

3-27-2015

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Recommended Citation

Urton, Ellen R., Meagan J. Duever, Casey D. Hoeve, Jenny K. Oleen, Livia Olsen, and David Vail. "Leveraging Library Ecology: Growing Beyond Boundaries to Cultivate a Sustainable Knowledge Community Through Team-Based Librarianship." *Creating Sustainable Community: The Proceedings of the ACRL 2015 Conference*, March 25–28, Portland, Oregon. Ed. Dawn M. Mueller. Chicago: Association of College and Research Libraries, 2015.

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Introduction: Team-Based Librarianship

Higher education increasingly challenges libraries to thrive while adapting to fiscal realities, imploring institutions to accomplish more with less, and leverage assets creatively. When competing demands vie for attention, interdisciplinary concepts such as sustainability may be neglected, or simply absent from a library's mission. A team-based community of librarians can galvanize existing assets wherever they reside within an organization. This approach requires that librarians transcend traditional boundaries to reveal untapped or underutilized expertise. Interdepartmental teams within a library can address topics difficult to assign to one designated specialist, and access the education, interests, or networks possessed by multiple individuals across an organization. A matrix model addressing this concept has been administered at K-State Libraries, and the following paper provides expanded insight into how such concepts have been handled within the organization.

Literature Review

The use of matrix organizational structures has evolved

and transferred among several industries, most recently adopted in the library and information science profession. Matrix management originated in the aerospace industry in the 1960's, as an innovative response to functionally combine specialists for the completion of projects, without necessitating the hire of additional workers to serve as communicative liaisons.¹ Similar practices migrated to other technical professions centered upon solving complex projects and using team efforts to employ expansive fields of expertise. Healthcare and engineering fields readily adapted these practices in the form of the "project matrix," allocating more responsibility to matrix members, in which "functional managers only assigned resources for the project and provided technical consultation on an as-needed basis."² Libraries realized the possibilities of the matrix system in the 1990's, as budget reductions created a need to rethink divisions of labor, and how to maintain a service-oriented industry with diminished funding and staff. Peggy Johnson analyzed the matrix concept of the previously mentioned industries, and extrapolated its application in libraries' organizational systems.³ Although this organizational structure did

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not appear to gain momentum at the time it was identified, within recent years more libraries revived this concept to address service and budgetary gaps.⁴

The identification of matrix-like structures is often lost among variants of terminology used in the library and information science profession, such as team-based and group-based librarianship. The term “team-based librarianship” itself encompasses a variety of definitions, either referring to a small group temporarily assembled to implement a new service⁵ or address a specific problem,⁶ or be discussed in conjunction with “embedded librarianship.”⁷⁻⁹ Additionally, the structure of library teams can fluctuate, and can expand beyond a single library into multi-institutional projects incorporating skill sets among many librarians.¹⁰ However, the most conventional form of the matrix and/or team-based librarianship approach has been employed by the University of Guelph Libraries,¹¹ the University of Arizona Libraries,¹² and Kansas State University Libraries.¹³ The adoption of team-based practices for these libraries resulted from reorganization and a recognized need for change.^{14, 15} Matrices in these institutions have produced teams that are subject-based, problem-based, task-based, which inspires creative thinking about what academic libraries can be or achieve.

K-State Libraries Matrices

In 2010, K-State Libraries implemented a reorganization that replaced the subject librarian model with roles defined by patron groups, and instituted library “matrices” as a means of applying team-based librarianship to combine specialized knowledge. K-State Libraries conceived the matrices “as functional, ad hoc groups, for the purpose of addressing interdisciplinary challenges and interdepartmental collaboration...while maintaining a large degree of autonomy in everyday activities.”¹⁶ This led to the formation of matrices largely defined by broad fields of study such as arts, humanities, social sciences, and sustainability. Each self-governing matrix operates within the parameters set by that team, towards achieving a unique set of goals. Participants join matrices in consultation

with supervisors and are granted the time to contribute to meetings and team ventures.

New Opportunities: The Sustainability Matrix

In 2011, two K-State Libraries colleagues proposed a team to investigate sustainability within the libraries, university, and Manhattan community. Although each encountered the topic daily, neither felt equipped to sufficiently address it alone. The Sustainability Matrix began with a simple charge: discovery. Aiming to “enhance the opportunities for librarians to add value to library resources and services, and advocate for sustainability education,”¹⁷ Sustainability Matrix members began by helping one understand sustainability. Cold and Urton initiated the Sustainability Matrix through embedded librarianship: embedded in both a sustainability-focused curriculum and within select groups on campus and in town. Having identified sources of information and willing collaborators, they sought to expand membership and connect with groups addressing sustainability education on campus and the extended community. They believed that “by approaching sustainability at KSU holistically rather than focusing on sustainability education within just one unit or college, the Sustainability Matrix could reach sustainability initiatives wherever they exist.”¹⁸

