from and asking questions of authors, some are uncomfortable openly discussing the book in front of the author. An answer is to have the author participate, in person or electronically, for only a portion of the meeting.

THE IDEAL BOOK

Overwhelmingly, book club participants want to read books that expand their horizons — windows that allow them to see into the lives of others or mirrors that let them reflect on aspects of their own lives. Above all else, books need to have plenty to discuss. Sometimes a book can be fun to read but provide little to discuss, while another book may not be universally liked but generates good conversation. The core criteria that book clubs look for are shown in **Figure 2**. Clearly, it is a tall order for any book to meet all the criteria, which is why proven book clubs books spread rapidly from club to club. Those choosing books can feel considerable pressure, which is why information and guidance on a book's suitability is so important.

CHOOSING THE BOOKS

E-mail newsletters and websites or blogs are the sources used "most often" to find books among all readers, whether in a book club or not. While personal (reader to reader) recommendations score highest overall, the vast majority of personal recommendation originate from another channel, whether that be reading a book review or "discovering" a carefully placed book on a library display. Thus, reader-to-reader recommendations serve to amplify books discovered through other sources (see Figure 3).

Of book club members who meet in person, 90 percent have a say in what books are read at least some of the time **(see Figure 4, page 15)**. Close to 70 percent of clubs meet most months, discussing nine to twelve books a year. More than four of ten inperson book clubs make their selections at least four months in advance. Only one third of book club members say that a reading guide is a factor in their book club choices.

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Figure 5: How do book club members use the library?

On-line book clubs tend to plan less far in advance with half scheduling just one month ahead and only 5 percent planning for a full year. This ad hoc format reflects the larger size and "drop-in" nature of many on-line book clubs.

In a model that other book clubs might wish to follow, some groups host discussions on a given topic rather than a specific book. For example, in some sessions, the club might chose to split the group so some read a biography of a famous person while others read an historical fiction focused on the same person, or they may decide to read different books by the same author.

BOOK CLUBS AND LIBRARIES

Book club members are more likely to visit their library, both online and in person, than non-book club members who are regular readers. However, much of this difference has to do with demographics; book club membership increases with age and skews in favor of women, as does library usage. But even when these factors are removed, book club members are still somewhat more frequent visitors to the library than similar readers who are not in a book club. Book club members borrow slightly more library books that non-book club members **(see Figure 5)**. Also, of the almost 500 Friends of the Library members surveyed, almost three-quarters were in a book club.

INSIGHTS FROM LIBRARY BOOK CLUBS

The following links provide insights from four librarians who host successful book clubs at their libraries. Librarian Marika Zemke of the Pre-Pub Book Club at Commerce Township Community Library in Michigan shares her unusual model for a book club—one that, among other things, educates its members on how and why books get published. The group attracts a diverse range of ages and both men and women.

http://www.bookbrowse.com/featuredbookclubs/archives/index.cfm/bookclub number/50

Librarian Terye Balogh of the Milpitas Library Book Group in California shares some excellent advice about inviting authors to the group, managing large discussions, and keeping the group engaged.

http://www.bookbrowse.com/featuredbookclubs/archives/index.cfm/bookclub number/29

In its more than thirty years, the "Young Critics" book club at the Perrot Memorial Library in Greenwich, Connecticut has inspired generations of children.

http://www.bookbrowse.com/featuredbookclubs/archives/index.cfm/bookclub number/17

The Dorothy Canfield Fisher Award Book Club is a fourth grade student book club at Richmond Elementary School, Richmond, VT. The club is run by teacher/librarian Beth Redford who has devised a process by which the fourth graders get to read new highquality literature and help choose Vermont's "Book of the Year."

http://www.bookbrowse.com/featuredbookclubs/archives/index.cfm/bookclub number/49

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ABOUT THE AUTHOR: Davina Morgan-Witts is founder and editor of BookBrowse, an online magazine and readers' advisory resource particularly suited for patrons in book clubs and those who read to expand their horizons. Features include book reviews, book previews, "beyond the book" articles, author interviews, reading guides, read-alike recommendations, and the ability to search by time period, setting, and theme. Information on library subscriptions can be found at <u>www.bookbrowse.com/lib</u>.

****NOTE ON THE SURVEY SAMPLE:** Unless otherwise specified, the primary source of information in this article is a survey conducted by BookBrowse in April 2015. Respondents completed a questionnaire hosted by BookBrowse. Of those who participated, 27 percent were BookBrowse members; 73 percent were non-members.

Because the focus was on book clubs, responses were filtered to include only those who read at least one book a month—that is, people who read sufficiently to belong to a book club, whether they chose to or not. The responses were also filtered to only include persons living in the United States, resulting in a sample size of a little more than 3,000.

