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This study describes a content analysis of the websites of interdisciplinary research centers co-located on and associated with university campuses. The purpose of the study was two-fold; first, to determine whether the information needs of interdisciplinary research centers were indicated on their websites, and second, whether these needs appear to be met by current academic library partnerships or services. Little evidence was observed of services or partnerships between academic libraries and interdisciplinary research centers. This analysis fills a gap in the literature, as research on the relationships between interdisciplinary research centers and academic libraries has been limited. The study uses a small sample of twenty-five websites in order to develop themes and categories upon which later research might be based.

Headings:

Information needs

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Content analysis

INVESTIGATING THE INFORMATION NEEDS OF INTERDISCIPLINARY  
RESEARCH CENTERS: A CONTENT ANALYSIS

by  
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## **Introduction**

Interdisciplinarity, once the new kid on the academic block, has firmly entered the public consciousness of the research community. The number of research projects drawing on multiple, diverse fields has soared in the past few decades. As colleges and universities have scrambled to cover costs in a changing economic environment, securing federal grant sources has increasingly been utilized to fill the gaps. Interdisciplinary research projects have often been seen as the magnet for these crucial research dollars in the era of shrinking state support and dwindling endowments (Glied et al., 2007).

Interdisciplinary research centers—that is centers set up around a scientific problem or societal issue which draws on multiple disparate threads of academia, employing the strengths and expertise of scholars from a variety of departments—have become more and more common on research-oriented college campuses, as these centers act as the locus of interdisciplinary research projects and the funnel for research dollars gained for these projects. An interdisciplinary research center might maintain a small independent staff, but the researchers themselves tend to be faculty members and students from the general university population. Putting these interdisciplinary research centers into categories is difficult because the foundation and organization of these centers is varied, and thus providing reference services and research support to their project teams is often difficult.

Although the interdisciplinary research center is a now common feature of the university campus, real institutional change has been slow to come because the nature and longevity of interdisciplinary research has not been determined. Interdisciplinary research centers can be quite detached from traditional disciplinary departments, as they exist somewhat outside the traditional organizational structure of the institution. They tend vary in size, specialization/generalization, stability, longevity, and commitment to their mission because their makeup varies according to the type and sustainability of their research projects (Glied et al., 2007: 29). Many of these traits are positive. They can often make more agile research decisions than their departmental counterparts, because they are relatively independent. However, they can also be easily derailed by lack of funding or withdrawal of institutional support. Such centers also present challenges to the community, for example academic libraries which, like their parent institutions, can be slow to change in response to these developing user populations.

The purpose of this study is to investigate the information needs of interdisciplinary research centers, to determine whether these are generalizable, and to develop theory about how they are being supported by their respective institution's academic libraries.

## **Background**

### **History**

Interdisciplinary research centers have developed to act as nexus for researchers to connect and collaborate on interdisciplinary research projects. As such, they are physical representations of the teamwork inherent in the projects. The earliest literature

on interdisciplinary research focuses exclusively on scientific projects and initiatives. Many are specifically health focused, which is understandable given that the National Institutes of Health (NIH) award the most grant dollars of any federal organization. Scientists working on health problems also have a jump on other researchers in terms of *consilience*—or, “the jumping together of knowledge to promote a common groundwork of explanation,” because the healthcare field has long demanded the collaboration of various experts to work on a single problem (Wilson 1996: 6). Academic science was quicker to embrace this idea, so the process of developing interdisciplinary projects is long underway (Rhoten, 2004).

Faculty members in the sciences have regularly been splitting their time, sometimes almost equally, between traditional academic departments and interdisciplinary research teams starting in the 1970s and 1980s (Rhoten, 2004). This shift away from academic departments with information silos and toward interdisciplinary research in the sciences makes sense, as the goal of the sciences is to engage with the natural and physical world; as in nature, “nothing exists [academically] in isolation from the rest of the world” (Byrne, 2014: n.p.). Defense contracts and other White House initiatives have also encouraged more interdisciplinary research in the sciences since the 1980s (McDonald, 1986).

