The Future of iSchool Doctoral Education: Workshop Abstracts

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Keynote Talk: *iSchools, iCaucus, iField, iFaculty, iStudents - i..i..i. What Gives?*

Mike Eisenberg, University of Washington

They're popping up everywhere. From Berkeley to Maryland to Wuhan, China, there are now 22 official "iSchools" and many more academic units aspiring, striving, and changing to create iSchools. Is all this just clever rebranding of library science? Or computer science-lite? Or, is there really something unique and transformational taking place? It's easy to know where Mike Eisenberg stands on this. He is the founding dean of the University of Washington's iSchool, one of the initiators of the iSchool Caucus, and a champion of iSchools and the information field. In this keynote address, Mike will talk about looking at the world through information-colored glasses and what it means for research, for academic programs (especially doctoral), and most importantly for making the world a better place.

Bio:
Mike Eisenberg is the "founding dean" of the Information School at the University of Washington, serving from 1998 to 2006. During his tenure, Mike transformed the school from a single graduate degree program into a broad-based information school with a wide range of research and academic programs, including an undergraduate degree in informatics, masters degrees in information management and library and information science (adding a distance learning program and doubling enrollment), and a doctorate degree in information science. Mike's current work focuses on information literacy, information problem-solving in virtual environments, and information science education K-20. His "Big6 approach to information problem-solving" is the most widely used information literacy program in the world. Mike is a prolific author (9 books and dozens of articles and papers) and has worked with thousands of students—pre-K through higher education—as well as people in business, government, and communities to improve their information and technology skills.

The Promise and Folly of a Unitary Doctoral Curriculum for an Information School

Jeffrey Stanton, Syracuse University

Physicists study matter, time, and space; Psychologists study the brain and behavior; Historians study the causes and effects of past events. Whereas each of these academic disciplines is well over a century old, the formal study of information goes back only 60 years or so. Further, the information field as presently constituted is an accretion of multiple academic disciplines with varying scholarly foci and traditions. Prior examples drawn from the sociology of science suggest that we may have many decades yet to go before a sufficient coalescence can occur around a common curricular center. Given the relative youthfulness and heterogeneity of the field it is perhaps a foolish optimism to imagine the possibility of a unitary doctoral curriculum for an information school at the present moment. In this context, a unitary curriculum might comprise a set of required courses in methods, theories, and empirical findings that all students in a given doctoral program would take and gain benefit from. Given the diversity of intellectual backgrounds, among both Ph.D. students and the faculty who mentor them in many of our iSchools, coming to consensus on such a set of courses seems unlikely.

Yet, an iConference presentation by Wiggins et al. (2007) identified three predominant disciplinary clusters that may share a common center of gravity. Specifically, the triumvirate of computer science, library science, and social science (e.g., psychology, communication, and management) appears to account for the source disciplines of many of the faculty in iSchools. Further, the historical focus starting in the 1960s on understanding the information needs of the user appears to comprise one possible point of convergence in which these disciplines meet.

In this presentation, I will provide a brief background on these points and then encourage discussion amongst session attendees on the possibility, challenges, and barriers involved in the development of a unitary doctoral curriculum.

Designing Doctoral Education for iSchools: A Case Study

Jennifer Golbeck, Allison Druin, Paul T. Jaeger, Kenneth R. Fleischmann, Jimmy Lin, Yan Qu, Ping Wang, and Bo Xie, University of Maryland

As the field of library and information science has transformed into the iSchool movement over the past several decades, doctoral education has evolved significantly. However, the majority of pedagogical literature continues to focus on the master's level. Building upon efforts of the iSchool at the University of Maryland to develop a new doctoral program, we present a modular approach to doctoral education. We argue for the value of designing doctoral education models that embrace the unique nature of iSchools and the education they can provide, highlighting a combination of conceptual lenses and content modules as one way to conceive of new approaches to doctoral education. While the Maryland experience is presented as a case study, there is potential relevance of this approach to doctoral education in other iSchools.
While the iSchool movement has embraced interdisciplinarity to bring together multiple, complementary perspectives that can help to solve complex problems, it also has significant challenges, especially in building common vocabularies and perspectives. Therefore, when developing the doctoral program at Maryland, we identified lenses that could provide a common technique for analyzing problems.

