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The Learning Commons as a Locus for Information Literacy

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Many institutions of higher education are designing spaces to facilitate learning. Libraries have created information or learning commons to support this activity. This article draws from the literature and best practices to explore this new direction. Academic libraries have focused on student learning and the teaching of skills and strategies that develop information literacy competency. Although there is an assumption that learning commons facilitate student learning, there is a need to more closely connect this new environment with information literacy and pedagogy and to demonstrate its merits in enhancing learning. A basic premise is that each learning commons that is planned well will be unique. This is because a key component of the planning process is to understand the campus perspective, student learning styles and preferences, and the role of the campus library. The combination of those factors will result in a learning commons that supports its own institutional priorities and profile in a specialized manner.

This article is in the form of a panel discussion that explores possible relationships between the learning commons and student learning, pedagogy, and information literacy. The "panel members" are the authors who represent three different perspectives that should be interrelated when planning learning commons. These perspectives are (1) the scholarly perspective that provides an empirical foundation for decision-making, (2) the perspective of a library administrator who builds the relationships needed for successful external collaboration, and (3) the perspective of a librarian who implements the vision for a learning commons. The panelists discuss a number of topics including (1) the scholarly basis for a

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learning commons as a focal point for enhancing student learning, pedagogy, and information literacy, (2) how a library administrator can create and communicate a vision that focuses on information literacy and student learning,(3) how a practicing librarian can promote information literacy, pedagogy, and student learning through a learning commons, and (4) engaging all stakeholders to promote consideration of pedagogical approaches through the learning commons. Finally, there are recommendations for research and practice about the learning commons and information literacy.

KEYWORDS Information commons, information literacy, learning commons, learning spaces, pedagogy, student learning

INTRODUCTION

Many institutions of higher education are designing spaces to facilitate learning. This is important because there is a relationship between learning spaces and student achievement, mastery, and retention (Oblinger 2005, 14). This is a challenge because of the complexities of technology and student learning styles that characterize twenty-first century education. EDUCAUSE (2009) identified today's top teaching and learning challenges:

- Creating learning environments that promote active learning, critical thinking, collaborative learning, and knowledge creation
- Developing twenty-first century literacies (information, digital, and visual) among students and faculty
- · Reaching and engaging today's learner
- Encouraging faculty adoption and innovation in teaching and learning with
- Advancing innovation in teaching and learning with technology in an era
 of budget cuts.

Faculty and administrators in colleges and universities acknowledge that learning spaces should stimulate active learning, collaborative learning strategies, highly interactive work, and provide both formal and informal work areas and meeting places for students and faculty (Leather and Marinho 2009). Learning is a social activity (Crawford and Irving 2009) and students use library space as a place to learn outside of the classroom (Head 2007; Marshall et al. 2007; Walton 2006; J. Weiner and S. Weiner, forthcoming). Many libraries have created information or learning commons to support this

activity (Bailey and Tierney 2008; Barton and Weismantel 2007; Dewey 2008; Ritchie and Ray 2008; Somerville and Collins 2008; Spencer 2007; Stuart 2009; Wong 2009).

Supporting student learning and the teaching of skills and strategies that develop information literacy competency are core activities of academic libraries (Breivik and Gee 2006, 10; Doan and Kennedy 2009, 355; Foutch et al. 2009). Although there is an assumption that learning commons facilitate student learning, there is a need to more closely connect learning commons with information literacy and pedagogy (Stuart 2009, 17). Does a learning commons facilitate the development of information literacy competencies more than other types of learning environments? What teaching methods are most effective in the technology-rich, interactive environment of a learning commons?

This article will draw from the literature and best practices to explore this new direction. The terms "information commons" and "learning commons" are used interchangeably. Although this contradicts Bailey and Tierney's model of four progressive levels from information commons to learning commons (Bailey and Tierney 2008, 3), we believe that each learning commons that is planned well will be unique. That is because a key component of the planning process is to understand the campus perspective, student learning styles and preferences, and the role of the campus library. The combination of those factors will result in a learning commons that supports its own institutional priorities and profile in a specialized manner.

We define a learning commons as a place that fosters the development of the twenty-first century scholar and practitioner by integrating the library and other campus student support units. It is a multifunctional, flexible space that deeply integrates the library into the lives of students in collaboration with other campus departments and services. It is a neutral space that brings partners together to support learning initiatives. It is a workplace for students that may include formal and informal areas. It is a location for collaborative work, knowledge generation, and innovation. Local issues and needs drive the creation and development of each learning commons.