While interdisciplinary research in the sciences is better known, multi- and interdisciplinary pursuits in the humanities have also become more common in recent decades. From the mid-1990s to the 2000s, researchers in the social sciences and humanities were coming to terms with the drawbacks of solo research. Big Humanities attempts in some ways to replicate the organizational and funding structure of the

sciences; this is especially true of projects in the realm of Digital Humanities. Big Humanities projects involve large, multidisciplinary teams situated across geographical space working together on projects, similar to extant scientific research projects in so-called Big Science. This organizational structure makes them more competitive for similar types of grants and other external funds as the sciences.

### **Affordances & Challenges**

Centers and institutes focused around interdisciplinary topics help to alleviate the endemic problem of information overload in interdisciplinary research. Knowledge upkeep and research tasks are spread across team members, and because “there is no theoretical limit to the number and variety of specialties that might be specified in the cognitive budget [of an interdisciplinary research team]” the team is better able to handle the full cognitive load (Wilson, 1996: 194). The establishment of a focused interdisciplinary center also lends legitimacy and helps to attract research dollars by creating a name and dedicated team to reference in grant applications.

However, universities have been slow to adjust to this new emphasis on interdisciplinarity and particularly slow to reward the research output of their scholars working in interdisciplinary fields. Often, publications created by researchers in interdisciplinary fields are considered less academically rigorous and fail to be included in things like tenure review (Rhoten, 2004; Glied et al., 2007). This is due in part to the fact that collaborations are sometimes more creative than productive, or produce harder to count outputs like congressional testimonies, public policy initiatives, popular media placements, and alternative journal publications (Raasch et al., 2013). Because they are

usually organized around broad and/or loose themes and lack guiding definitions, interdisciplinary research centers can also lose focus or drift away from their original mission (Rhoten, 2004). It is in this way that many centers and institutes lose their institutional recognition and support.

Specialized research centers also challenge their institutional libraries, as academic libraries were initially set up to serve populations organized along departmental lines (Allen & Sutton, 1993: 499). Like universities, academic libraries have for the most part failed to implement systemic changes to go along with the changing mores of research. For better or worse, libraries are a part of their institutional system, and like their institutions they are “sometimes [...] affected by institutional inertia and remain organized along traditional disciplinary boundaries even when those boundaries no longer reflect the academic communities” (Allen & Sutton, 1993: 499). This is especially true for interdisciplinary organizations on campus that are established from the outset without the collaboration of library professionals.

### **Literature Review**

Interdisciplinarity is about crossing and re-crossing boundaries, but in many ways modern academia continues to exist in a silo model. Teaching appointments tend to be within a single discipline and university incentive and reward structures do not properly consider interdisciplinary initiatives. Journals and conferences for the most part remain dedicated to single subjects, and presenting interdisciplinary research can be baffling to readers and conference attendees because they utilize research methods and language from extraneous disciplines. Researchers still feel it necessary to publish within their



disciplines so as to qualify for tenure or other university placement requirements (Rhoten, 2004: 8). Despite all of these challenges, scholars and information professionals have noted that an increasing number of research fields in modern science draw on scholars from more than one discipline in the past few decades (Raasch et al., 2013).

Raasch et al. (2013) also noted that interdisciplinary research and publications in interdisciplinary journals has historically been essential to defining emerging fields, but interdisciplinary publishing can be seen to dip off once the field is better defined.

However, their findings might also point to the fact that high-involvement interdisciplinary research and publication is difficult for researchers to sustain in the absence of adequate institutional and library support. The development of interdisciplinary research centers might be seen in some ways as an attempt to replicate this missing institutional support, as they provide legitimacy and space to pursue interdisciplinary research.

Despite all of these developments interdisciplinary research centers remain hard to define, which has been troubling for information specialists seeking to serve such organizations. Some centers are large and academically influential, while others are tiny, underfunded, and extremely specialized. Particularly well funded centers can afford to maintain their own staffs, including dedicated information professionals, while others rely heavily on resources from their institution's academic library. This non-standardization is one barrier to developing standards for providing information services.

Setting priorities for research support in libraries can be difficult when interdisciplinary research centers are seen as nebulous and tenuous (Glied et al., 2007: 29). As Palmer and Neumann (2002) noted, "the conduct of research often takes a

divergent course that crosses disciplinary boundaries” even in the humanities (86). Palmer and Neumann specifically urge research libraries to support inherently interdisciplinary research, as “research libraries are critical nodes in the networks of humanities scholarship” (112).

