UKSG

From transaction to collaboration: scholarly communications design at UConn Library

The University of Connecticut (UConn) Library, in collaboration with the School of Fine Arts and the UConn Humanities Institute and with support from the Andrew W Mellon Foundation, is developing Greenhouse Studios (GS). GS is a scholarly communications research laboratory dedicated to using collaborative models and design principles in the creation of scholarly works. Scholarship laboratories that function as a combination of a scientific research lab and an art studio are a useful means of advancing the methods and outcomes of scholarly communications.

We intend to examine whether flattening hierarchies through the GS model is a significant challenge for librarians who work within transactional models of interaction and are closely tied to faculty-driven service models of research support. Other participants typically thought of as supporting faculty are embedded as equal participants in the design process. We will apply qualitative methods to examine whether the GS design process facilitates development of new models of interaction among faculty, librarians, design technologists and other experts. Preliminary experience finds most participants embrace the collaborative model and are energized by the experience. Our assessment will focus on GS techniques as drivers for role and scholarly output changes, how these experiences might translate into changes in library culture or services, and on practical findings related to space, technology usage and administrative hurdles.

This paper is the result of a presentation delivered at CNI (the Coalition for Networked Information) in early 2017[1] and encapsulates our thinking then and now (in early 2018) as we refine our assessment tools.

Raising the question: libraries, librarians and digital scholarship

How libraries and librarians should participate in the intellectual life of the university has been richly debated for decades – with the intensity of the debate increasing as academia and the world moved from a print-based culture to a digital one. It is now well understood that this change was more than a change in format; it was a revolutionary change in human communication. Libraries coped with the format change well enough, embracing electronic databases, online journals, e-books, and the like, but were less adept at understanding what the coming of the 'digital library' meant to the library profession and to libraries in general. Libraries were not alone in this crisis of identity. The growth of digital activities in the humanities, for example, also spawned 'digital humanities' (DH) and a debate over the differences between the traditional and the digital in that discipline as well.[2]

The subsequent growth of DH centers in academic libraries further compounded the confusion, as two groups of people unsure of their identities combined to sometimes confuse each other even more about their futures.[3,4,5] DH centers in libraries were often conceived by librarians as service centers where faculty would bring projects and 'get a website built' by the technologically adept. Libraries began to hire developers, web designers and other non-librarian staff[6] to meet this self-created demand. While this movement was not unwelcome, it was a significant step away from one of the traditional core functions of libraries as curated sources of raw materials and repositories of culture and knowledge.
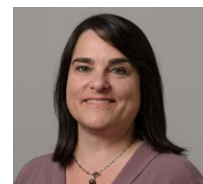
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Further, over the centuries, librarians evolved from protectors of scarce objects to mediators in the search for information when the amount of knowledge became greater than the ability of one person to absorb or know.[7] The mediator role increased as the amount of information increased, librarians created elaborate finding and inventory systems,[8] and librarians came to be seen by themselves as essential filters between the seemingly overwhelming amount of information available and the inundated researcher.

The traditional conception of the librarian as someone who can 'get the right *information*, from the right *source* to the right *client* at the right *time*'[9] served the profession well until online access to resources and the beginnings of artificial intelligence began to provide not only unmediated access to library resources, but, through search algorithms and recommender functions, the information filtering services previously provided by human librarians. As early as 2000, Bill Arms raised the question about the future of the automated digital library and whether librarians as filters would always be necessary: 'The underlying question is not whether automated digital libraries can rival conventional digital libraries today. They clearly cannot. The question is whether we can conceive of a time (perhaps twenty years from now) when they will provide an acceptable substitute.'[10] That 20 years has nearly elapsed and for some, the answer has clearly changed.

Chris Bourg, director of Libraries at MIT (the Massachusetts Institute of Technology), recently posted on her blog a talk she gave at Harvard's Library Leadership in a Digital Age program called 'What happens to libraries and librarians when machines can read all the books?'[11] In that talk, Bourg discussed the impact machine learning could have on librarians, especially reference librarians, and offered the suggestion that rather than oppose the use of algorithms and machine learning, librarians should embrace it and determine how to leverage the fact that machines can 'read all the books' now, and algorithms may be as good as or better than human librarians at creating bibliographies or doing literature reviews.