This article is in the form of a panel discussion that explores possible relationships between the learning commons and student learning, pedagogy, and information literacy. The "panel members" are the authors who represent three different perspectives that should be interrelated when planning learning commons. These perspectives are (1) the scholarly perspective that provides an empirical foundation for decision-making (sw); (2) the perspective of a library administrator who builds the relationships needed for successful external collaboration (TD); and (3) the perspective of a librarian who implements the vision for a learning commons (HK).

What is the scholarly basis for a learning commons as a focal point for student learning, pedagogy, and information literacy?

sw: There have been many reports about changes in education and society that have led to a better understanding of the student learning process in the digital age. Those changes include:

- The pervasiveness of the Internet
- The entrance of digital natives to colleges
- Recognition of differences in learning styles (Black and Roberts 2006, 85)
- Employer expectations of a continuously learning workforce that operates through team-based environments (Klusek and Bornstein 2006)
- Limited information literacy competency of many undergraduate students (Head 2007; Head and Eisenberg 2009; Katz 2007).

These factors have led to consideration of what the current best educational practices should be, what types of physical spaces result in the most effective learning, and how libraries should be configured to partner with faculty in student learning. Emerging models for student learning align pedagogy, technology, and space (Beard and Dale 2008, 100; Radcliffe 2008).

The library is a neutral setting for the integration of student-centered services such as the learning commons. The theoretical construct that may provide a lens for understanding this is boundary spanning theory (Tushman and Scanlan 1981, 95). This theory arose as technology innovations changed the ways that communication occurred within organizations. Concurrently, bureaucratic, hierarchical organizations evolved into ones in which dynamic networks of relationships were necessary for effectiveness. Boundary crossing communication, rather than formal reporting structures, connects members of the organization. It helps members of an organization understand the environment in which the organization exists, improves their ability to respond to rapid change in the environment, increases the ability of the organization to influence its environment, and facilitates innovation (Manev and Stevenson 2001, 185). Boundary spanners must have a good understanding of the different groups within an institution, each with its own norms and culture (Caldwell and O'Reilly 1982, 126). Boundary spanners must be able to relate well to the different groups. They have credibility and great value in organizations (Pruitt and Schwartz 1999, 82). Some of the functions that boundary spanners serve are to

- Link groups "by collecting, analyzing, interpreting, and exchanging information, ideas, resources, and people across these boundaries" (Pruitt and Schwartz 1999, 62)
- Scan the environment for critical changes and communicate this knowledge with superiors, peers, and subordinates (Manev and Stevenson 2001, 201)

Dilmore found a significant relationship between boundary spanning activity and library instruction; at colleges that had high faculty perceptions of library service, more librarians were involved in boundary spanning (1992, 200–1). Faculty support for libraries seems to be related to the degree of awareness of the library regarding its external environment. This environment includes the other units of the university as well as the communities and the field of higher education beyond the institution. Libraries that have such an awareness work proactively to respond to the changing needs and demands of their campuses (201).

Boundary spanning theory seems relevant because academic libraries are part of a highly decentralized and fragmented system that lacks cohesion (Burke 2007, 6). Boundary spanners form connections between groups (Pruitt and Schwartz 1999, 62). Libraries are organizational units that serve entire institutions, like student affairs and information technology departments. Effective collaboration across the boundaries of other units occurs by understanding the differing cultures and communication styles.

The learning commons is a model that is a boundary-spanning unit as well as a response to the priorities of campuses. The learning commons is a place in a library that is student-centered and supportive of collaborative and group learning (Hunter 2006, 70). It provides an environment for personalized learning and support (Black and Roberts 2006, 85). Libraries are universally recognized as unique places that facilitate the concentration necessary for serious scholarly work (Antell and Engel 2006, 552). Academic libraries contribute to the reputation of their parent institutions (Weiner 2009). The learning commons is a place where social interactions turn information into knowledge and self-directed learning occurs (Bailey and Tierney 2008, 2; Bennett 2008; Lippincott 2006, 7.6; Somerville and Collins 2008, 803). Learning commons blend a variety of types of learning spaces to accommodate different learning styles. Students may need different types of spaces depending on the type of work they need to do. "In a single library visit a student might shift between being a solitary user, to a member of a project team, to a member of a study group" (Silver 2007, 81-82). Students who have the option of choosing from a variety of approaches "can increase their confidence and enhance their capacity for meta-learning" (Weaver 2006, 110).

