Evolving Library Space & Services: Applied Nexus Learning

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ABSTRACT

Academic library designs evolve to match the educational philosophy and practices of their home institutions. Nexus Learning – our university's signature pedagogy – actively engages all learners in a collaborative approach to solving real-world problems and uses a humanistic approach to designing effective solutions. Three student teams used this methodology to assess the current use of a large, primarily undergraduate library and propose a re-imagined library space that meets the needs of the current academic community.

INTRODUCTION

Throughout history, libraries have served as a source of knowledge and a space for learning. Existing in civic, sacred, and academic settings, libraries have collected, organized, and made accessible humanity's experiences and dreams. At most US academic institutions, libraries exist in the literal center of campus, demonstrating their value to the university at large and emphasizing their need to support all of the different academic programs.

Today, libraries find themselves at a crossroads. Long-time champions of access to information and leaders of digitization, libraries have made such progress in these areas that the act of coming to the library for resources is no longer necessary. We find our service needs shifting: from being a warehouse that hosts resources to providing a staff who offer learning and research skills and an environment that supports active group learning.

This paper briefly reviews the literature on current adaptations that academic libraries are undertaking to support the changing instructional demands in higher education and describes initial steps completed for re-imagining the library environment. Our approach to new possible designs for the library is unique by engaging students formally in a combination of course capstone projects. Students were both the target population for use in the redesigned space as well as the space designers.

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BACKGROUND

In 1969, when Robert Taylor was director of the Harold F. Johnson Library at Hampshire College in Massachusetts, he said, "a library can no longer be a sophisticated warehouse storing and dispensing knowledge to students who happen to come through the door. … [It] must be the center for the creation, use, and distribution of knowledge in a variety of media, communications-oriented rather than book-oriented," according to Jennifer Gunter King (2015) in her paper "Extended and experimenting: library learning commons service and sustainability" (p. 265). Taylor's statement was a call for re-imagining how we engage with our community, not to focus on how or where our information resources are located but how the library should function as a source of learning and knowledge creation.

Fifty years later, the academic library literature documents many libraries that have gone through one or more revisions to their physical space. Examples of these changes include: improving access through designing what we called information commons, building instructional and small group spaces within the library to support collaborative learning assignments, developing maker spaces, and bringing various student support services into the library. These changes have the goal to improve how libraries serve the learning and informational needs of their users, in both intentional and serendipitous ways, or as Mathews (2016) describes it: "We're in the business of fostering happenstances as well as structured encounters. We bring people and information together so they can create and experience things that otherwise would not have been possible – or even imaginable" (p. 151).

From that perspective, we can learn from the environmental design and built environment professions whose research has led to concrete, actionable recommendations, such as determining the shape and size of tables that optimize desired learning activities and optimize space (Veatch, 1987). To learn how collaboration among these professions could enhance contemporary library design, we engaged two courses at our university to investigate library design and service needs of the students, faculty, and staff as their course capstone projects.

CAMPUS ENGAGEMENT

Historically, Thomas Jefferson University (TJU) was an academic medical center with a campus in the center of Philadelphia that has a long history rooted in the graduate health sciences.

Philadelphia University was on the city's outer edge has a long history rooted undergraduate education, particularly design. In 2017 these two universities merged and are now known as Thomas Jefferson University. The East Falls campus, formerly Philadelphia University, has a long history of applied research and had experienced success with a signature pedagogy known as Nexus Learning. Nexus Learning actively engages all learners in a collaborative approach to solving real-world problems and uses a humanistic approach to designing effective solutions.

Shortly after our two universities merged, the first author reached out to the second author to explore applying a Nexus Learning approach to a redesign of the East Falls library, noting the wish for renovations that better suits the changing needs of student learning and opportunities for engagement with a library space. Together, we decided to engage one of the second author's business courses to assess current faculty and student use of the campus library and envision possible library redesigns based on their findings. The second author recommended including another course and instructor who has expertise in branding and consumer experience.

In 2018, graduate and undergraduate students enrolled in the Qualitative and Quantitative Marketing Research course (iMBA-762 taught by the second author) and the Interdisciplinary Integrative Project course (DECGEN-480 taught by another instructor). The combined courses divided into three teams and observed existing East Falls Gutman Library usage, interviewed faculty and students about what they come to the library to do, and asked what changes might increase their use of the library. The teams then visited the Scott Library, remodeled in 2012, at Jefferson's Center City campus. The Scott remodeling was the result of operational changes to focus on electronic access, acknowledged the campus need for collaborative group spaces, and more study spaces for students. Here the student teams repeated their observations and interviews with students and faculty.