1. ***People***. This lens focuses on the people who are accessing and using information
2. ***Systems***. The systems lens considers technical and organizational systems, like hardware, software, networking, etc., and non-digital processes that help people access information.
3. ***Environments***. The information environment is the infrastructure that surrounds the people and systems, e.g. universities, hospitals, educational environments, or outdoor public spaces.
4. ***Information***. Since information is at the core of all problems we study, this lens focuses on how the other lenses interact in the context of a given topic.

By understanding how each of these lenses relate to a problem, and the interaction between the lenses in that problem, a student can develop a thorough understanding of it. These lenses serve as an analytical guide for both the modules we present in class, and as students progress into the broader field.

Because the breadth and depth of research in iSchool, a set of canonical readings would necessarily neglect vast spaces of current research. Thus, to provide students with the proper perspective on work in the iSchools, we created the *Maryland Modular Method (M^3)* for the two required gateway classes for doctoral students. Each module is a two-week, self-contained sub-course that introduces students to a research topic. A full semester course is made up of a collection of modules that, together, broadly cover the types of problems studied in the iSchools. Each module uses the same techniques for understanding research areas and problems: analysis through the lenses of people, environments, systems, and information. This perspective on the field provides students with a common language for discussing problems. It also teaches students to think about problems they may do research on from perspectives they might not otherwise consider.

In this talk we will discuss the modular approach in depth and share lessons from our first two years of using this approach in our own doctoral program.

Doctoral Research and Education for Informaticians at IST@PennState

John Yen, Mary Beth Rosson, and Henry C. Foley, The Pennsylvania State University

In the College of Information Sciences and Technology (IST) at Penn State, our vision for doctoral research and education is aimed at producing top informaticians who are engaged in research at the forefront of information sciences and technology. Our approach involves three tightly integrated elements: (1) a flexible curriculum with five concentration areas; (2) research themes that draw from multiple areas; and (3) a rich learning experience for all Ph.D. students. The doctoral curriculum consists of five tracks: (1) computational informatics, (2) artificial intelligence and cognitive science, (3) human-computer interaction, (4) social informatics and enterprise informatics, and (5) security informatics. All tracks begin with a common base of course requirements designed to build a shared foundation in information sciences and technology. In addition, each track includes its own set of prescribed courses and a set of elective courses that guide doctoral students in planning their own version of the Ph.D. study. These courses, however, can be easily tailored to meet the needs of individual students. By aligning themselves with a track, doctoral students are able to articulate their research areas to other scholars more easily.

To help doctoral students from different areas collaborate and find synergy, we have also identified strategic research themes that address current global challenges using innovative research that integrates conceptual frameworks, theories, models and methods from different areas within IST. An example is Relational Networks, where a new kind of science is emerging as the convergence of social network studies as conducted by sociologists and research on large-scale networks as conducted by network scientists. The college also actively contributes to interdisciplinary initiatives at the university level (e.g., the Smart Space Center for Aging in Space), which enables IST faculty and doctoral students to serve as a "nucleus" in interdisciplinary research regarding the value chain from data, information, knowledge, to decisions and behaviors, and where the human context involved may range from individual, team, organization, to society.

To enhance the learning experience of our doctoral students, the college sponsors and mentors a student-organized annual research symposium. The symposium itself enhances the interaction between doctoral students and researchers from industry. The student-led symposium provides a training opportunity for teamwork, leadership, collaboration, and planning. The decisions involved in identifying keynote speakers, topics for panel discussions also enhance the organizers' perspectives about the broader field beyond their own research areas.
The doctoral program of IST@PennState was initially anchored on a triangle that is formed by information, technology, and people as the vertices. During the past several years, the triangle has been gradually replaced by a dynamic matrix, in which columns represent the different tracks, and rows represent different research themes. The tracks help the doctoral students to establish their identity as part of a community of scholars within and outside the I-school context. The research themes, on the other hand, provide the "integrative" glue that not only bring students from different tracks together, but also create synergy. Together they represent an interesting and forward-looking model for doctoral education in I-schools.

Finnish Graduate Schools – Competition and Cooperation in Ph.D. Education

Poika Isokoski and Kari-Jouko Räihä, University of Tampere

Universities in Finland are mainly funded by the state. The state controls the activities in universities through funding schemes. The main funding scheme for Ph.D. education is the Graduate School program initiated in 1995. Graduate schools are cooperation bodies of departments and other units in universities. Research units outside universities can also participate. A graduate school may be formed within a single unit within a university or it can be a nation-wide cooperation structure within a discipline. The graduate schools offer a four-year funding for full-time Ph.D. students and support Ph.D. education through seminars, courses, and other support aimed to improve the quality and shorten the duration of Ph.D. education.