Beagle provided a thoughtful exploration of the relationship between information literacy and the commons (Beagle et al. 2006, 29–54). The learning commons can distinguish itself from other learning spaces on campus by integrating information literacy in the space (Bennett 2009, 193; Bailey and Tierney 2008, 30, 129; Stuart 2009, 17). Bailey and Tierney posit that information literacy and the learning commons are complementary. Information literacy can be considered to be the curriculum that librarians teach in a learning commons (Bailey and Tierney 2008, 6).

How can a library administrator create and communicate a vision for a learning commons that focuses on information literacy and student learning? TD: A library administrator must transition the library to accommodate the changing needs of the twenty-first century student learner. The

reconceptualization of library space into a collaborative student learning "place" changes the essence of any library with which we are familiar, moving from a book-centered to a learning-centered space. Students are no longer simply recipients of knowledge, but they are rather also collaborators and producers of knowledge—they become active participants in their own learning and discovery process. Library professionals must understand the variety of ways that students learn, be able to design an effective information literacy program to support curriculum needs, and deliver assessment outcomes for the services and facilities they create. These changing roles for librarians also include establishing partnerships with teaching faculty. Such collaborations can include exploring the use of new technologies in teaching methods. These technologies can be incorporated into the learning commons to enhance student experience, leading to increased student success, better student retention, and the capability for lifelong learning.

Library administrators are a link between the library and other campus administrators and faculty. They need to engage in the planning, implementation, and management of the learning commons. Library administrators should be aware of the current literature and best practices in relation to learning commons and information literacy so that they can be an expert resource as the process evolves. They should be able to communicate a working definition for both a learning commons and information literacy. They should compile data that will help to justify the resources that will need to be committed. Some data might be campus-specific, such as results of interviews of students on learning space preferences and usage of existing campus student services. Other data might have been collected through institutional surveys or in research studies. Administrators can support field trips to other learning commons for stakeholders or invite speakers to campus to talk about the topic. The commons will be more successful if the planning, evaluation, and ongoing management involve all stakeholders.

Library administrators need to communicate with library staff about what a learning commons is, how it will affect the library, and why it is important to allocate staff and funding to a learning commons. Providing staff development programs and hosting open discussions are ways that staff can learn about the benefits of a learning commons and information literacy. This will help them to understand why changes related to the commons will happen in the library. Library administrators can ensure that the library's organizational chart reflects the importance of student learning by assigning competent, enthusiastic individuals to participate in these roles.

Library administrators should be able to persuade and influence those outside the library of the contributions a learning commons and information literacy make to student success. Although it is difficult to disaggregate the contribution of individual factors to student success, it is clear that academic and social integration of students is key (Braxton et al. 2004, 80). Another point that the administrator can make is that the learning commons is

efficient. It brings student support services together in one location, thus freeing campus space.

One of the most important responsibilities of a library administrator is to build relationships with other administrators across campus, including deans and department heads. The competent administrator needs to find ways to address different audiences of stakeholders using points that focus on their particular needs and issues. Take time to learn what the strengths and mission of the school are. Then one can create and provide services that support those strengths and mission. Develop your own vision and understanding of changing roles and share them. Be proactive, not reactive, and definitely not passive! Ensure that you or your staff participate in the planning for undergraduate curriculum changes. Assign a librarian to be embedded in a key course that has a learning outcome related to information literacy (Foutch et al. 2009; Kesselman and Watstein 2009). Assign librarians to be information consultants for student project teams. Find opportunities in programs for intersections between curriculum objectives and information literacy.