The filtering function served the profession well before machines could read all the books and search algorithms made that skill less relevant. The technical skills of librarianship, like technical skills in any profession, have always been subject to replacement by tools. This replacement erodes what Richard Mason called the 'power relationship' of the librarians over their clients.[12] The democratization of information discovery and access means librarians no longer hold the keys to unlock the information potential in the libraries of the world.

But, as Bourg says, it would be a mistake to oppose the increasing power of automated technical skills, or think that it means the end of librarianship. As information professionals, librarians have a significant role to play in research in a way that is more than service provider or collection builder, and as Joan Lippincott says, '…working in such partnership relationships, becoming embedded in the mission-critical aspects of higher education – research, teaching, and learning – and infusing librarians' particular expertise, collections, and values into new types of research, is, in fact, a core responsibility of 21st century librarians and libraries'.[13]

In order to meet and succeed in and, better yet, create, this new environment, librarians must look outside the traditional 'hands-off' culture in which they currently exist. Even in this new collaborative era, librarians are often viewed as a support tool brought in for specific duties. A case in point is visible on the One Science Framework (OSF) website. The OSF connects all aspects of the research life cycle with digital tools for seamless management by the researcher and his/her team. To be fair, OSF is a valuable scholarly communication partner; however, notably, the FAQ screenshot depicting the answer to limiting access to the overall project stages to 'contributors' is of a female 'Bibliographic Contributor'.[14]

'librarians evolved from protectors of scarce objects to mediators in the search for information'

'democratization of information discovery and access means librarians no longer hold the keys'

Many libraries are attempting to alter the transactional model. For example, the public service roving pilot program model being tested at Georgia Tech changes the interaction dynamic, but the interaction remains stubbornly transactional.[15] Faculty responses to a 2015 Gale Cengage/American Library Association survey indicate most faculty perceive librarians and the library in a supportive role to their DH work. Only 27% expressed the desire to bring the librarians in as 'a full-fledged project collaborator or participant'.[16]

Answering the question: examining and experimenting

Greenhouse Studios: a program that tests an idea

The vision behind the Greenhouse Studios (GS) is to build a culture of collaboration and, by extension, build a culture of rewarding collaboration rather than individual accomplishment, drawing from design studios, scientific laboratories, digital publishing and, of course, digital humanities. At its core GS is built on the principles of collaborative workflows, equitable labor hierarchies and multimodal expression created in collaborative spaces that persist as part of the scholarly record.

We can use the GS experiment as one way to test how libraries and librarians can become embedded in the mission-critical aspects of higher education at the UConn Library (UCL). A collaboration between the School of Fine Arts, the College of Liberal Arts and Sciences, and the Humanities Institute at the University of Connecticut (UConn), GS is a collective effort to forge diverse collaborations that build humanities scholarship in new formats to engage new audiences. Although funded in part by a grant from the Andrew W Mellon Foundation, GS is a permanently budgeted library program. It is a research laboratory that explores not only new forms of scholarship, but new forms and processes of creating, disseminating and preserving scholarship and, perhaps most importantly, new roles and relationships among those who create scholarship. Its research agenda is a deep investigation into the collaborative, interdisciplinary work processes needed to transform scholarly communications for an age of proliferated modes of expression, dissemination and reception. While that agenda may at first glance seem focused on faculty, it has equally significant implications for libraries and librarians.