Following this current use and needs assessment phase, each of the three groups began working on design plans for a re-imagined library. In addition to drawing from the information that they had gathered, the students also received guidance from the course faculty members, interviewed the University Libraries Director (Frisby) and the library operations directors from the Gutman and Scott Libraries, and reviewed the literature on library designs and remodeling. Each group then completed the assignment by giving a formal presentation and

design proposal to an audience that included the library's leadership, the college dean, and representatives from facilities planning, institutional advancement, and the provost's office.

LEARNING OUTCOMES

The students' design plans qualified as their course capstone project. The college-level capstone project rubrics were used to assess each project and set expectations that include: defining the problem, identifying multiple solutions, evaluating potential outcomes from each possible solution, identifying and analyzing interdependencies, and considering ethical and empathic implications in research. In addition to satisfying the college-level requirements, course-specific learning outcomes include: synthesizing course concepts into solutions to address the client's objectives, taking an iterative approach to ideation and problem-solving, functioning in multi-disciplinary teams, defending the efficacy of actions, plans and conclusions presented, and presenting the project results.

Students were assessed by faculty, with input from the library directors, and received peer evaluation of the amount of effort each member of the team contributed. An example of the group evaluation rubric is Figure 1. The college capstone rubric is Figure 2.

Table 1 Group Evaluation Rubric

Criterion	4	3	2	0-1
Effort	Produced additional resources for the group; extraordinary effort demonstrated; attends all team meetings	Fully prepared; completed all agreed tasks; competent, but not extraordinary; makes almost all team meetings	Minimal preparation; superficial knowledge of resources; minimal effort; frequently misses team meetings	Little or no evidence of preparation; no effort shown; missing most team meetings
Attitude	Exceptionally positive and constructive; encourages other group members	Positive; supportive; mostly constructive and upbeat	Neutral; neither encouraging nor discouraging; disinterested in the performance of others	Disparaging; negative, withdrawn or belligerent; absent
Contribution	Outstanding contribution; above and beyond; work is	Good quality work; few revisions or additions are necessary	Poor quality work; substantive errors; much revision and	Poor quality; little, if any, contribution to group goals

Table 2 Capstone Rubric

	Mastery	Proficiency	Understanding	Awareness
Define Problem	Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors.	Demonstrates the ability to construct a problem statement with evidence of most relevant contextual factors, and problem statement is adequately detailed.	Begins to demonstrate the ability to construct a problem statement with evidence of most relevant contextual factors, but problem statement is superficial.	Demonstrates a limited ability in identifying a problem statement or related contextual factors.
Identify Strategies	Identifies multiple approaches for solving the problem that apply within a specific context.	Identifies multiple approaches for solving the problem, only some of which apply within a specific context.	Identifies only a single approach for solving the problem that does apply within a specific context.	Identifies one or more approaches for solving the problem that do not apply within a specific context.
Evaluate Outcomes	Reviews results relative to the problem defined with thorough, specific considerations of need for further work	Reviews results relative to the problem defined with some consideration of need for further work.	Reviews results in terms of the problem defined with little, if any, consideration of need for further work.	Reviews results superficially in terms of the problem defined with no consideration of need for further work
Interdependencies: Identification and Explanation	Identifies and clearly explains the interdependent causal relationships in a system as ongoing reinforcing or balancing processes with effects feeding back to influence causes, and causes possibly affecting each other.	Identifies and explains causality in a system as an ongoing reinforcing or balancing process with effects feeding back to influence causes, and causes possibly affecting each other.	Identifies and explains a cause and effect loop once, but is unable to describe the loop as a reinforcing or balancing process over time.	Shows causal relationships as one way, e.g. cause and effect
Interdependencies: Transfer	Transfers understanding of known causality in a system by comparing it to a situation of a different type that operates in a similar manner. Explains how and why the new situation follows the same reinforcing or balancing pattern	Transfers understanding of known causality in a system by comparing it to similar situation of the same type. Explains how the new situation follows the same reinforcing or balancing pattern.	Transfers understanding of a cause and effect loop to another situation in a way that does not follow the same pattern.	Attempts to identify cause and effect loop with limited understanding. Does not transfer to another situation.