McNamara and Matre (2002) and Lorenzetti and Rutherford (2012) both focus on the role of an information professional in the interdisciplinary research process itself. McNamara and Matre question the role of the reference librarian, specifically, in interdisciplinary research. They also posit that “traditional models for research and bibliographic instruction are not always sufficient to help students find the resources they need to complete assignments and research projects that increasingly require cross-disciplinary searching” (71). As an aid to other reference librarians, they engage in the definitional debate surrounding “interdisciplinary research” and “interdisciplinarity.” In so doing, they hoped to contribute to the building of frameworks to support interdisciplinary research in research libraries. Lorenzetti and Rutherford (2012), however, focus on the nature of successful collaborations rather than on collections and the reference librarian. They investigate the role that information professionals play as members of interdisciplinary teams, often playing roles seemingly outside of the scope of the profession (275). In so doing, they are enhancing the ability of the team to tackle complex problems.

Library-interdisciplinary center collaborations are not well documented in the literature, but Curran (2012) calls specifically for increased librarian support for the medical humanities in an article in the *Journal of the Medical Library Association*. Centers for the development and study of narrative medicine support the interdisciplinary

work of medical and allied health professionals, who hope to encourage objectivity, empathy, and global thinking in medical practitioners (Kirklin, 2003). Curran suggests library support in the form of interdisciplinary spaces, incorporating art and humanities into health sciences library programming, and building collections. In this way health sciences students, who may or may not be directly involved with research in the medical humanities or any other interdisciplinary field, can be introduced naturally to the output of the allied interdisciplinary centers and programs.

### **Research Questions**

Given that interdisciplinary research centers are an increasingly common part of the average research university campus, academic libraries must endeavor to meet the information needs and support the research goals of these institutions. Interdisciplinary research center websites are the public face of these organizations, and therefore the most accessible source of information about the information needs and resources of these organizations. This exploratory study focuses on two interrelated research questions:

- 1) What is the focus of content on the websites of interdisciplinary research centers?
- 2) Is there evidence that the essential processes of interdisciplinary research centers are being supported by their respective institution's academic libraries?

### **Methodology**

Background reading on the nature of research in information and library sciences has been completed in Barbara Wildemuth's (2009) *Applications of Social Research Methods to Questions in Information and Library Science* and in Earl Babbie's (2007)

*The practice of social research.* An exploratory qualitative study is the most appropriate method to answer the research questions posed given that little has been published on the relationships of interdisciplinary research centers to their institutional libraries. This study will employ a qualitative content analysis of interdisciplinary research centers' websites in order to systematically identify themes and patterns in their web content.

Babbie (2007) identifies content analysis as an appropriate method for analyzing the content of websites. Content analysis is a form of investigation originally indigenous to communication research (Krippendorff 1989: 403). The subjective interpretation involved in qualitative content analysis is preferred to merely counting words because this study is meant to be a theory-generating one (Krippendorff 1989).

Content analysis is a widely used qualitative research technique with three distinct approaches: conventional, directed, and summative (Hsieh & Shannon, 2005). The conventional, or latent, approach to content analysis is the basic process of interpretation of content (Holsti, 1969). The focus of any study employing qualitative content analysis is on unearthing the underlying meanings of the words or content through a coding process so as to organize large quantities of text into fewer content categories (Holsti, 1969; Hsieh & Shannon, 2005: 1285). Since the 1950s, content analysis has been an increasingly popular qualitative method (Nandy & Sarvela, 1997). It is a naturalistic method, as it allows researchers to observe a phenomenon in a natural setting rather than in a controlled laboratory setting (Hsieh & Shannon, 2005).

In latent content analysis, the categories for the data are derived directly from the data. Text data from interviews, surveys, transcripts, newspapers, or any other

communication medium is read, processed, and labeled according to themes that emerge from the data through inductive category development (Hsieh & Shannon, 2005; Mayring, 2000). This is often referred to as emergent coding, as the labels and categories emerge organically from the data.

