Research Methods for Web Science: The Study of Moving Targets

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How do we teach students to study a moving target? Defining appropriate methods for research in Web Science is a challenging task, mostly because the nature of online behaviors and technologies are constantly changing. For example, just as researchers began to develop methods to study forums, blogs emerged, and as blogs became ubiquitous, social network sites gained popularity. Currently, Twitter seems to be the next frontier, but perhaps something is lurking that is even more compelling. True, a moving target is hard to study, but as the above examples illustrate, identifying trends among the innovations provides a starting point. The technologies and accompanying interactions surrounding these tools are not entirely new, but rather adapted or revised. Therefore, a consideration of methods used to study similar trends in the past can effectively inform current research. A blending of these conventional methods of data collection and analysis with medium-specific adaptations will potentially provide a strong framework for Web researchers. Thus, an interdisciplinary course that examines these methods could prepare students for the challenging and unique research tasks they will encounter.

A starting point for a Web Science research methods course is to consider what we can gain from analysis methods taught in canonical courses across the disciplines. For example, what can log file analysis from Computer Science, experimental methods from Psychology, or network analysis from Communication contribute to studies of the Web? Further, how can a blending of these disciplinary methods inform current methodological practice? Given that the medium under study is not the domain of a single discipline, established methods of study from multiple disciplines must be considered. In the study of information overload, for example, Kristen Blair (2003) offers a perspective using textual analysis of journals dated 1550-1700. Blair finds that information overload was a common complaint among these scholars and that they frequently used annotation methods (e.g., writing in the margins or truly cutting and pasting texts) to help organize the seemingly vast amounts of information afforded by the increased publication of books. Blair's findings illustrate that there are things we, as researchers, know about information management and how to study it that transcend the medium. For example, at some point, readers will be cognitively overloaded by the information they encounter and will devise schemes for organizing it. While conventional methods are neither infallible nor comprehensive, they provide a starting point to anchor the target and to understand what it is we're aiming at. The next step is to test these measures and determine what we can draw from our established disciplinary methods of research and what else is necessary to conduct research in the dynamic medium of the Web.

Two existing programs offer a framework for examining and developing evidence-based research curricula in Web Science: the Summer Doctoral Programme at the Oxford Internet Institute and the Technology & Society seminar at the University of California, Santa Barbara. Both programs offer team-taught, interdisciplinary, and interactive graduate seminars that blend new and conventional methods of studying the Web.

Summer Doctoral Programme, Oxford Internet Institute

During the 2008 Summer Doctoral Programme at Oxford Internet Institute, graduate students and faculty from Engineering, Social Science, and the Humanities shared their approaches to studying the technical, legal, and human components of web interaction. Each day began with a faculty presentation, followed by a student presentation, followed by a faculty respondent, and so forth. Faculty and students shared their work, addressing the types of questions typical of their field and demonstrating the methods they used to pursue the answers. This format fostered contentious debate and, as most students reported, afforded a deeper understanding of the methodological challenges facing Web Science researchers.

Technology & Society Seminar, University of California, Santa Barbara

The curricular design of the Oxford Internet Institute's Summer Doctoral Programme complements an ongoing graduate seminar in Technology & Society offered by the University of California, Santa Barbara's Center for Information Technology and Society. The Technology & Society seminar is team taught by faculty from Sociology, Political Science, Sociology, English, and Computer Science. Through this ten-week seminar, graduate students discuss a concept, such as "participation in technological groups" from their disciplinary perspectives. Each student leads a class discussion by presenting research questions and demonstrating discipline-specific methodological approaches. These discussions often help students to clarify their questions, address disciplinary assumptions, and distill their methods in order to communicate with students and faculty outside of their discipline.

An interdisciplinary Web Science course would allow students to explore how they formulate their research goals, which methods they would use to collect and analyze data, and what conclusions they hope to draw. Engaging in discussion with other seminar participants would allow students to challenge their disciplinary assumptions and evaluate gaps in their methods or understanding. Combined, an understanding of conventional methods and a consideration of Web-specific adaptations would inform the development of effective research practice. By addressing the parts of the target that they can understand, students could then adapt their methods to address the dynamic bits and therefore contribute comprehensive, evidence-based methods to the study of the Web.

Work Cited

Blair, K. (2003). Reading strategies for coping with information overload ca. 1550-1700. *Journal of the History of Ideas, 64*, (pp. 11-28).