When planning a learning commons that promotes information literacy, the first step is to gain campus support and consensus. Creating a committee comprised of key campus stakeholders invites transparency, adds a wide range of perspectives, and builds buy-in. The committee can include student services personnel, the writing center, library staff, information technology staff, faculty members, students, facilities staff, and fundraisers. Each of these representatives brings diverse campus viewpoints, and also has specific unit goals that align with the overarching goals of the university. For example, at Purdue University, a key element of the current university strategic plan is "launching tomorrow's leaders," and the Purdue Libraries' mission in alignment with the University focus is to "foster a dynamic information environment that advances learning, discovery, and engagement" (Purdue University Libraries Strategic Plan 2006–2011). One goal in the Libraries' plan is to increase campus-wide information literacy and determine how to change our space to support the information literacy objectives. Planning committee members will have their own unit objectives on how to achieve the university mission of "launching tomorrow's leaders." Information literacy is not a library initiative but an integrated institutional commitment. Bringing together planning committee members from different perspectives, particularly those involved in student academic success and retention, ensures that the learning commons space will meet the goals of the campus community.

It can be helpful to implement a learning commons "pilot project" so that part of the vision for the space is visible. It wasn't until Phase One of the Purdue Management and Economics Library (MEL) learning commons—called the LearnLabTM—was completed that the faculty, students, and administrators began to understand the reality of the changing paradigm of librarians as teachers in a state-of-the-art learning space. The renovation of this space became an example of libraries transitioning to support student discovery

with information delivery to "launch tomorrow's leaders," Purdue University's strategic mission. The intent of the MEL strategic unit plan was to support the University vision by fostering a dynamic information environment that advances learning, discovery, and engagement.

нк: The practicing librarian can reduce or eliminate "one-off" or "oneshot" instruction sessions. It is more effective to use the library's time and resources in embedded librarianship, information literacy for-credit courses, partnership in curriculum development to create appropriate assignments using resources, and co-teaching class sessions. From my perspective as an instructor, I can supply the library administrator with examples or case studies of the effectiveness of information literacy instruction. It is crucial for the instructor to gather data and anecdotal evidence to support an information literacy program. The information gathered should include measures of impact on students as well as perceived impact by academic faculty. Since I work closely with the teaching faculty, I can identify the faculty members who might be "champions" for the development of an information literacy program and the spaces that support it. This can be extremely beneficial for administrators as they begin to develop consensus and buy-in from the key players. An example of this has been my ongoing relationship with a professor in the Krannert School of Management. Our relationship began with a collaboration to support the Business Opportunity Program, which focuses on high-achieving students from underrepresented groups. This collaboration led to a campus award for innovative instruction. It also led to an innovative instruction presentation for another department. My work with the professor involved him as a stakeholder in the development of the LearnLabTM. He uses it for information literacy and as a teaching environment for his other management and information science courses.

To what degree should people outside the library be involved with the planning and management of a commons that focuses on information literacy and student learning?

sw: One way to classify learning commons is by the degree to which they are integrated with the campus, or the degree to which they are institution-centric versus library-centric. According to Bailey and Tierney, Level 1 is an adjustment to the library (including a computer lab with productivity software). Level 2 adds some resources and services to Level 1, such as multimedia software, services, space and staff integrated with the library, altered services, and alignment with the institutional mission. Levels 1 and 2 are library-centric. Level 3 includes Levels 1 and 2 as well as major changes that integrate activities beyond the library, such as a faculty development center, thus increasing collaboration. Level 4 results in transformational change, greater integration, and inclusion of more institutional functions. Levels 3 and 4 are institution-centric, not library-centric (Bailey and Tierney 2008, 3). The degree of involvement of people outside the library

would depend on the level of learning commons desired. With each progressive level of learning commons, more collaborators outside the library are needed. Collaboration can be differentiated from networking and coordination as "a more pervasive, long-term relationship in which participants recognize common goals and objectives, share more tasks, and participate in extensive planning and implementation [...] It is a more holistic experience in which we are committed to the enterprise, the relationship, and the process" (Raspa and Ward 2000, 5).

TD: There are likely to be people outside of the library on campus who are knowledgeable and enthusiastic about information literacy and about the learning commons. They may not use those terms, but they may identify with phrases such as critical thinking, lifelong learning, or continuous and persistent learners. They may have worked at or visited other schools that had learning commons and/or strong information literacy programs. These people can be champions for such a project on your campus.

Purdue University is unique in that we have an endowed chair in information literacy. She networks across the campus to build important relationships where no direct responsibility is assigned for library liaison work, such as interdisciplinary centers, academic deans and associate deans, other institutions of higher education, and the community. The information-gathering and networking she does reveals that many faculty and administrators on our campus have a strong understanding of information literacy and a deep desire to support innovative ways to facilitate student learning. Many faculty are developing information literacy competencies in their students without involving librarians.