The graduate schools receive their funding from the Academy of Finland through competitive calls for applications. Expert panels evaluate the applications and divide the available funds among the best applicants. The goal is to ensure quality through competition and periodical performance evaluations. The graduate schools award the graduate school positions to Ph.D. students through a similar competitive application procedure.

The Finnish graduate schools do not award degrees. Formally, the Ph.D. students are associated with a certain unit within a university. The role of the graduate school is supportive. The idea is that through cooperation in graduate schools the individual departments can achieve critical mass in Ph.D. education although their own Ph.D. throughput within a given branch of their discipline may be small. Forming multi-disciplinary graduate schools is simpler than forming multi-disciplinary units such as departments because existing structures do not need to be abandoned.

The graduate school system involves currently about 1600 funded Ph.D. students. Additionally the graduate schools accept non-funded Ph.D. students who enjoy the other benefits but not the salary. The old system where Ph.D. students are associated only with a university department exists simultaneously with the graduate school system.

The graduate school system has been successful in shortening the time needed for completing a Ph.D. degree. Also, graduates from graduate schools know their field more widely than graduates previously did. Graduate schools that are national networks lead to graduates knowing the key people in Finland. Also, the support for international activities such as research visits, conference and summer school participation and joint courses and seminars with international peer organizations make the average graduate better prepared for an international research career.

We represent the graduate school in User Centered Information Technology (UCIT). UCIT has been in operation since 2002. It is a cooperation organ of 13 university departments from six universities in Tampere, Helsinki, and Jyväskylä. UCIT combines the HCI-related Ph.D. training of departments in different disciplines including Computer Science, Psychology, Design, Electronics, Public Health, Knowledge and Innovation Research, and Safety Engineering. Non-university units in UCIT are the Nokia Research Center and the VTT Technical Research Centre of Finland. UCIT has 15 funded positions for Ph.D. students.

Defining the Virtuous Circle: Building Frameworks to Increase iSchool Doctoral Student Diversity

Renee E. Franklin, Syracuse University and Paul T. Jaeger, University of Maryland

Increasing overall ethnic diversity within the information professions has been a long-running concern in the information field, though much of the scholarly discourse has focused directly on diversity in terms of practice rather than education. A topic that has been insufficiently examined thus far is that of identifying and utilizing a systematic framework that information schools (iSchools) may use to achieve diversity goals. This presentation will discuss Jaeger and Franklin's concept of the "virtuous circle" which describes the interrelationships of efforts of (1) increasing diversity within iSchool doctoral programs which can lead to (2) more diverse individuals who serve as iSchool faculty members who have the ability to (3) recruit more diverse and culturally aware Master's students who ultimately (4) work in information professions and potentially enter doctoral programs—thereby beginning the cycle anew.

Focusing on the two most populous minority groups (and, ironically, the two ethnic groups most noticeably absent from iSchool doctoral student populations)—African Americans and Latinos—the presentation will examine the potential impact that employing the virtuous circle can have within iSchools. In discussing the components of the virtuous circle, the presentation will consider such issues as:

- Factors that affect African Americans' and Latinos' decision to enter doctoral programs;
- Roles that increased diversity among doctoral students play in increasing overall diversity in iSchools and in preparing all iSchool students to provide inclusive information services in their professional activities; and
- Potential consequences of a failure to implement a method for recruiting members of under-represented ethnicities into iSchool doctoral programs.

By drawing upon diversity research from a range of fields, this approach is intended to bring attention to and drive action in the creation of frameworks that will help to increase diversity in iSchool doctoral education.

Interdisciplinarity and Convergence: A Required Research Design Class

Lori Kendall, University of Illinois at Urbana-Champaign

This presentation will discuss a unique approach to research methods education within an interdisciplinary doctoral program. Several years ago, GSLIS instituted several changes to its doctoral program requirements. Among the changes was the introduction of a new required course entitled Doctoral Research Methods. (Previously, students took two methods classes, most often in other departments. The current requirement includes Doctoral Research Methods plus one additional methods class.)