'GS is a permanently budgeted library program'

A resumé of the GS design process is given below – see also Figure 1 for the different stages. (This model is explained in more detail on the GS website.[17])
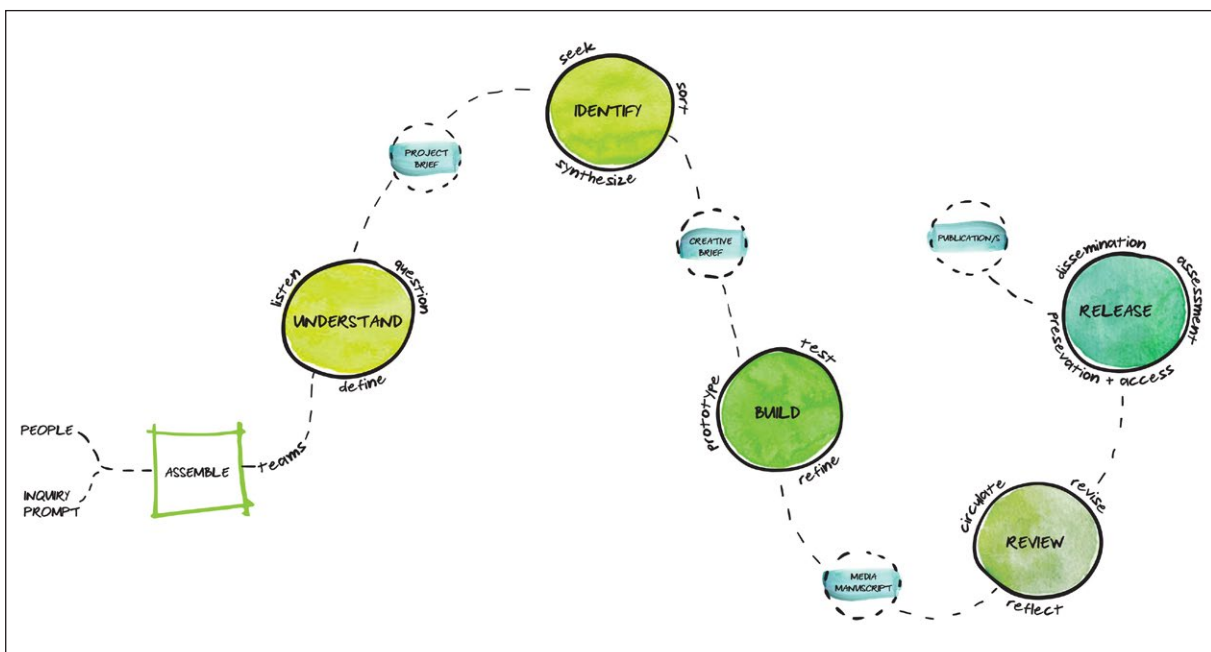

Figure 1. Greenhouse Studios design process

Briefly, the design process begins with a team of people and an inquiry-focused 'prompt' posed externally by GS. It is the externality of the prompt that puts people and collaboration at the center of the GS process, rather than the needs of a particular faculty researcher. Teams are composed of diverse talents, including librarians, faculty, students, artists, developers, acquisition editors and other publishing professionals.

The first phase includes understanding what is involved (collections, technologies, audiences, internal and external funding opportunities) and any constraints (time, money, audiences). The team then produces a *project brief*.

The second phase sees the team expand its thinking by entering a phase of divergent research and ideation in which it identifies relevant sources, knowledge and inspiration, culminating in the production of a detailed *creative brief* that explains in some detail the ultimate product of the team's efforts.

With the creative brief as a guide, the team then enters the 'build' phase, which includes weekly meetings, iterative prototyping, testing and refining of the work, with progress toward a final deliverable in mind. This phase ends when team members agree that the media manuscript is feature-complete and ready for peer review and revision.

> 'the team expand its thinking by entering a phase of divergent research and ideation'

The design process concludes with release of the publication/s and the longer-term work of dissemination, assessment, preservation and access. All members of the project team, including librarians, are active in all phases of the project. External transactional relationships are used only when necessary, and then for essentially administrative functions of the group, such as purchasing or infrastructure support. Otherwise, the team is expected to be internally self-sufficient. One aspect of the hands-off culture that currently remains is the post-design process work of preservation and dissemination. We expect to examine these activities in more detail in the future.

Why UConn Library?

The UCL's vision of itself and its mission to 'create a culture of learning and exploration [in a] multidisciplinary hub of activity' is a driving force behind the programmatic activities such as GS that encourage 'community building, collaboration, innovation, and exploration of new pedagogical and research models.[18] It generates a communications network to collect, share, and showcase new ideas and products' and is an 'inspirational and inventive space that is home to all at the intersection of content and research'.