HK: It is very important that people outside the library are involved in the planning and management of the commons. Liaison librarians can engage the faculty in the academic departments to which they are assigned. The library dean or director who is committed to the concept of a learning commons and has a passion for information literacy can use every opportunity to communicate with other deans and university administrators, donors, and trustees. This reinforces the message that the library's constituency receives from the librarians.

What are pitfalls that can cause a learning commons not to focus on student learning and information literacy, but rather on more tangible features, such as technology, furnishings, and the ubiquitous café? How can the pitfalls be avoided or overcome?

sw: The library's organizational environment and culture affect the acceptance and full engagement in the planning and implementation of a learning commons. The shift from a library that is a repository of books to one that is a campus center for learning is one that can be difficult. To adapt readily to the changes implied by the implementation of a learning commons, a library organization should be dynamic and flexible. Staff should enjoy new ideas

and have confidence that they can incorporate changes. Such an organization places the user first and encourages staff learning (Weiner 2003, 76).

Bailey and Tierney refer to two pitfalls as a "resistance culture of limited responsibility" and a "chauvinist culture of expertise" (Bailey and Tierney 2004, 283). The former is an attitude of territoriality on the part of staff who provide services through the learning commons. Bailey and Tierney admit that this is difficult to overcome, but that long-term training of staff to be collaborative and educating patrons to expect collaboration may resolve this issue. The latter assumes that only an expert should provide help to library patrons. This is a form of "anti-information literacy!" An underlying principle of information literacy is that it is a basic human right (IFLA 2005). Therefore, all staff and patrons can learn how to find, use, and communicate information. This issue can be minimized or overcome by cross-training staff and by clarifying when it is appropriate to refer questions to the experts (Bailey and Tierney 2004, 283–84).

On college campuses, there is always competition for scarce resources. Potential partners might feel threatened by the possibility of having to give up resources, space, or part of their identity. Or they might want to participate in a learning commons because they feel it would be the politically wise if the commons is getting attention from high-level administrators. This pitfall can be avoided by building trust through relationships before learning commons planning starts.

Some librarians may be concerned about the consequences of a successful learning commons. They may fear that the volume of work generated might overwhelm existing staff. The way to overcome this barrier is to foster an organizational culture that accepts continuous change. In this type of culture, change occurs through an ongoing process of assessment and planning. Staff engage in continuous learning that increases their expertise and confidence in adapting to change (Lakos and Phipps 2004, 359). As change occurs, some tasks become obsolete and new ones are adopted. A system of evaluation ensures that the work performed is that which contributes most to the institution's mission and the library's clients (Bracke et al. 2007).

TD: From the administrator's perspective, these pitfalls can be avoided or overcome by engaging all of the stakeholders in the planning process from the beginning. Articulate regularly to students and other stakeholders that the commons is created for students and exists to support student learning. An administrator should continually articulate the vision and defend decisions from the *user's* point of view. An administrator should emphasize that the space and what's done in that space will *continually evolve*, thereby resulting in ongoing evaluation of the space and how it is used. Adjustments will be made based on those evaluations. Those adjustments may require additional resources. In the early planning stages of the commons, the administrator must articulate the importance of maintaining an effective learning space over time. This will require a long-term commitment of

funding resources to support technology enhancements and to continually create an attractive space that contributes to a successful student learning experience. If the vision of integrating information literacy programs into the learning commons is not communicated clearly, the commons may be viewed as a computer lab. It could become only a place where students go when they do not have their own devices to complete their work.

Compartmentalized services is one model for a learning commons that does not transform a library or campus and is not as efficient or user-oriented as integrated services. The objective is a seamless user experience at the basic level of service. This requires that all staff involved (i.e., reference, information technology, writing support, media, etc.) learn more about all of the functions and services. This provides an opportunity for staff development that has the benefits of improved user-centered services, better organizational buy-in, greater competencies among staff, and increased internal collaborations between campus units. Ideally, staff will become role models for continuous, lifelong learning in a learning commons.