In designing the new class, GSLIS sought to create a research methods requirement that: (1) acknowledges the diverse disciplinary backgrounds of incoming doctoral students, (2) maintains that interdisciplinarity, while still (3) providing a shared understanding of what counts as quality LIS research. This class has several goals:

- Familiarize students with the broad range of types of research in LIS
- Give students the tools with which to choose their own research approach
- Enable students to evaluate research quality in the face of research diversity
- Improve the quality of doctoral dissertation research
- Provide a cohort bonding experience (as one of two required courses)

The first instantiation of the class constituted a survey of types of research, with some attention to research design. It featured a series of guest speakers, who provided a research "flavor of the week." While this class succeeded in familiarizing students with the range of research conducted in the department, it did not provide an adequate foundation for students' own research choices. A redesign of the class this year sought to give more attention to the fit between research questions and research methods, and to emphasize underlying philosophies and logics of research.

Currently the class consists of three major components:

(1) Logic of inquiry: epistemology, philosophical underpinnings of research, inductive vs. deductive research (this component of the class includes hands-on exercises designed as exemplars);

(2) Research design issues: project boundaries, sampling, ethics, writing a research proposal; and

(3) Brief survey of types of LIS research.

While the course appears to be going well in its first offering, it is too early to gauge its success. Several recent discussions with faculty and students (as well as a recent "fishbowl" discussion at the iConference) have lead to some plans for future minor changes to the design of the course. These include expanding the section on philosophical underpinnings of research, decreasing readings on mixed methods, and changing the name to Doctoral Research Design. These changes are in part an attempt to demarginalize types of research that use non-social science methods. The name change also seeks to better reflect the aim of the class, which is not intended as a methods "how-to" class.

Building National iSchool Collaboratories with the Legal and Nonprofit Sectors

Peter J. Wasilko, The Institute for End User Computing, Inc.

I am an Attorney in New York and Executive Director of the nonprofit Institute for End User Computing. The IEUC grew out of my formal and informal work with Syracuse University's iSchool, which opened its doors to law students in the early 90's. I was able to take up project management, the information processing industry, and legal information retrieval & institutional memory systems. That got me started on the line of research that led to my organizing the Institute. Also I am just coming off of a rotation on The New York State Bar Association's Committee on Legal Education, in which I led an unsuccessful faction pressing for law schools to enrich their curricula with select technical and iSchool topics - things law students should know but which the law deans would have no part of. As part of the Intellectual Property Section's Internet and Technology Law Committee, I can address the range of legal topics germane to the iSchool doctoral candidate — subject matter that is split across too many Law courses for the Ph.D. candidate to master via cross-enrollment.

This suggests adding a dedicated legal module to the iSchool Ph.D. program, which would draw in J.D. and LL.M. candidates to enrich iSchool diversity. Indeed, poor employment prospects for law grads make Law Schools a prime recruiting pool for iSchool Ph.D. programs. Trends in Law Practice Management and Legal Technology reveal the need for law firms to staff up with internal iSchool expertise. Indeed, knowledge management is the key source of competitive advantage and profit.

Also, as a player in the not-for-profit space, I would strongly advocate an iSchool driven NSF funded National Collaboratory, to help address the sense making and knowledge management needs of the charitable sector. Nonprofits are likely to be far more open to serving as test beds for dissertation projects than commercial ventures like law firms whose privacy considerations and risk aversion all but insure that no Ph.D. candidate would be given the opportunity to study and experiment with their internal workings. The IEUC would be eager to champion and participate in any such initiatives which could encompass everything from our Charitable Accounts project, to the development of virtual worlds just for charities, to the fostering of intercultural research communities. Recent funding opportunities have encouraged work with the medical field, but with lives literally on the line, there is a high level of potential risk and liability in experimenting with potentially radical ideas in healthcare that isn't present to anywhere near the same degree in the legal and nonprofit sectors.

Thus Alliances with the legal and nonprofit sectors hold greater promise to ground iSchool Ph.D. work in the real world, to bring in paying Ph.D. candidates, and to insure that the iSchool Ph.D. will be a bankable degree. My presentation would look first at legal topics, shift to alliances with the nonprofit sector, and end with my Collaboratory concepts embracing both.

Anticipatory Socialization in Research & Publication through Editorial Board Internships

Kathleen Burnett and Michelle Kazmer, Florida State University

This presentation will describe an innovative, collaborative and cross-institutional approach to the anticipatory socialization of doctoral students to research and publication in the interdisciplinary information field. In Fall 2008, the *Journal of Education for Library and Information Science* (*JELIS*) initiated a program of editorial board internships for LIS doctoral students. Two doctoral students were selected, through a competitive application process that was broadly advertised and open to all LIS and iSchools, to serve as interns to the *JELIS* editorial board for a period of two years. Each fall, a new intern will be selected through a similar process. The *JELIS* editors were motivated to initiate these positions by demonstrated success in active learning solutions for anticipatory socialization to faculty roles such as *Preparing Future Faculty* (http://www.preparing-faculty.org) and *Project Athena* (http://www.projectathena.ci.fsu.edu).