Since then, Sustainability Matrix membership increased to include nine members from five library departments: Content Development & Acquisitions, Scholarly Communication & Publishing, Faculty/Graduate Services (including the Engineering and Math/Physics branch libraries), Special Collections & University Archives, and Undergraduate & Community Services. K-State Libraries matrices serve multiple purposes, such as retaining discipline-specific knowledge of former subject librarians through the Arts Matrix¹⁹ and creating community around significant discipline-based projects as exemplified in the Agriculture/Biological Sciences Matrix.²⁰ Similarly, the Sustainability Matrix provides a platform to share information and seek collaboration between individuals from across the Libraries, facilitating opportuni-

ties to partner on projects within the library system. This group also fosters discovery of patron needs associated with sustainability, developing new conduits for contributing library expertise to patrons directly.

Advantages: Discovery & Prospecting

Sustainability Matrix participants met regularly to share information about local contacts, projects, and opportunities related to sustainability education and research. Cross-training included faculty-led campus field trips to green roofs and a rain garden, and matrix colleagues presented information and observations regarding local student groups, related programs and events, and community organizations interested in sustainability. Members also attended campus lectures hosted by the APDesign College, and the Natural Resources & Environmental Science Seminar Series²¹ addressing sustainability in architecture, sociology, engineering, geography, biology, and similar fields, highlighting the importance of the topic at K-State. Additionally, an investigation of courses pertaining to sustainability and environmentalism revealed that sustainability appeared too often in the curriculum to effectively provide support on a course-by-course basis. As a result, matrix members created an online library guide²² to facilitate sustainability-related teaching and research, actively promote library expertise in the field, and reach out to campus and community groups.

While effectively connecting with K-State instruction and research initiatives, matrix members sought guidance and inspiration from beyond the university. At the state level, the Kansas Association for Conservation & Environmental Education (KACEE)²³ and the Johnson County Community College's (JCCC) Center for Sustainability²⁴ provided active and engaged sources of expertise. The local and regional leadership found in KACEE and JCCC benefited members at K-State despite differences between universities, funding models, and curricular emphasis of the K-12 and community college environments. For national and international trends, the American Library Association's Sustainability Round Table (Sus-

tainRT)²⁵ recommended resources for addressing sustainability in libraries in the form of books, articles, websites, blogs, and social groups. In addition, information from the Association for the Advancement of Sustainability in Higher Education (AASHE)²⁶ stimulated conversation about potential avenues of exploration for the matrix. AASHE's Sustainability Tracking, Assessment & Rating System (STARS)²⁷ provided a myriad of examples highlighting academic institutions engaging in and measuring their effectiveness in addressing sustainability.

These sources helped the matrix develop a philosophical foundation with a base of information, opportunities, and ideas that far surpassed individual exploration. With an outlet to share interests with library colleagues, members envisioned the potential to collaborate on content development, faculty liaising, special collections, undergraduate instruction, scholarly communication, and other topics. As each member articulated goals for their unique role within the Libraries and offered personal networks in support of colleagues, they began to assume responsibility for liaising with one or more campus groups. Representing the Libraries and seeking opportunities to both promote individuals and identify opportunities for potential group projects, members successfully emerged as library representatives for campus activities such as: the K-State EcoReps program,²⁸ the annual K-State Dialog on Sustainability,²⁹ the KSU Consortium for Environmental Stewardship and Sustainability,³⁰ and as consultants for the K-State 2025 University Strategic Planning Committee specific to Sustainability.³¹

Challenges: Scope & Change

As members involved themselves in campus and community efforts, additional opportunities arose to eclipse what the team could judiciously address. Adding to the challenge of scope, Sustainability Matrix members expressed their desire to devote additional group attention to greening library operations. Although matrices were conceived as "project teams," the team began to falter without a mechanism for selecting which projects to pursue. The abundance of options

presented a time-management challenge, necessitating the reevaluation of the purpose of the team and the development of a strategy to refocus matrix activities.

Change within the sustainability community at K-State slowed momentum as the matrix strived to center its work. Within the matrix itself, the departure of colleagues adversely affected the knowledge base and shifted the group dynamic as certain connections from the Libraries to the campus and community were lost. Beyond the Libraries, the departure of the K-State Director of Sustainability impacted established networks and left a significant gap in local sustainability leadership. In addition, review and finalization of the university sustainability strategic plan were late to materialize, hindering efforts to base matrix goals in initiatives outlined in the final document. Further contributing to an environment of uncertainty was the proposal of a House Bill in the Kansas legislature, intended to prohibit the “use of public funds to promote or implement sustainable development.”³² These pitfalls resulted in a period of ambiguity about how the matrix should proceed.