The first step in any content analysis is for the researcher to read all of the data completely, so as to immerse themselves in the data to be studied. Emergent codes are then derived from words and phrases that appear to highlight key concepts or important variables. Combined with the constant comparative approach, meaningful codes can quickly begin to develop. Codes are labeled with words in the qualitative approach, rather than being assigned numbers, and then those codes are sorted into relevant categories based on relationships or linkage. As this sorting process generates ideas, the researcher stops to write a memo about the categories' and/or subcategories' relationship to the research question; these memos will be used in writing up the results later in the research process (Glaser & Strauss, 1967; Mayring, 2000). Conclusions are drawn based on the coded data and related audit trail provided by the memos written throughout the code development and coding process (Glaser & Strauss, 1967).

This approach is appropriate for the study at hand as the aim is to gain a fuller understanding of the information needs of interdisciplinary research centers from the content of their public-facing websites. It is unobtrusive, and allows the researcher to get "close" to the text. Content analysis has been used by numerous scholars to examine the websites of European airports (Halpern, 2013), college libraries (Kannappanavar et al., 2011), hotels (Law, 2012) and county governments (Harder & Jordan, 2013).

## **Limitations**

Unlike with quantitative studies, the replicability of qualitative content analyses is low; since the “categories are obtained from the very material being analyzed, findings are not generalizable much beyond the given data” (Krippendorff, 1989: 407). Computer analysis can make intercoder reliability higher and results more replicable, but human analysis was preferred for this study due to time and resource constraints as well as the subjective matter of the study.

Relatedly, there is potentially low internal validity, or credibility. The study is completely in the hands of the researcher in a conventional qualitative content analysis, since there is no developed theory to use as a guide. If the researcher misidentifies or fails to identify key categories, then the results will not accurately represent the data (Hsieh & Shannon, 2005).

The sampling, coding, and data entry were all performed by the researcher. Due to time and resource limitations, this study did not have the benefit of having a second person to act as an observer and controller during the coding and data entry processes.

## **Sampling**

The regular problems of sampling from the internet are inherent in this study (Babbie, 2007). Websites of interdisciplinary research centers do not exist in any kind of directory, so the sampling frame had to be created over the course of iterative searches of the internet. Therefore, this already represents a non-probability sample because “even

the largest search engine indexes list only a fraction of the Web sites in existence at any given time” (Thompson, 2012: 71).

This study is limited to campus-affiliated centers and institutes, so the sampling frame was built mostly from lists of interdisciplinary research centers available on university websites. The sampling frame included interdisciplinary research centers on 58 different university campuses. Due to limitations of the researcher, the frame was also limited to university centers with an English language web presence. Websites were chosen for analysis by assigning each interdisciplinary research center’s website in the sampling frame a number and then choosing twenty-five numbers at random.

## **Results**

### **Overview**

Twenty-five websites were chosen according to the aforementioned procedure. Once the websites were sampled and chosen, each website’s webpages were accessed on a single day and saved in static HTML format so that the content was frozen and could not be changed or removed by the organizations in the course of the study. This also ensured the researcher offline access to the content. The twenty-five websites comprised 388 webpages in total. The number of webpages per website ranged between seven and thirty-three. Websites varied in depth and breadth of coverage of the center’s goals and activities; some were decidedly less robust. A range of originating disciplines were represented, including fields in the humanities, medicine, social sciences, formal sciences, and natural sciences; the exact distribution is represented in Table 1.

**Table 1. Originating Disciplines.**

| <b>Discipline</b> | Social Sciences | Medicine | Arts & Humanities | Formal Sciences | Natural Sciences |
|-------------------|-----------------|----------|-------------------|-----------------|------------------|
| <b>Percentage</b> | 28%             | 16%      | 12%               | 16%             | 28%              |

As stated in the sampling parameters, only interdisciplinary research centers located on a university campus were included in the study. The large majority of those sampled were independent institutions on a single university campus. Three of the center websites analyzed were part of a medical school, two were hosted by a school of engineering, one by a school of nursing, one by a school of arts and humanities, and two of the centers were run collaboratively by teams on multiple universities.