	Mastery	Proficiency	Understanding	Awareness
Consequences: Identification and Explanation	Identifies what specific short and long term consequences, intended or unintended, have emerged within a system and explains in detail why these consequences have occurred as a result of specific actions. Identifies how and explains why a proposed solution could potentially backfire. Consequences have occurred as a result of specific actions.	Identifies what short and long term consequences, intended or unintended, have emerged within a system as a result of actions. Explains an example of "the most obvious solution" making a situation worse in the long term.	Identifies short term, intended consequences but cannot identify effects that have occurred or might occur in the long term or results that were unintended.	Explains that actions produce results but cannot identify any specific consequences of a particular action. Identifies at least one "consequence" but does not correctly attribute it to an originating action.
Consequences: Transfer	Transfers understanding of known short and long term consequences by comparing it to a situation of a different type that operates in a similar manner. Explains thoroughly how the new situation follows the same pattern of consequences. Explains potential short and long term consequences as a result of specific actions, e.g. setting and working toward personal goals.	Transfers understanding of known short and long term consequences by comparing it to a situation of a similar type. Explains how the new situation follows the same pattern of consequences.	Transfers understanding of consequences to another situation in a way that does not follow the same pattern of consequences.	Identifies consequences but does not attempt transfer.

	Mastery	Proficiency	Understanding	Awareness
System as Cause: Identification and Explanation	Recognizes and clearly explains relevant interdependent elements of a system including key accumulations and flows, boundaries, inherent time delays, and balancing and reinforcing feedback.	Recognizes and clearly explains some interdependent elements of a system including key accumulations and flows, relevant boundaries, inherent time delays, and balancing and reinforcing feedback.	Recognizes and explains some interdependent elements of a system including accumulations and flows with at least one feedback relationship.	Recognizes an accumulation within a system and names one or more factors influencing the increase or decrease of that accumulation.
System as Cause: Transfer	Transfers understanding of known system structures by comparing it to a situation of a different type that operates in a similar manner, e.g. consequences of a war compared to similar consequences relating to the immune system warding off a disease. Explains thoroughly how the new situation is structured in a parallel manner and thus produces similar results over time.	Transfers understanding of known system structures by comparing it to a situation of a similar type, e.g. consequences of two different wars. Explains how the new situation is structured in a parallel manner and thus produces similar results over time.	Transfers understanding of known system structures to another situation that does not have comparable structures.	Recognizes system structures but does not attempt transfer.
Questions Illustrating Ethical Perspectives/Concepts	Independently formulates questions illustrating ethical perspectives/concepts, and is able to consider full implications of questions.	Independently formulates questions from ethical perspectives/concepts but does not consider the specific implications of the questions.	Formulates questions from ethical perspectives/concepts, but the application is inaccurate.	Formulates with support questions from ethical perspectives/concepts to (using examples, in a class, in a group, or a fixed choice setting) but is unable to apply

	Mastery	Proficiency	Understanding	Awareness
				ethical - perspectives/concepts independently (to a new example.).
Empathy in Research	Interprets intercultural experience from the perspectives of own and more than one worldview and demonstrates ability to create research questions in a supportive manner that recognizes the feelings of another cultural group.	Recognizes intellectual and emotional dimensions of more than one worldview in creating research questions and sometimes uses more than one worldview in research interactions.	Develops research questions that illustrate identification of other cultural perspectives but responds in all situations with own worldview.	Views the experience of others as of little relevance to creating accurate research questions.

Each of the three teams produced different plans for a re-imagined library space. One team's project focused on the use of color to create different moods in the library and to help identify a change in space – for example, moving from an area where the furniture was movable to one with fixed furnishings. Another team's design considered how the library space might integrate student wellness by including an ample café/social space, an integrated outdoor patio space, a meditation/prayer room, and by adding a student emotional counseling service office. The third team focused on remodeling the library design to achieve different LEED levels. Suggestions included modifications to the windows to allow additional ventilation, the addition of solar panels, and water reclamation processes.

The library directors found useful information from each of the team projects and intend to incorporate the findings in their planning with the commercial architect building a formal proposal to the university leadership.

CONCLUSION

The findings from the student projects are consistent with what the library facility literature has documented. While the results might not be novel, engaging students as part of their professional training is. These students evaluated how they and their overall community use existing space and reflected on how to improve it to meet current needs. As universities update their classrooms to

enable active learning methodologies, so too are libraries changing to continue their role in supporting the learning environment of our constituents. Our physical spaces are reducing the print collections or moving less frequently used materials to compact shelving or off-site storage. Our staff are specializing in new areas such as research data-management, leading open educational resource projects with faculty, data visualization, AR/VR, maker spaces, and more. Collaborations between libraries and their constituents, such as the one outlined in this paper, can provide useful insights into redesigning library spaces that reinforce and even increase our engagement within our learning and research communities.

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