The full white paper can be downloaded at <u>www.bookbrowse.com/wp</u>.

The Learning-Optimized Library

» The library of the future requires new thinking about how learners chose to connect with knowledge.

BY MARK WALTERS

Provide a set of the ways we work, the ways we access information, and the ways we work, the ways we access information, and the ways we interact with others. The world of education is not exempt from this tide of change; today's students are experimenting with new ways of thinking and learning, and using technology to learn in ways that are vastly different from previous generations. Much has changed, and yet much has also stayed the same.

In my role in product development, my team and I focus on the behaviors and interactions in environments during this time of change. When we can identify new patterns of learning and working, we can design products to better support those patterns. And ultimately, we can create solutions that delight educators and students as they learn and experiment together.

A few years ago, while observing students in college libraries, we realized that just as classrooms can be designed in dramatically different ways to support active learning, the library must be rethought to meet student self-directed learning needs as well **(see Figure 1)**.

DESIGN THINKING

When we develop new products, we use a six-step process very much driven by Design Thinking. This multi-step methodology has been the key to the insights we've gained into student-centered libraries.

The first step involves primary research and explorations, to gain an understanding of the behavior or environment we want to study. When we started digging into library trends, we saw that the very idea of a library was under siege. In this era of the Internet and digital archives, books are becoming less and less central to activities in the library and on campus. So as we thought



Figure 1: This seating style reflects the design insights gained from watching students learn and instructors teach in classrooms where they are using a variety of learning modes.

about what the library of the future would look like, one of the main design principles we settled on is that the library should not be book-centered, but should be—and, indeed, already is on many campuses learning-centered.

SOCIAL LEARNING

We also discovered that learning is increasingly social. Libraries have and will continue to be the hub for group-work, where students learn to cooperate, lead, debate, and develop into productive citizens.

But there's a flip-side to this concept as



Figure 2: This seating configuration allows students to study alone while still accessing electronic media.

well. For more introverted learners or those who require a deep individual focus, collaboration and social learning can be exhausting. We realized that the library of the future should take seriously the idea that students need quiet places as well, not only to work, but also to find respite from all the stimuli of their day-to-day lives.

Having a sense of the tensions and trends in libraries, we moved on to the observation phase of Design Thinking by visiting over twenty libraries across the country. We wanted a broad slice of behaviors, so we observed interactions at university, community, private, public, graduate, undergraduate, large, and small libraries. And we observed during all times of the day and school year to give us the broadest view of what was different and what was the same.

A lot of what we saw was not surprising. As learning becomes more social and libraries follow suit, some students go to great lengths to find that elusive quiet space, particularly during more intense periods like finals week. We found that areas of the library that are social during the beginning of the school year often become quiet during exam weeks. The library of the future, then, must be able to adapt to these ebbs and flows of student behavior.

As the classroom experience shift towards a more active learning style with the use of whiteboard walls and technology displays, the library must keep up. We asked ourselves: what will the library of the future look like to be able to provide for both social

BELFOR (O) PROPERTYRESTORATION CLICK TO LEARN MORE and active learning, while not sending the introverts running for a dark, quiet corner of the stairwell? And how can that space flex and adapt based on the time of day and month of the year, as visitors come and go and behaviors change?

We knew the solution would need to be comfortable; we'd seen students seeking more comfortable postures, either in lounges, chairs or by adapting their bodies to traditional seating. We knew the solution needed to integrate ergonomics and power, allowing for the use of laptops and tablets, and it needed to be placed a convenient and accessible space.

THE WORK LOUNGE

One solution is Brody **(see Figure 2)**, the direct result of working through the Design Thinking process and gaining insights from the observing of the behaviors of patrons in all types of libraries. When students (or faculty and staff) want to be alone, they can very quickly and easily be very alone in this design. When they need a comfortable, convenient space to duck in and find deep focus quickly, to finish that term paper or flip through flash cards, this configuration provides a place where they can go and work independently.

Libraries have always been learning spaces, no matter whether they are part of a college campus, a community hub, or a home for K-12 after-school programs. In our exploration, we saw an array of learning behaviors taking place in library spaces — quiet, loud, alone, in groups, with the newest technology, and with pencil and paper. With the insights supported by these observations, we realized we could apply many of our existing products to these environments while also creating new products to better support the learning behaviors that make these spaces so important. ■

ABOUT THE AUTHOR: Mark Walters is product manager for Steelcase Education. He can be reached by emailing <u>mwalters@</u> steelcase.com » We knew the solution would need to be comfortable; we'd seen students seeking more comfortable postures, either in lounges, chairs or by adapting their bodies to traditional seating.

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