

Interdisciplinary Diversity in the iSchool Community

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ABSTRACT

Interdisciplinary research is both challenging and increasingly imperative to addressing many intellectual, social and practical problems. This poster presents a proposed empirical study of interdisciplinary diversity in the iSchool community. Developing a better understanding of the factors that allow interdisciplinary academic endeavors to survive and thrive is useful to both the iSchools, for which the research would provide strategic feedback, and to the broader scientific community as a means of insight into cultivating interdisciplinary research. The proposed study is expected to contribute a methodological approach for evaluating diversity in an interdisciplinary community that will provide an objective basis for self-evaluation and community-level comparisons, and empirical results that explore the relationship between interdisciplinary intellectual inputs and interdisciplinary scholarly outputs in the iSchools.

Keywords

Interdisciplinary research, diversity, iSchools

1. INTRODUCTION

Many have noted that interdisciplinary research is both challenging and increasingly imperative to addressing many intellectual, social and practical problems [17]. The proposed research will examine the iSchool community to answer the question of whether interdisciplinary intellectual inputs yield interdisciplinary intellectual outputs. Developing a better understanding of the factors that allow interdisciplinary academic endeavors to survive and thrive is in the interest of both the iSchools, for which the research would provide strategic feedback, and to the broader scientific community as a means of insight into cultivating interdisciplinary research.

Prior empirical research on the relationship between faculty hiring and prestige ratings in the emergent academic community of the iSchools showed that institutional and dis-

ciplinary diversity vary widely both among iSchools and within them [21]. These findings motivate more detailed study of the nature of interdisciplinary research, diversity, and community in the iSchools. Examining how disciplinary diversity within the faculty of an institution relates to the diversity of research venues in which their work is presented is a promising direction for future investigation.

The basic expectation that an intellectually diverse faculty—one formed by scholars trained in a variety of disciplines, but located together in an iSchool—publish in a similarly diverse set of venues suggests a somewhat individualistic mode of research. Integrative interdisciplinary research within an institution, however, could yield convergence to a smaller set of publication venues, while the work itself may be no less interdisciplinary in functional terms. The proposed research will examine the degree to which intellectual interdisciplinarity relates to interdisciplinarity of the scholarly work, both within each school and across the iSchool community.

2. PRIOR WORK

Academic hiring patterns have been a recurring topic for research in the sociology of science. These studies are typically focused on prestige out of concern for the potentially detrimental effects of particularistic, rather than universalistic, hiring in the academy [3, 4, 5, 7, 12, 14, 15]. Collectively, these studies have shown that in longstanding academic disciplines, changes to the social structure are slow and eventually lead to prestige stratification of the fields. While these studies lay the groundwork for the proposed research, they represent the concerns of mature academic disciplines in which change is slow to permeate the institutional structure.

By contrast, the iSchools form an emergent, loosely-coupled academic community that claims to have created an interdisciplinary environment. As a whole, the members of the iSchool community are remarkably interdisciplinary, both as a community and within institutional boundaries. While this academic association has been building for some time, the iSchools Caucus was only recently chartered in 2005¹, and the community is currently in a period of initial development and identity alignment in which change is occurring at a relatively fast rate.

As yet, there is little scholarly research on the iSchool community (see [8]), although there is an annual iConference,

¹<http://www.ischools.org/oc/charter.html>

currently in its fourth year. This venue for community-building among members of the iSchools Caucus has generated a few self-reflective studies from the community, but most of these are either largely theoretical or anecdotal [2, 6, 9, 10, 11, 13, 18, 19]. Very little of the discourse focused on the iSchools as a phenomenon is based on empirical data, and the most recent work demonstrates how errors in sampling for such a small academic community can lead to misrepresentations of the member institutions, particularly for uncertified data [8].

A study of hiring patterns in the iSchools sought to address some of these issues through empirical research on the relationship of prestige to hiring and identity in this emergent academic community [21]. This research compared the structural characteristics of faculty hiring iSchools and Computer Science departments. A key finding is noted here: the disciplinary diversity of the iSchool community was self-evident from 674 faculty PhD degrees in 172 areas of study. While most of the faculty received degrees in the categories of computer and information sciences or library science, nearly half of the faculty members completed their doctoral study in other disciplines. This striking observation from the data relating to the diversity of the iSchool community motivates the currently proposed study to further investigate the interdisciplinary characteristics of the iSchool community.