Solutions: Anchor & Focus

Following a hiatus, the Sustainability Matrix revitalized efforts to support members and facilitate collaboration. Grounding their work in new sustainability-related goals set by the institution, the matrix revisited the concept in existing official documentation. The team found direction in the Kansas Board of Regents policy on “Sustainability and Implementation,”³³ “K-State 2025: A Visionary Plan for Kansas State University,”³⁴ the “K-State 2025 Sustainability Strategic Plan,”³⁵ and the K-State Libraries’ Strategic Plan.³⁶ Commonalities across these documents helped the group identify ties connecting the libraries to broader initiatives: greening the infrastructure, service-learning, and engagement. Most importantly, the Kansas Board of Regents provided a definition of sustainability applicable to K-State as a regent’s institution:

“...sustainability shall mean society efforts to meet the needs of present users without com-

promising the ability of future generations to meet their own needs. Sustainability presumes that the planet’s resources are finite, and should be used conservatively, wisely and equitably.”³⁷

Although this definition assisted the group in further concentrating their efforts, members found additional guidance from the K-State Center for Engagement and Community Development (CECD). The CECD provides resources for identifying, implementing, and promoting favorable alliances with a mission to “promote engagement across the breadth of our campus—in teaching, research, and outreach—and to connect the vast resources of K-State to the significant issues of public need facing Kansas and communities worldwide.”³⁸ The CECD also defines engagement as, “a form of research, teaching or service in which collaborative efforts between university and community stakeholders result in scholarly activity and community benefit around a public issue.”³⁹ The Sustainability Matrix follows this guided practice, as it provides a natural connection between pedagogy, scholarship and community. Together, the core concepts of service-learning and engagement identified a focus for group outreach, and the green infrastructure theme empowered leadership within the library system. These parameters enabled the matrix to serve as a forum for individual contribution and discovery, as well as a framework for project selection.

The matrix also sought precedents for effective team-building and wished to emulate desired characteristics of the K-State Libraries Agriculture/Biological Sciences (Ag/BioSci) Matrix, such as their core principles: subject-based, user-centered, collaborative, voluntary, egalitarian, and social.⁴⁰ As a project-driven work group, the Ag/BioSci Matrix collaborates on everyday issues such as collection decisions, reference, instruction, and outreach. In becoming more project-based, the Sustainability Matrix shifted attention to serve as a linking unit with an inner focus on library issues to potentially impact user groups more relevantly. In this way, the team retained a holistic approach, and avoided scattering their energy beyond

effectiveness. Sustainability Matrix members collaborated on shared projects to benefit individual librarians, further strategic goals for the Libraries and university, and enable the team to reach out to communities invested in sustainability education such as collaborative content development, co-teaching, and shared outreach initiatives.

Green Infrastructure: Collaborative Content Development

In 2010, purchasing decisions were reassigned from subject librarians to the new Content Development (CD) unit created in the Libraries reorganization.⁴¹ Although fewer individuals provide collection development services, there is an enhanced level of collaboration because CD Librarians must communicate with colleagues to gather qualitative data. CD Librarians assigned to the Humanities and Sciences contribute to the Sustainability matrix by facilitating a greater awareness of connections between academic units and discovering common needs of disciplines. For example, discussion within the matrix revealed that the Libraries' subscription to the BuildingGreen database⁴² is utilized by students and faculty in the architecture and design disciplines, humanities, and the visual arts; a broader community than originally anticipated.

K-State Libraries also participate in collaborative content development as responsible stewards of our resources, by selecting sustainable methods for building and maintaining collections. Matrices further this goal by evaluating the cultural and scholarly value of resources, and adhering to subject collection plans to strategically support curriculum and research activities. Pertaining to format stability, the matrix recognizes that usability is critical to collection maintenance, and encourages the selection of industry standard formats. The Libraries also favor perpetual ownership of resources and participate in numerous preservation organizations, such as LOCKSS,⁴³ Western Regional Storage Trust,⁴⁴ and HathiTrust Digital Library.⁴⁵ These organizations add increased levels of access and protection against dissolution of assets in

the information industry. In addition to core collecting and approval plans, patron driven acquisitions (e-books) and interlibrary loan are used to supplement collections. This ensures books peripheral to our collection are used on demand, establishing a balance between need and want to minimize storage costs and increase circulation.