GS seeks to further break down the power relationships across the continuum of research. The librarian as information broker is replaced by the librarian as information professional with the ability to 'render judgements [about information] in situations that are unique, uncertain, equivocal, and laden with value conflicts'.[19] The traditionally less emphasized side of the librarian's craft turns out to be the side of the craft that is less prone to automation, and more valuable to the modern research environment.

> 'The librarian as information broker is replaced by the librarian as information professional'

Why not a 'digital' research lab?

The decline of the technical aspect of librarianship, combined with the increasing value of the synthesizing expertise of the professional librarian, makes librarians and libraries complementary places for humanities programs. At UConn, we invited the Humanities Institute into the UCL to improve the natural synergies between humanists and librarians, and created the Greenhouse Studios to explore those relationships in greater depth. We purposefully did not include the word 'digital' in the name of the program, or in any of the descriptive and promotional literature. It may seem disingenuous to leave digital out of the title of a program that is so obviously focused on digital outputs and the use of digital technology; however, GS is focused on digital technology only because digital is the place where research is being done today.

At some point in the future, we may be exploring telepathic information exchange, or some other methods that today seem just as far-fetched as sending ones and zeros over invisible carrier waves to flat pieces of glass and silicon that we put in our pockets seemed to people only 20 years ago. We recognize the shifting landscape of research and scholarly expression, and aim to be part of the creation of that new landscape, now and in the future.

'digital is the place where research is being done today'

Methods: or, how are we going to know if it works?

This study will make use of modified grounded theory methodology,[20,21,22] particularly cultivation of grounded theory behind organizational identity and disruption.[23,24] Semi-structured interviews will be scheduled with the Greenhouse Studios Working Group, Steering Committee, and over time (2017–2019) with individual participants in Cohorts A, B, and C. Interviews will be collected and coded using qualitative data analysis software.

Constant comparison of interview coding will occur to ensure consistent coding throughout the project. Responses will be categorized by standard demographic traits in order to facilitate comparisons. The initial interviews will inform a theoretical direction to possible frameworks such as identity development, social construction, intergroup relations, and role conflict. The sample size may reach 50–60 professionals. The potential number of interviewees is five per project. Each of the three GS cohorts will have three to five projects. Some overlap exists between the Working Group and Steering Committee, therefore the number of interviews could reach as high as 70. Potential for varied background and experience in a small, yet diverse, sample size is expected to be high.

Assessment

An abundance of literature about digital humanities or digital scholarship centers in libraries exists in articles, blog posts, reports and book chapters. Often the focus is on history, planning and types of centers,[25] connections between libraries and DH,[26] role changes and overcoming librarian 'timidity'[27], communication,[28] skill acquisition,[29] sustainability[30] and perspectives on service.[31]

As we move from defining and understanding digital scholarship and library partnerships, one area in the literature is conspicuously lacking: assessment. In 2014, Lippincott and Goldenberg-Hart stated the need to learn what types of assessment are taking place at digital scholarship sites and how success is defined.[32] A recent article by Green outlines digital pedagogy assessment strategies.[33] Maron and Pickle wrote the most comprehensive overview of DH models, funding, value and sustainability.[34] With these exceptions, very little has been written to guide overall program assessment and even less examining the relative effectiveness of design models and impact of participant hierarchies throughout the project.

'one area in the literature is conspicuously lacking: assessment'

Expected outcomes for the GS method and cohort experience

While the activities of the GS teams produce the intellectual and scholarly outputs that are part of the scholarly record, a product of GS is a community of differently trained and experienced, interdisciplinary collaborators comprised of faculty, librarians, designers, developers, students and others at UConn, along with colleagues from the publishing community and other institutions. Our expectation is that this community, with its collaborative ethos, will have developed new understanding and appreciation of their own, and other cohort members', professional identity. The community will continue to grow as more and more alumni of GS teams move out into the academic world, spreading the collaboration-first approach.