### **Website Content**

In analyzing the content of interdisciplinary research centers' websites, the researcher did not approach the data with themes in mind. The themes were developed iteratively. Nine categories and thirteen sub-categories were identified. Since the unit of analysis was the entire website, multiple themes applied to each website; a category might only appear on one webpage, but that would count as representation of the theme represented by that category. The major categories that emerged were: mission, research, partnerships, education, funding, news, history, connector, and globalization. Research could be broken down into three sub-categories: projects, scholarly publications, and reports. Partnerships consisted of the sub-categories affiliated faculty, collaborators, and external resources. Sub-categories of education are training, conferences, and seminars & lectures. The funding category was subdivided into two sub-categories: grants and



fellowships. Social media was a sub-category of news that emerged in some of the websites. Resource center, a theme that emerged early in the coding, was eventually collocated under the category connector. See Appendix B: Codebook of Website Content for definitions of each category and sub-category.

**Table 2. Website Content Themes and Frequency of Occurrence.**

| <b>CATEGORY</b>      | <b>WEBSITES CODED WITH CATEGORY</b> |
|----------------------|-------------------------------------|
| <b>Mission</b>       | 84%                                 |
| <b>Research</b>      | 76%                                 |
| Projects             | 56%                                 |
| Publications         | 64%                                 |
| Reports              | 40%                                 |
| <b>Partnerships</b>  | 72%                                 |
| Affiliated Faculty   | 72%                                 |
| Collaborators        | 44%                                 |
| External Resources   | 32%                                 |
| <b>Education</b>     | 68%                                 |
| Training             | 24%                                 |
| Conferences          | 32%                                 |
| Seminars & Lectures  | 48%                                 |
| <b>Funding</b>       | 64%                                 |
| Grants               | 20%                                 |
| Fellowships          | 16%                                 |
| <b>News</b>          | 64%                                 |
| Social Media         | 20%                                 |
| <b>History</b>       | 52%                                 |
| <b>Connector</b>     | 40%                                 |
| Resource Center      | 20%                                 |
| <b>Globalization</b> | 36%                                 |

Note: Categories in **bold**, followed by sub-categories.

As shown above in Table 2, the most generalizable theme of interdisciplinary research centers' websites is the concept of a mission. A formal Mission Statement was a

common feature on the interdisciplinary research centers' websites sampled, but sometimes mission was implied on the About or Home pages rather than grouped under an explicit heading. Research refers to explicit statements of research objectives of past and current initiatives. It was, understandably, the next most dominant theme throughout the websites. Partnerships and affiliated faculty were almost as common as explicit descriptions of research efforts, both ranking third with representation in 72% of the websites sampled.

### **Evidence of Library Collaboration**

Documentation of library-center relationships was rare. None of the twenty-five interdisciplinary research centers' websites sampled noted a librarian or information specialist on either the core or affiliated staff. Only twenty percent of the interdisciplinary research centers' websites indicated any explicit relationship with their respective institution's academic libraries:

- 1) The Interdisciplinary Center for Innovative Theory and Empirics (INCITE) at Columbia University is allied with the Columbia Center for Oral History. The two are collaborating on a project, the assembled papers of which are housed at the Columbia Center for Oral History Archives in the Rare Books & Manuscripts Library.
- 2) The Nelson Institute Land Tenure Center at the University of Wisconsin at Madison deposits their reports and publications in the University of Madison institutional repository. This repository is run by the university libraries.

Manuscripts, reports, and publications are physically housed at Steenbock Library, the campus agricultural library.

- 3) The Center on Urban Poverty and Community Development at Case Western Reserve University is one of the older centers sampled. The archive of the Poverty Center is housed at the Kelvin Smith Library. Publications and reports are available for download from Digital Case Western, the university's repository.
- 4) HumanFIRST Laboratory of the University of Minnesota houses its papers and reports at the Center of Transportation Library, an institution affiliated with the university libraries.
- 5) The Interdisciplinary Research Center in Cyber Security at the University of Kent has integrated all of its publications into the Kent Academic Repository, an open access database run by the Kent Library.

### **Discussion**

Some of the websites sampled were very robust, with dozens of webpages detailing the extent of their research and the goals of their organization. However, more than half of the websites sampled are very poor resources for getting to know more than the basic staff and location of the interdisciplinary research centers represented; if a librarian or information specialist was trying to tailor a collection or resources for use by affiliates of the centers, they would have a very hard time indeed. Older and more established interdisciplinary research centers often had more of a web presence. They also tended to have more of a relationship with their institutional library, as far as the researcher could tell from this analysis.