Service-Learning: Co-Teaching & Cross-Training

The current K-State Libraries organizational model encourages librarians to employ the professional expertise of other library colleagues directly, offering greater flexibility and responsiveness. Through matrices, team-based librarianship offers cross-training and co-teaching opportunities to more easily apply the expertise of librarians in functional roles. For example, librarians in the Undergraduate & Community Services (UCS) Department often embed in courses, working in close partnership with teaching faculty to identify unmet patron needs. As the unique or atypical needs of the service-learning environment are discovered, embedded librarians consult matrix colleagues or invite them to provide functional knowledge as necessary. In the case of a service-learning course focused on urban design in the Landscape Architecture program, the embedded UCS Librarian coordinated with the Scholarly Communications Librarian specializing in copyright to help students and faculty navigate permissions, restrictions, and uses of information and images. Likewise, the Data Services Librarian assisted in teaching the class about reliable sources for, and ethical use of, data and statistics as well as data visualization strategies.

These collaborations provided librarians in functional roles with insight into either common or undiscovered needs more effectively addressed from their unique perspectives. In return, the UCS (embedded) Librarian gleaned a greater knowledge of ethical use of information and special considerations related to service-learning. Such instruction-sharing eases the stress of placing multiple topics and responsibilities on the shoulders of one librarian. With the reorgani-

zation and matrix structure, informational needs are more easily delegated between at least three K-State librarians. It also offers students the opportunity to network with multiple librarians with whom they may wish to consult for additional projects. Furthermore, such collaboration provides non-embedded librarians with the opportunity to present information adjacent to their topics that may otherwise be passed over, such as using copyright and open access, which contributes directly to sustainable uses of information.

Engagement: Select Partnerships

K-State promotes a highly collaborative culture of teaching, research, and service that unites humanities efforts with science, technology, engineering, and mathematics (STEM) research projects as well as student-focused learning communities. Sustainability touches all of these topics and informs the teaching, technologies, and trends that students and faculty use in their education and fields of specialty. K-State Libraries act as a conduit for these relationships to foster greater avenues of communication between disciplines. Therefore, collaborations within the Sustainability Matrix facilitate “group outreach” to pursue groups of potential patrons such as K-State’s Students for Environmental Action,⁴⁶ the Movies on the Grass film series,⁴⁷ the K-State Institute for Civic Discourse & Democracy,⁴⁸ and the UFM Community Learning Center.⁴⁹

K-State Libraries’ Richard L. D. and Marjorie J. Morse Department of Special Collections⁵⁰ successfully established connections through the Sustainability Matrix. Providing an interdisciplinary context, the Public Services Archivist linked contemporary ideas about sustainability through collaboration on a Dust Bowl era exhibit. Originating with the K-State Libraries Ag/BioSci Matrix, this project pulled collaborators from the Sustainability Matrix, harnessing the collective knowledge base of librarians and archivists. Course instruction partnerships between library units direct users to primary sources, such as experiment station reports, photographs, and other historically important materials. The use of archival materials

encouraged patrons to develop new perspectives on sustainability, such as the farmer’s view, the agricultural scientist’s view, or, a dust storm’s view. Greater awareness of patron need offered Special Collections additional opportunities to network with organizations such as the Konza Prairie Biological Station⁵¹ and K-State’s Research and Extension,⁵² which possess the resources to distribute sustainable knowledge and practices to every county in Kansas.

Conclusion: Future Goals

Aspiring to lead by example, the matrix hopes to balance goals for increasing environmental awareness within the Libraries against continued support of wide-ranging teaching and research efforts. Library “green teams” appeal to the K-State Libraries Sustainability Matrix as a viable model for promoting the greening of library operations to reduce negative environmental impacts of library spaces, acquisitions policies, and day-to-day library activities. Successful practices established by organizations such as the Loyola University Libraries Sustainability Committee,⁵³ Penn State University Libraries Green Teams Program,⁵⁴ or the Belk Library Green Team at Elon University⁵⁵ have begun to inspire matrix members at K-State. Although the Sustainability Matrix may offer insight into opportunities and resources, the matrix lacks the authority to implement ideas. Moving forward, members will seek approval from Libraries administration to begin a dialogue with the organization’s Building Services unit to discover possible avenues for collaboration. If parameters and an official channel of communication are established, the members could offer appropriate assistance and support in a manner both welcome and manageable for all.

In future, K-State Libraries’ Sustainability Matrix aims to further narrow its focus for greatest impact. With a clear mission, streamlined communication, and collaboration with the K-State Libraries’ Communications & Marketing department, the team hopes to forge new and lasting partnerships and expand matrix membership beyond the libraries. Through advocacy of the matrix, members anticipate more opportunities

to support the university goals related to sustainability and develop strategies for engagement. Beyond the institution, we believe the diversity of thought and success of other organizations can contribute to shared and integrated practices for improved sustainability.

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