HK: It is easy to plan for the tangible features of a learning commons within a space; they are like pieces in a dollhouse. The pitfall is losing sight of how exactly the space will be used and what the underlying purpose of the space is. There must be reinforcement of the vision during the planning and implementation stages so that the purpose of the space and the activities that take place within it drive the tangible features. Keeping the participants informed and involved throughout the development and execution process can ensure that the goals for the space remain on target. Training those who will teach in the learning commons space will help to maximize the use of the space for the purpose for which it was intended. Teachers will need to learn how to use the technologies and also how to construct course assignments and presentation of new material in a space that is conducive to group learning. Students will also need to adjust their thinking as opportunities arise in the space. The importance of discovery within the area will allow for organic growth to take place, from high-tech classroom space to group study/meeting space to individual space for quiet study or contemplation to integration of other areas with campus partners.

What is an example of the ideal learning commons that focuses on information literacy, pedagogy, and student learning?

TD: The ideal learning commons is an inviting, attractive environment with spaces that are conducive for individual quiet work as well as group work. Since students can spend many hours engaged in such work, the commons would have a café located within it or nearby. The commons would have well-trained staff available to help students with the spectrum of information literacy competencies: define information questions, find information to answer those questions, critically evaluate the information, and ethically use and communicate the information.

The commons would have librarians and other staff and faculty who are experts in pedagogy and can apply different pedagogies to the various learning styles, needs, and activities occurring in the commons. A "blended librarian" who has specialized knowledge of librarianship, instructional development, and instructional technologies, is highly desirable. The commons would have a program evaluation plan. The plan would be based on the intended outcomes for the learning commons. There would be a management structure that would reflect the diversity of services available through the commons, and that structure would maintain an awareness of current practice and the literature on learning commons. It would oversee evaluation and assessment.

The commons would be a place that meets the needs of your institution (there is no single, "correct" template for a successful commons). At Purdue, the ideal learning commons will incorporate the library and other academic service units into one place that includes the Writing Lab, Center for Career Opportunities, Digital Media Learning Center, and other potential partners. Students will have ready access to staff and faculty who can support the services and learning needs of the users. They must be excellent resource people who understand and can convey to others how to manage information. They should have excellent technical skills, as well as the ability to access, retrieve, communicate, and disseminate information.

A good learning commons needs to have excellent technology resources. The Management and Economics Library (MEL) at Purdue is transforming its services and space to provide optimal support for student learning on campus. The focus of the transformation is the LearnLabTM, a new state-of-the-art learning commons. Steelcase Furniture designed the LearnLabTM as a classroom of the future designed to support multiple learning styles and to allow smooth transitions among lecture, group work, and individual presentations (Steelcase n.d.). Purdue strives to prepare students to be effective in the workforce and to be capable of continuous learning throughout the lifespan. The MEL learning commons is designed to support that mission through its emphasis on collaborative learning, information and communications technology (ICT) literacy, and the use of technology for learning.

HK: The ideal of a learning commons is a mix of functionalities that seamlessly fits into the lives of students. The library is the core function, yes, but other services and opportunities for learning and discovery are also important. As the primary user and proponent of the MEL LearnLabTM, I would argue that MEL is not yet close to an ideal learning commons. Since phase 1 opened only in the fall of 2009, it is only halfway there with a quiet study room, individual study rooms, and the LearnLabTM. We haven't yet begun to integrate additional services and functionalities in the adjacent space. Phase 2 will move MEL further along the continuum toward a learning commons, with a partnership with the Management Communications Center at the Krannert School of Management and a flexible group work area and

rooms. MEL is already seen as the "3rd place." The students view it as different and separate from the classroom or living space. The more we can integrate our space and services with other services on campus, the more relevant the library will be on campus. A course project at the University of Wisconsin—Madison explored the concept of the library as an important "3rd place" (UW-Madison College Library 2009).

How can a practicing librarian promote information literacy, pedagogy, and student learning through a learning commons?

HK: The entire environment of a learning commons should engage, entice, and excite students and faculty to learn and explore. Librarians must interact in the space in ways that effectively display it so that students will begin to imitate and extend the actions. Examples of interactions include presenting focused workshops utilizing unique presentation tools such as Wix (http://www.wix.com) or Prezi (http://prezi.com); promoting the tools and techniques to faculty; and developing interactive assignments that utilize the tools and space effectively. The LearnLabTM has served as the setting for numerous demonstrations and workshops on a variety of topics related to information literacy. In addition to these specific information literacy events, there have also been several gaming activities to attract students into the space. The mix of instruction and play has been a valuable combination to draw students in and motivate them to return for their own learning needs.