To determine the validity of our expected outcome, assessment will track perception of individual contributor *role and experience* before, during, and after participation in a GS cohort. We will examine *relative adaptability and acceptance* among participant types to the *prompt-driven* (i.e. not faculty-driven) *collaboration-first* (i.e. equality of team members)

design process as well as challenges experienced while learning a *new design process* with a multi-modal outcome and concerns with *reward systems* relative to position. Do faculty, design technologists and other project members perceive role and professional identity shifts during the multiple stages in the process? What do student collaborators learn about academic power dynamics? Do concerns about ownership or tenure and promotion override the collaborative nature of the project? What is the time commitment during the process and does the amount of time positively or negatively impact external deadlines or other work? Who determines project completion? How will the outcome be preserved and what is the scholarly item of record? Does the experience influence pedagogy? We will consider all of these aspects of the collaboration.

Expected outcomes for the GS and library staff

We do not expect that we will immediately replace transactional interactions between librarians and users with total collaboration, all the time. Our more modest goals are to introduce librarians and other library staff to a new culture, enable them to experience a new approach to academic scholarship, encourage them to have the confidence to be a collaborator, and provide a professional development opportunity within the organization that at the same time improves that organization and its position on campus. Librarians will be exposed to non-traditional products and projects, find themselves in non-traditional and potentially uncomfortable roles, will expand their conception of what it means to be a librarian, and allow for a new librarian-faculty-student-technologist dynamic to emerge. In fact, we expect that librarians will behave according to their personalities as the GS structure allows them the freedom to define their own place.

To gauge our assumptions, we will interview librarians and library staff cohort members to learn from their experience. Does the unique GS environment help overcome persistent librarian 'timidity' to embrace new roles in DH contexts? Since participation is not mandatory, did librarians choose to prioritize traditional library work over participation, and if so, why? Did the librarians inform the process in unexpected ways? How did librarians see themselves and their role in the process and did their role or professional identity reshape itself over the course of the project? Will transactional-oriented librarians and staff succeed or enjoy an open-ended, no-rules, no-right-answer project?

'Librarians …
will expand their
conception of what
it means to be a
librarian'

Expected outcomes for the GS and transactional library culture

As long as the nature of the interaction of librarians and their communities remains embedded in the hands-off culture, and library spaces reflect that transactional model, design techniques cannot easily be generalized to the larger library culture. However, iterative design thinking, along with adoption of other outside techniques like Agile, can be integrated into library services at some level beyond general reference.

Assessment of notable shifts in library culture and services will be difficult to discern in the short term. However, we will devise methods to determine the value of having a scholarship research lab in the library and whether the collaboration-first process stimulates cultural change in other areas of the library. We are particularly interested to know if librarians internalize the collaborative design process, especially if participation disrupts the transactional culture and, if so, how? Does the change in professional identity influence future interactions, assessment of services, or service design, and if so, at what level? Are specialized scholarly communication design techniques generalizable to a tradition-bound organization within a similarly constrained institution?

Other considerations

Reward systems

Scholarly expression continues to evolve but is too often constrained by the scholarly reward system. The remaking of the scholarly reward system in academia is not the primary subject of this article, but it needs to be mentioned in the context of the reward system for librarians. Whether or not they are considered faculty, staff, or some type of hybrid, librarians live under a reward system that governs and guides their activities and professional development. Those reward systems are based on criteria that are generally not set up to adequately assess individual accomplishment in a collaborative setting. We will be interested to see how participation in Greenhouse Studios is received within current UCL reward systems.

> 'Scholarly expression … is too often constrained by the scholarly reward system'

Space and furniture

We will regularly evaluate the newly designed space which is located on a busy common floor in the Homer Babbidge Library. Do amenities like flexible furniture, dedicated breakout space for each project team, fixed workspaces for Fellows and students, remote offices for permanent staff, and abundant coffee and Insomnia Cookies contribute to the success of projects? The lab is enclosed with glass walls that do not reach ceiling height. Do the glass walls invite interaction and questions from library users or cause noise concerns for those on either side of the wall? Further, GS is co-located on the floor with the UCL Maker Studio, Visualization Lab, the Scholars' Collaborative, and multiple instruction rooms. Does this co-location encourage interaction or will GS cohorts and general UCL users exist separately?