That research was not an even more common theme was surprising. Several interdisciplinary research centers' websites mentioned in passing their commitment to supporting interdisciplinary research on their respective campuses, but neglected to detail any past or current research projects undertaken at the center or by its affiliates. Some of the centers sampled had the phrase "interdisciplinary research centers" in their name or description, but seemed to function more as Resource Centers than as functioning research hubs. This brings to mind the conversations in the literature about whether interdisciplinary research is a real trend in education and research or just a buzzword to attract funders (Rhoten, 2004; Strober, 2010).

More non-medical or health-related interdisciplinary research centers were caught in the sample than expected, given that the National Institutes of Health is the single biggest grant funder for interdisciplinary research. Funding structures for humanities and social sciences related interdisciplinary research centers were often different from those more rooted in the biomedical, natural, or formal sciences; one such center had been founded by a wealthy private citizen, and several seemed to rely on donations at least as much as on grant monies. Almost all of the centers appeared to benefit from partnerships either within their institutions or in related centers and organizations. Community partnerships also looked fruitful; these were more prevalent in the social sciences oriented research centers than those oriented toward more the more physical science.

The relative lack of documented university library collaborations with interdisciplinary research centers could be inaccurate, or it could be an indicator that the campus interdisciplinary research center is ripe for outreach and more university librarian involvement. Many of the websites sampled had rudimentary document or event

archives, which could certainly have benefitted from a professional's touch. Wikis maintained for internal use and data libraries could be maintained more efficiently with the help of an on-staff information specialist. However, due to the relative youth of many of the centers analyzed and indeed within the sampling frame, libraries may not have had time to adjust their service offerings appropriately.

### **Conclusions**

Qualitative content analysis was employed to explore the web presence of a small sample of interdisciplinary research centers. This textual data represents the research and educational objectives of these centers which have become woven in the fabric of university campuses of late; the researcher hoped to discover whether this data was generalizable and whether it would be useful for the staff of university libraries endeavoring to develop collections and resources for researchers affiliated with such institutions. The qualitative focus was chosen because little has been written about interdisciplinary research centers and academic library relationships or on interdisciplinary research center websites in general.

Textual data "has a cognitive consequence for their senders, their receivers, and the institutions in which their exchange is embedded" (Krippendorff, 1989: 403). The senders in this study are the website content developers and by proxy the directors of the interdisciplinary centers represented, the receivers are any outside stakeholders or prospective partners, and the institutions are the website owners (i.e. the interdisciplinary research centers themselves). An institution's communications and documentation reflect

their identity. So, if the website of an interdisciplinary research center makes no mention of their information needs or information partners, then their identity doesn't include responsible, dedicated, or long-term information management. The more robust, information-laden websites are more attractive to potential partners and funders partially because they appear to be more committed to their respective causes purely because they have more developed documentation processes.

Time will tell whether interdisciplinary research is a true transition, but it is omnipresent at this intellectual moment. Interdisciplinary graduate programs abound; indeed, in this study, one of the most frequently mentioned aspects of an interdisciplinary research center was its educational offerings and objectives. Libraries owe it to these interdisciplinary-from-the-start students to provide services and help make collections accessible for those operating outside of traditional disciplinary boundaries. Since interdisciplinary research centers are typically already in place to support these students, collaborating with these centers to develop collections and resources would be more efficient than employing staff members in drawn out citation analyses.

The material contained on interdisciplinary research centers' websites is a good starting point, but because of the varying degrees of documentation librarians will likely need to take a more holistic view toward collection development and pursue several modes of contact with fledgling interdisciplinary centers on campus (Dobson et al., 1996). This suggestion can only be provisional, as this study is too limited in scope and exploratory in nature to draw any more concrete conclusions. The researcher has endeavored to maintain a fastidious audit trail of notes, tallies, and memos so that any

future research into this phenomenon could start on more solid footing (Glaser & Strauss, 1967; Mayring, 2000).

Further research will be required to make any sound conclusions about the relationship of libraries to their on-campus centers and institutes. The categories developed in this investigation might be used to guide a more expansive look at interdisciplinary research centers, either through a larger-scale study of a similar nature, or to guide interview questions for library subject liaisons and/or directors of interdisciplinary research centers. Case studies in the literature talk of developing collections for interdisciplinary departments, but because of the ephemeral nature of grant-dependent research centers different methods might need to be employed; a researcher who was well-situated and with more time and resources might develop a very useful case study of the developing partnership between interdisciplinary research center(s) setting up shop on campus and the university libraries.