Librarians who teach should continue to learn and use innovative instructional techniques. They can then transmit these techniques during "train the trainer" sessions. Identifying best practices for other instructors teaching in a learning commons space will assist them in becoming flexible and creative. The traditional method of teaching by lecturing to students who take notes and memorize is a model that is not suited to a learning commons.

TD: Students who visit a learning commons see the technology, but they may not understand what they can do with it. Visual cues and signage can inform students about the services and resources available to help students engage in the space more quickly and more confidently (Lippincott 2006). Having multiple functions in a learning commons creates new ways of delivering pertinent information. One example in which students have been quickly engaged in learning is to discover relevant career resources that help them prepare for their job search, job fairs, and the interview process. Librarians at MEL partnered with the campus Center for Career Opportunity, which was offering workshops to prepare students for job placement. The center and the librarians created a wiki with useful library resources that linked directly to the library databases to provide real-time information about the companies recruiting on campus, such as a SWOT (strengths, weaknesses, opportunities, and threats) analysis, financial data, and peer experiences about the company—information that is not available on a company Website. A variety of career workshops was developed incorporating the career wiki with the tagline of "Do the research, land the job." As a result, the Center for Career Opportunity has become a key stakeholder in developing a campus Learning Commons (Dugan et al. 2009).

Faculty are stakeholders as well. Their concerns about the development of a learning commons are likely to be

- How the space will impact their teaching
- What benefits result from using new technologies to enhance student learning
- How steep the learning curve is in becoming proficient in the use of emerging technologies
- What risks exist for integrating new teaching methods that are supported in a learning commons

Practicing librarians can introduce stakeholders to the technologies and capabilities of the learning commons. They can invite faculty to observe the teaching techniques and strategies that are possible in the new space. When they see students truly engaged, they may be motivated to "take risks" and try new ways of teaching. These are very important considerations because time and effort are involved in developing new course materials. Instruction librarians can support and partner with teaching faculty by collaborating in the classroom and designing useful information literacy assignments and team projects. They can develop information sessions for faculty that encourage them to explore ways to integrate new pedagogies into their curriculum.

What teaching techniques and methods are best suited to the learning commons environment?

sw: The literature indicates that a learning commons space itself can be a change agent and can change practice (JISC 2006, 30). A successful commons incorporates pedagogy (Hunter 2006, 79; Radcliffe 2008; Weaver 2006, 112, 121), and it can inspire the creative use of teaching techniques that will optimize the advanced technologies. However, integrating the learning commons with the learning that occurs through student coursework is "the hardest and most fundamental challenge ahead [...] Teachers need continuing support to promote and incorporate the development of independent and collaborative learning in the curriculum and the related role of the Learning Commons" (Keating et al. 2008, 320).

Pedagogies appropriate for cooperative learning ensure that students actively construct their own learning. There is a social atmosphere of collaboration and respect for differences. Students learn group processes, problem-solving skills, and research and inquiry strategies (Ahrends and Castle 2002, 1184–85). Students develop an understanding of their individual strengths and weaknesses. These skills are the foundation for lifelong learning (Coffield et al. 2004, 1). Co-teaching, or collaborative teaching, is a strategy to consider, as "professors who co-teach learn from each other and

change their teaching strategies as a result of participation in a collaborative process" (Nevin et al. 2009, 573).

TD: An administrator can set the stage for understanding that the learning commons mixes academic needs with social activities. Games can be vehicles for learning, too (Dickey 2005). An administrator can ensure that the workstations in the environment have the necessary software, hardware, and technology to do *all* of the things students want and need for formal and informal learning. Informal learning engages students to discover and learn about topics not necessarily related to class assignments. This promotes self discovery, which can motivate the student to pursue persistent learning throughout her/his life.

HK: Teaching techniques that are more interactive and more hands-on are best suited to a more advanced classroom. The challenge and opportunity is in connecting with students who are textual learners rather than graphic learners. Recently, I adapted an assignment from one that involved individual learning into a team-based, and then student-led, activity. There is controversy about whether problem-based learning increases critical thinking skills (Sendag and Odabasi 2009; Smith Macklin 2001). However, in my experience, using a variety of problem-based learning tasks, group exercises, and greater emphasis on students' involvement in the teaching and learning process can be engaging and successful. The fluidity and interconnectedness of the different functions of the learning commons require a level of flexibility and creativity not found in traditional library settings. Those who teach in a learning commons need to be comfortable with risk-taking. They need to realize that there is not one "right way" to teach in that environment. The environment is malleable, and one's teaching must be malleable. One's teaching style evolves over time, as one uses the commons and considers the possibilities for guiding learning.