Technology

We will review the use of technology in team work. Of the technology – from virtual reality to rolls of butcher paper – which is most useful and why? Again, working with small sample sets and only anecdotal evidence, we find that the preferred technology tends to be 'bring-your-own', although large screens for group discussions are valuable for the working group and other small groups when working collaboratively. Whiteboards, flip charts, sticky notes of various sizes and other physical means of capturing ideas remain heavily used. Does this indicate that, despite differing professional training and backgrounds, design projects require less technology during each phase? Does lack of a central focus on technology enable greater creativity in digital projects? How does a lack of a 'standard' technology set impact the library's current technology support structures? Traditionally, and for many good reasons, library IT departments provide a highly standardized, comprehensive technology environment for library staff. By its nature, GS will use experimental and non-standard technology, often brought in or created by team members, and meant to be temporary. What is the maximum level of tech support GS can expect or the minimum amount of technology control the UCL can demand in these situations?

> 'GS will use experimental and non-standard technology'

Administrative structures

The cross-departmental (crossing departments within the Library) and transdisciplinary (crossing academic departments, schools and colleges, and administrative service departments within the University) nature of GS in many ways challenges the long-standing transactional arrangements of allocating money and services common to the academic bureaucracies built on disciplinary work.

> 'the library's perception of its core mission is challenged'

Libraries have always welcomed non-library staff into the library building with a range of semi-permanent spaces from faculty offices to graduate study carrels. As libraries move to increase beneficial partnerships through shared library spaces, the library's perception of its core mission is challenged by including new and uncontrolled elements into its midst. Specifically, in the case of GS, is support for what some may believe to be 'other' (i.e. non-library) staff perceived as a questionable investment especially in a resource-constrained environment? If the UCL funds expenditures for the 'non-library' (however that is defined) staff and activities in GS, what is the added cost of supporting those activities with administrative services?

We have begun collecting information on the oft-mentioned administrative and institutional structures that potentially impede or redirect transdisciplinary digital scholarship efforts. Hiring, grant management, operational budget impact, staff and student labor budget implications, technology funding, financial rewards and administrative support create ongoing pressures in a system that is similarly transactional and departmental in nature. We will speak with IT, financial, administrative and facilities services staff to determine the ancillary organizational weight borne by these areas and how they react and adjust to their unique requirements.

Final thoughts: or, stay tuned for more

As long as the nature of the interaction of librarians and their communities remains transactional and library spaces reflect that transactional model, design techniques cannot easily be generalized to the larger library culture. However, iterative design thinking can be integrated into library services at some level beyond general reference. This brings up another, more serious question. Can the UCL organize itself and its activities so that collaboration at scale is possible? On the surface, it would seem not. Participation in collaborative projects requires significant commitment of effort over a protracted length of time. With thousands of faculty and tens of thousands of students, it is not possible to collaborate on a GS model with more than a small minority of the UConn community. So why do it at all?

'a new collaborative model of scholarly creativity'

Like any research endeavor, GS is testing an idea rather than implementing a service. If collaborative research becomes a valuable approach to creating scholarship, and we believe it already has passed that milestone, librarians will exert some of their particular skills and expertise on figuring out how to collaborate at scale and what that activity looks like. For the UCL, the goal of the Greenhouse Studios is to test and understand how librarians fit into a new collaborative model of scholarly creativity. Therefore, while we are committed to reporting our results in future publications, we feel it is important to begin the discussion now, while our thoughts and opinions are still fluid, so that we can tap the combined intelligence of a larger audience to make our ultimate solution and conclusions even better. This is the Greenhouse ethos in a nutshell: to create collaborators at every step of the creative process, and involve our communities in our creations.

Abbreviations and Acronyms
A list of the abbreviations and acronyms used in this and other *Insight*s articles can be accessed here – click on the URL below and then select the 'Abbreviations and Acronyms' link at the top of the page it directs you to: **http://www.uksg.org/publications#aa**

Competing interests
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