3. RESEARCH APPROACH

The proposed study would be completed in three phases of research effort, each corresponding to approximately one month. The first phase consists of updating the iSchools faculty hiring data set [20], and contacting each of the 21 iSchools for verification of their faculty rosters. While verification will require some time and coordination effort, participation is clearly in each institution's own best interest as well as the community's interest. This step will produce a more reliable data set for analysis.

The second phase of the research plan calls for data collection on iSchool faculty publication venues. These will be drawn, where possible, from faculty CVs and web pages, and supplemented with database queries as required. As with the iSchool faculty hiring data set, the heterogeneity of available information sources for these data means that there are no simple and straightforward methods by which to generate such a data set. To ensure data quality, a more effortful but more reliable combination of manual and automatic tools will be employed to create an appropriate data set for analysis.

The third phase of the study will entail data analysis and dissemination of results. Data analysis will apply a measure of inequality, information entropy, to evaluate diversity in each iSchool. This simple measure indicates the evenness of the distributions of the disciplinary areas of faculty for each school when applied to the fields of study and publication venues for each iSchool's faculty, and provides continuous scales by which to evaluate the variation between schools within the community. The analysis will utilize a scientific workflow analysis tool, the Taverna workbench², to gener-

²<http://taverna.sourceforge.net/>

ate easily shared, self-documenting, and replicable analysis workflows. Employing these tools and maintaining the data set over time will permit replication of the analyses in the future using additional data as the community evolves.

4. EXPECTED CONTRIBUTIONS

The proposed research will develop and apply an analytic approach by which to assess multiple aspects of intellectual interdisciplinarity of groups within a larger community, such as a school, college, or department. Building on prior research which has evaluated institutional interdisciplinarity based on faculty areas of study [21], this project will compare pedigree-based interdisciplinarity to publication-based interdisciplinarity, reflecting the diversity of faculty publication venues. While most research on faculty publications has focused on the faculty productivity levels [1], with notable problems in data collection due to the wide range of disciplines represented by faculty publication venues [16], the proposed work will focus instead on evaluating the breadth of disciplinary expertise represented by the iSchool intellectual community.

The intellectual contribution of the work will be the empirical study of interdisciplinarity in an emergent academic community. The analysis and discussion will take into account both the intellectual resources of faculty disciplinary expertise and the intellectual products of faculty research publications. The findings will contribute to forming a solid foundation, based on empirical research, for advancing discourse on interdisciplinarity within the iSchool community. By providing an objective basis for self-evaluation and comparison within the community, as well as a new source of insights for characterizing the community, this study will also generate a pragmatic outcome for the iSchools. In addition, the study will bring a novel perspective and introduce a new population of study into the literature on academic hiring, which has not previously examined interdisciplinary academic communities.

The methodological contribution of the work lies in the analytic approach, which will provide a means to evaluate the impact of interdisciplinary institutions on scholarly discourse in traditional disciplinary fields. It also offers a method for evaluating the breadth and scope of interdisciplinary research in the iSchools on multiple criteria. These methods provide an objective basis for making community-level comparisons of the intellectual diversity of member groups, and are readily applicable to other interdisciplinary academic communities and research groups.

The research outputs from the study will include validated data, analysis workflows, and publications, which will be shared with the research community. Together, these research artifacts allow the reproduction of the analysis, and form the basic infrastructure for developing and maintaining a longitudinal data set to track the dynamics of the iSchool community's intellectual diversity.

5. CONCLUSIONS

The goal of the proposed research is to conduct an empirical study to evaluate the interdisciplinarity of the iSchool academic community with respect to both the intellectual inputs and scholarly outputs of each school. This work will

extend prior research on the iSchools as an emergent intellectual community of interest, focusing on its intellectual diversity. The study is expected to contribute a methodological approach for evaluating diversity in an interdisciplinary community, which provides an objective basis for self-evaluation and community-level comparisons. The empirical results of the study will provide insight into the relationship between interdisciplinarity of intellectual inputs and scholarly outputs in the iSchools.

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