What's the best plan of action to engage all stakeholders to promote consideration of pedagogical approaches through the learning commons?

TD: The expectation of building a learning commons comes with the requirement of assessing the value of the space to the stakeholders. Developing a mission/goal statement for the learning commons that contains the expectation of exploration of new pedagogies and willingness to share lessons learned about the space is a requirement! Assessment through focus groups and surveys would be expected. Administrators can promote and market the space and learn how it impacts teaching changes and curriculum development.

What recommendations do you have for practice when integrating information literacy into a learning commons?

ALL: A learning commons space is continually evolving and adapting; it should be designed to be dynamic. Such a space requires resources,

assessment, and planning that is user-centric and institution-centric. Involving users and other stakeholders in the planning develops stronger buy-in and creates an environment where there is a level of energy and excitement from participants as they imagine the possibilities. Expect and solicit continuous feedback. "Effective evaluation that is thoughtfully designed and tailored to local institutional contexts can enable us to assess impact on learners and learning, inform and influence future plans and provide a closer understanding of the relationship between spaces and learning" (Roberts and Weaver 2006, 105). An assessment framework should be tailored to the specific context but could consider the following (adapted from Hunley and Schaller 2006):

- The space being assessed (who interacts with it, its purpose, i.e., formal or informal)
- Person-environment interaction (how does the environment encourage or constrain engagement?)
- Learning outcomes ("students will be able to . . .")
- Engagement (the relationships between the environment and individual and the involvement of students in learning activities could be measured)

Longevity of the space must be maintained. A learning commons space is not created and then completed; it is a continually and often organically developing space. It is important to establish a source of ongoing funding (Bailey and Tierney 2008, 124–45). Ongoing funding will support the new iterations and uses that develop after initial implementation.

Integrating the information literacy component must remain paramount as new technologies and services are added. If the potential additions do not strengthen or extend information literacy then these should *not* be considered a priority.

What recommendations do you have for further research about the learning commons and information literacy?

ALL: Clearly, there is a need for research to understand the link between learning commons and student learning (Chang et al. 2009, 5; Keating et al. 2008, 320; Oblinger 2005,18; Powell 2008, 29; Savin-Baden 2008, 225; Sherman 2008, 60; Stuart 2009, 8; Wong 2009,180). One of the benefits to a learning commons can be its role as a *research environment* to determine optimal forms of learning and academic achievement. One theme of this article is that collaboration is foundational to a successful learning commons. However, there is little research to provide us with an empirical basis for understanding the factors that contribute to successful collaborations with faculty and staff (Cook 2000, 20). Another area for research is the continually evolving nature of learning commons. What characteristics of the organizational structure of a learning commons promote ongoing assessment and

change? There need to be further studies on the strategies that are most effective to teach those who teach in a learning commons about relevant pedagogies and technologies.

The 2010 Horizon Report Preview identified the need for research on the ways that emerging technologies can be a means to achieve institutional goals (New Media Consortium 2009). A more specific research topic related to this recommendation is how a learning commons that uses emerging technologies to develop information literacy can help to achieve institutional goals. In the area of new literacies, there is a need for research that maps the field and identifies emerging practice and forms of communication and related behaviors (New Media Consortium 2005). A research topic to be explored is the relationship among multiple intelligences, information literacy, and the learning commons as a place that supports different learning styles and preferences. Other topics that would contribute significantly to the research literature area include:

- The aspects of learning that the space and technology foster (Powell 2008, 29)
- The impact of new learning spaces on the practice of teaching (Chang et al. 2009, 5; Haggis 2009, 381)
- A comparison of student learning and information literacy in the learning commons with other spaces in the library (Silver 2007, 83)
- Whether collaborative learning spaces promote the type of social, multicontextual learning that is important in the workplace (Nielsen 2008, 68)

Conclusion

This paper explored relationships among the learning commons and student learning, pedagogy, and information literacy. It provided three different but interrelated perspectives on the topic: the scholarly perspective, administrative perspective, and perspective of the practicing librarian. It provided recommendations for practice and showed the need for research about the role of the learning commons and information literacy.

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