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## Appendix A

## List of Interdisciplinary Center Websites

| Center  | URL   | Host Institution(s)                                   |
|---|---|---|
| Interdisciplinary Center for Innovative Theory and Empirics (INCITE)              | <a href="http://incite.columbia.edu/">http://incite.columbia.edu/</a>   | Columbia University in the City of New York           |
| Institute for Language Education in Transcultural Context (ILETC)                 | <a href="http://www.gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Centers-and-Institutes/Institute-for-Language-Education-in-Transcultural-Context">http://www.gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Centers-and-Institutes/Institute-for-Language-Education-in-Transcultural-Context</a> | CUNY Graduate Center                                  |
| Center for Global Health & Disease  | <a href="http://www.case.edu/orgs/cghd/">http://www.case.edu/orgs/cghd/</a>   | Case Western Reserve University School of Medicine    |
| Interdisciplinary Center for Inductively-Coupled Plasma Mass Spectrometry (ICPMS) | <a href="http://icpms.ucdavis.edu/">http://icpms.ucdavis.edu/</a>   | University of California at Davis                     |
| Center for Interdisciplinary Research on Complex Systems                          | <a href="http://www.circs.neu.edu/">http://www.circs.neu.edu/</a>   | Northeastern University                               |
| Land Tenure Center  | <a href="http://nelson.wisc.edu/ltc/index.php">http://nelson.wisc.edu/ltc/index.php</a>   | University of Wisconsin-Madison                       |
| Center on Urban Poverty and Community Development                                 | <a href="http://povertycenter.case.edu/">http://povertycenter.case.edu/</a>   | Case Western Reserve University                       |
| The Center for Interdisciplinary Studies in Security and Privacy (CRISSP)         | <a href="http://engineering.nyu.edu/crissp/">http://engineering.nyu.edu/crissp/</a>   | New York University Polytechnic School of Engineering |
| Center for the Future of Work   | <a href="http://fow.heinz.cmu.edu/">http://fow.heinz.cmu.edu/</a>   | Carnegie Mellon University                            |
| Brudnick Center on Violence and Comfort   | <a href="http://www.northeastern.edu/brudnickcenter/">http://www.northeastern.edu/brudnickcenter/</a>   | Northeastern University                               |

|   |   |   |
|---|---|---|
| Center for Collaborative and International Arts (CENCIA)  | <a href="http://cencia.gsu.edu/">http://cencia.gsu.edu/</a>   | Georgia State University  |
| Center for the Study of Inequality  | <a href="http://inequality.cornell.edu/">http://inequality.cornell.edu/</a>   | Cornell University  |
| University Center on Aging and Health   | <a href="http://fpb.case.edu/Centers/UCAH/">http://fpb.case.edu/Centers/UCAH/</a>   | Case Western Reserve University School of Nursing                                       |
| Center for the Study of Children at Risk  | <a href="http://www.brown.edu/research/projects/children-at-risk/">http://www.brown.edu/research/projects/children-at-risk/</a> | Brown University School of Medicine   |
| Center for Interdisciplinary Study of Museums (CISM)  | <a href="http://www.utdallas.edu/ah/cism/">http://www.utdallas.edu/ah/cism/</a>   | University of Texas-Dallas School of Arts & Humanities                                  |
| Interdisciplinary Center for Bioethics  | <a href="http://bioethics.yale.edu/">http://bioethics.yale.edu/</a>   | Yale University   |
| Center for Interdisciplinary Research in Women's Health (CIRWH)                                   | <a href="http://www.utmb.edu/cirwh/">http://www.utmb.edu/cirwh/</a>   | University of Texas Medical Branch  |
| Institute on Race and Justice   | <a href="http://www.northeastern.edu/irj/">http://www.northeastern.edu/irj/</a>   | Northeastern University   |
| Human Factors Interdisciplinary Research in Simulation and Transportation (HumanFIRST) Laboratory | <a href="http://www.humanfirst.umn.edu/">http://www.humanfirst.umn.edu/</a>   | University of Minnesota, Engineering Department   |
| Center for Research and Education in Wind (CREW)  | <a href="http://crew.colorado.edu/">http://crew.colorado.edu/</a>   | University of Colorado Boulder, Colorado State University, and Colorado School of Mines |
| Nicholas Institute for Environmental Poverty Solutions  | <a href="http://nicholasinstitute.duke.edu/">http://nicholasinstitute.duke.edu/</a>   | Duke University   |
| Interdisciplinary Research Centre in Cyber Security   | <a href="http://www.cybersec.kent.ac.uk/">http://www.cybersec.kent.ac.uk/</a>   | University of Kent  |

