'It's a team if you use "reply all"': An exploration of research teams in digital humanities environments

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Abstract

Given that the nature of research work involves computers and a variety of skills and expertise, Digital Humanities researchers are working collaboratively within their institutions and with others nationally and internationallly to undertake the research. This work typically involves the need to coordinate efforts between academics, undergraduate and graduate students, research assistants, computer programmers, librarians, and other individuals as well as the need to manage financial and other resources. Despite this use of collaboration, there has been little formal research on team development within this community. This article reports on a research project exploring the nature of Digital Humanities research teams. Drawing upon interviews with members of the community, a series of exemplary patterns and models of research collaboration are identified and outlined. Important themes include a definition of team which focuses on common tasks and outcomes as well as a need for responsibility and accountability to the team as a whole; elements of a successful team which include clear task definition and productive working relationships over the life of the project and beyond, a need for balance between digital and face-to-face communication and collaboration tools, and potential for more deliberate training in collaboration and team work. The article concludes with recommendations for the individual team members, project leaders, and teams.

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1 Introduction

Traditionally, research contributions in the humanities field have been felt to be, and documented to be, predominantly solo efforts by academics involving little direct collaboration with others, a model reinforced through doctoral studies and beyond (See, for example, Fennel *et al.*, 1983; Newell *et al.*, 2000; Cuneo, 2003). However, Humanities Computing/Digital Humanities is an exception to this. Given that the nature of research work involves computers and a variety of skills and expertise, Digital Humanities researchers are working collaboratively within their institutions and with others nationally and internationally to undertake this research. This research typically involves the need to coordinate efforts between academics, undergraduate and graduate students, research assistants, computer programmers/developers, librarians, and other individuals as well as the need to manage financial and other resources. Despite this, there has been little formal research on team development

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within this community with few protocols in place to prepare individuals to work within these research teams.

2 Context

As team research and collaboration become more prevelant, reflection on the nature of collaboration within academic communities is gaining attention. In an article examining academic-practitioner collaboration in management research, Amabile *et al.* (2001) argue that it is necessary to understand the nature of collaboration and the factors that contribute to its success while minizing the potential difficulties. Canada's primary funding agency, Social Sciences and Humanities Research Council (SSHRC), is also examining the factors that encourage research success in large team research projects (Kishchuk, 2005; SSHRC, 2005). In addition, academic research teams themselves are reflecting on their own experiences to better understand the factors that influence research team success (See, for example, Bracken *et al.*, 2006; Garland *et al.*, 2006; Massey *et al.*, 2006). However, despite this increasing focus on research teams, there has been minimal research on the role of teams within academic communities, particularly within the Humanities (Birnbaum, 1981; Kraut *et al.*, 1987, 1988; Newell *et al.*, 2000; Cech *et al.*, 2004).

Within the Digital Humanities community, efforts toward understanding the organizational context in which Digital Humanites research is situated is beginning in earnest. Two large-scale survey projects (Siemens *et al.*, 2002; Toms *et al.*, 2004) have highlighted issues of collaboration, among other topics, and Warwick (2004) found that the organizational context has had an impact on the manner in which Digital Humanities/Humanities Computing centres developed in the United States and England. Other similar studies are underway as well. In addition, within his recent book, McCarty (2005b) explores ways that computers have opened opportunities for collaboration within the Humanities. In addition, he has explored the associated challenges of collaboration and team research within the HUMANIST listserve which he moderates (McCarty, 2005a). Several members of the community have also reflected on lessons learned through collaboration (e.g. Unsworth, 2003, 2007; Liu *et al.*, 2007; Ramsay, 2008; Ruecker *et al.*, 2008a,b; Smith *et al.*, 2008). Finally, through efforts such as the University of Victoria's Digital Humanities Summer Institute and other similar ventures, the community is working to develop its collaborative capacity through workshops with topics such as community-specific project management skills and team development and support.

Drawing upon these efforts, this paper explores and documents the nature of research teams within the Digital Humanities community to the end of identifying exemplary work patterns and larger models of research collaboration that have the potential to strengthen this positive aspect of the community even further. It is part of a larger research project focused on answering questions on the ways that research teams within this community function.