Anticipatory socialization refers to the process of socialization in which individuals are engaged in guided experiences related to future positions, occupations, and social relationships, and occurs when the individual begins to learn norms and values in anticipation of occupying a role or role set (Merton & Kitt, 1950; Merton, 1968). Anticipatory socialization allows individuals to make adjustments before the transition into the new role and, through adopting some of the norms and values of a future role, to evaluate whether the role will "fit." Participation in the editorial functions of a refereed, interdisciplinary academic journal allows the students to extend social and professional ties across institutional boundaries, to broaden appreciation for the interdisciplinary nature of research, and to gain familiarity with the norms, values, and processes of academic publication in the information field (Austin, 2002; Bess, 1978).

The application process for the JELIS editorial board internships gave the applicants the opportunity to prepare a constructive manuscript review and a sample article, and to delineate personal goals for the internship. The two interns co-author quarterly journalist-style profiles; moderate blogs about the profiles and featured research articles on the *JELIS* website; help coordinate editorial board meetings and activities undertaken by the board; assist the editors in the peer review process; and promote the journal to potential authors, readers, reviewers, and indexers. Guided practice in writing for publication, managing scholarly discussion, coordinating meetings and activities, and the development of new social ties are important outcomes of the internship experience.

The authors seek to collaborate with editors of other refereed academic journals in the information field who are interested in developing similar opportunities for doctoral students at multiple institutions. We also seek to work with iSchool deans and directors of doctoral programs to solidify the student support and academic credit arrangements necessary to sustain such efforts.

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Sharing a User-Centered Focus: HCI and iSchools

Kenneth R. Fleischmann, Paul T. Jaeger, Allison Druin, Jennifer Golbeck, and Jennifer Preece, University of Maryland

The field of human-computer interaction (HCI) emerged primarily from programs in computer science, psychology, and human factors, but today HCI is increasingly incorporated into many other programs, including iSchool doctoral programs. There are many reasons for this trend, but this paper focuses on three of these reasons: the common emphasis on users, the shared tendency toward interdisciplinarity, and the co-evolution of HCI and the iField to jointly consider issues of community and convergence. Consequently, iSchools are the ideal location for HCI research and education.

First, HCI and iSchools share a common emphasis on users. In this regard, the historical origins of most iSchools as former library schools and present status of many iSchools as sites for the education for librarians as well as other information professionals is not a bug, but rather a feature. The profession of librarianship has historically placed a high value on service, and librarians are trained to study and meet the needs of their users. Similarly, HCI requires consideration of the user's perspective, and an orientation toward serving the needs of users. As a result, the iField, among the various fields that consider HCI issues, is uniquely situated to emphasize and consider the needs of users.

Second, HCI and iSchools also share a tendency toward interdisciplinarity. Specifically, the iField has been constituted by many of the same fields as HCI, including computer science, psychology, human factors, science and technology studies, communication, sociology, anthropology, information management, systems engineering, and many others. Interdisciplinarity requires communication and collaboration across disciplinary boundaries, and can lead to breakthroughs that can benefit multiple disciplines, as well as the scientific community and society as a whole, and thus interdisciplinarity is highly emphasized by funding agencies such as the National Science Foundation. Thus, the same skills of interdisciplinarity that iSchools have honed can serve them well in offering programs in HCI.

Finally, HCI and iSchools are currently co-evolving to consider many of the same conceptual issues, including an increasing emphasis on community and convergence. HCI is increasingly considering interaction at and through computers as well as interaction with computers, leading to the emergence of related fields such as CMC, CSCW, and CSCL. iSchools have a similar emphasis on studying communities of users. Further, the boundary between computers and humans is becoming blurred, as people now carry around smart phones and other mobile technologies that become an integral part of their everyday lives, and indeed some people's lives literally depend on embedded computer chips in devices such as pacemakers. iSchools also consider the impact of convergence on individuals as well as on society. Overall, HCI and iSchools are developing and evolving in highly related and complementary ways.

As a result of the shared origins, structures, and emphases of HCI and iSchools, iSchools are the logical and ideal site for HCI research and education. Thus, the trend of increasing situatedness of HCI programs in iSchools is likely to continue and grow into the future. Clearly, the relationship between HCI and iSchools is strong and mutually beneficial.