|  |   |                                     |
|--|---|-------------------------------------|
| Interdisciplinary Center on Aging          | <a href="http://medicine.missouri.edu/aging/">http://medicine.missouri.edu/aging/</a> | University of Missouri              |
| Combustion Energy Frontier Research Center | <a href="http://www.princeton.edu/cefrc/">http://www.princeton.edu/cefrc/</a>         | Princeton University and affiliates |
| Ford Institute for Human Security          | <a href="http://www.fordinstitute.pitt.edu/">http://www.fordinstitute.pitt.edu/</a>   | University of Pittsburgh            |

## Appendix B

### Codebook for Website Content

**Coder:** Author was only coder for this study.

**Unit of Analysis:** The unit of analysis for this study is the entire website of each interdisciplinary research center.

**Procedure:** Website content will be saved as an HTML file. Coder will read content of websites thoroughly two times through, while taking notes on content. In third run, coder will highlight themes. As patterns appear inductively, coder continues to memo about relationships and monitors themes for growth or decay.

#### Definitions of codes (by category and sub-category):

| Category            | Definition   |
|---------------------|--|
| <b>Mission</b>      | <b>The guiding aim or objective of a center, often found under the heading Mission Statement.</b>  |
| <b>Research</b>     | <b>Explicit description of past or current research initiatives.</b>   |
| Projects            | Time-delimited or grant-funded projects associated with research, usually with an associated research team.  |
| Publications        | Publications in scholarly journals, interdisciplinary or otherwise.  |
| Reports             | Reports made to government agencies, annual reports, white papers, working papers, and any other formal written material produced by a member of the research center, which might not otherwise be counted as a scholarly publication. |
| <b>Partnerships</b> | <b>Alliances with any group outside of the research center (e.g. community group, organization, or government agency).</b>   |
| Affiliated Faculty  | Faculty from other departments within the university, or visiting scholars.  |
| Collaborators       | Other centers or institutes with whom the research center maintains formal or informal working agreements.   |
| External Resources  | Links to external websites, data sets, government resources, etc. that are utilized and/or endorsed by the research center.  |

|                      |   |
|----------------------|---|
| <b>Education</b>     | <b>Teaching activities, including specialized courses, undergraduate and graduate programs.</b>   |
| Training             | Teaching activities that involve external stakeholders or specifically non-student groups (e.g. nurses, community members, grass-roots organizations.)                            |
| Conferences          | Events hosted by the research center in which a topic of interest to the research center is discussed at length, including talks, presentations, or roundtables.                  |
| Seminars & Lectures  | Short meetings to discuss topics relevant to the center, usually on a regular time schedule or arranged in a short series.  |
| <b>Funding</b>       | <b>Revenue streams that support research, both offered by the center for student research and solicited externally to support the mission and ongoing projects of the center.</b> |
| Grants               | Non-repayable funds disbursed by a government agency or other funding group involving a formal application process, including reports to be filed.                                |
| Fellowships          | A merit-based scholarship or funded position provided by the research center.   |
| <b>News</b>          | <b>Noteworthy information about current events related to the research center.</b>  |
| Social Media         | Blogs, twitter, Facebook, Instagram, etc. used to promote interaction with the research team or its current initiatives.  |
| <b>History</b>       | <b>Details provided about the founding, development, and/or past objectives of the research center.</b>   |
| <b>Connector</b>     | <b>Centers which aim to provide connections or build networks between their partners or stakeholders within the research community.</b>   |
| Resource Center      | Provides information, assistance, services, and/or materials to community members.  |
| <b>Globalization</b> | <b>International cooperation, or a commitment to projects with worldwide significance.</b>  |