3 Methods

Given its exploratory nature, this project uses a qualitative research approach with in-depth interviews with members of various multi-disciplinary, multi-location project teams in Canada, the United States, and England. The interview questions focus on the participants' definition of teams; their experiences working in teams; and the types of supports and research preparation required to ensure effective and efficient research results within teams. These interviews allow the researcher to explore topics more fully and deeply with probing and follow up questions while the participants reflect on their own experiences and emphasize those issues which are important to them (McCracken, 1988; Rubin *et al.*, 1995; Marshall *et al.*, 1999).

Data analysis involves a grounded theory approach, which focuses on the themes that emerge from the data. This analysis is broken into several steps. First, the data is organized, read and coded to determine categories, themes and patterns. These are tested for emergent and alternative

understandings, both within a single interview and across all interviews. This is an iterative process, involving movement between the data, codes and concepts, constantly comparing the data to itself and the developing themes (Glaser *et al.*, 1967; Marshall *et al.*, 1999).

4 Results

The interviewed individuals have been and continue to be members of a diverse range of team research projects, in terms of research objectives, team membership size, budget, and geographical dispersion. These projects have been located within their own institutions, as well as nationally and internationally. Some of these projects have been relatively small with a few team members and limited project scope while others are very large with many team members and larger project scope and budget. A variety of disciplines and discipline-specific methods of work are also represented on these teams. These projects have met varying degrees of success in terms of meeting project goals and member satisfaction as evaluated by the interviewees themselves. The participants have played a variety of project roles including research assistant, researcher, computer programmer/developer, and lead investigator. In several cases, their roles have changed within a particular research project as they gained skills and completed academic training. In terms of individual demographics, there is also diversity as can be seen in Table 1.

Table 1 Demographics of individual participants

Characteristic	Number
Gender	Female: 3
	Male: 9
Country of employment	Canada: 6
	USA: 4
	England: 2
Present role in community	Faculty: 8
	Developer/programmer: 1
	Administration: 2
	Post-doctoral Fellow/Research: 1

The first identified theme from the interviews focuses on the definition of a team. In their collective opinion, a team is a group of individuals who share common goals, outcomes, and output. One participant stated that a team was 'people working together toward a common project or goal'. For the interviewees, inherent in this definition is the need for responsibility, accountability, communication, and collaboration among team members. In other words, individuals do not work in isolation on these research projects, but rather in concert with team members to accomplish the team's goals. In addition, reflecting the variety of tasks required to complete a Digital Humanities project, a group is needed to accomplish these. Several participants also make the distinction between a team and a community, drawing upon differences in levels of accountability and responsibility. As the title of this paper suggests, one is part of a team when one uses 'reply all' when responding to an email, given the responsibility and need to coordinate with team members. This very action is necessary to ensure that team members communicate with each other and the team as a whole. This same obligation may not be present within a community. The elements of team definition are highlighted in Fig. 1.

From their understanding of teams, the participants elaborate further on the elements of successful and unsuccessful teams. The participants define a successful team as one which meets both its goals and outcomes while maintaining a good working relationship throughout the life of the project. As shown in Fig. 2, the components of successful teams include tasks, working relationships and time. When discussing the task component, the participants emphasize the need for clearly defined tasks, goals, roles, and milestones, which are negotiated by the team itself. With these, team members understand their role and relationship to each other and the project. The need for planning becomes inherent within this understanding of project success. For example, as one interviewee commented, 'a well run team has benchmarks along the way to guide the research project'. Another echoed this with the observation that there needs to be a 'clear and shared understanding of what is to get done' in order to be successful.

While clearly defined tasks, milestones and outcomes are necessary, these are not sufficient for

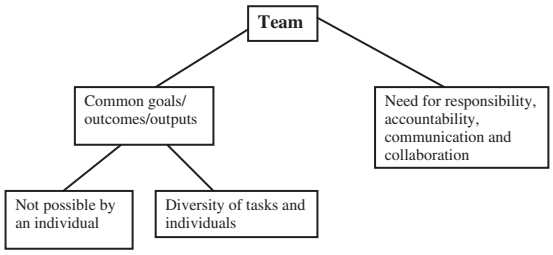

Fig. 1 Definition of a team

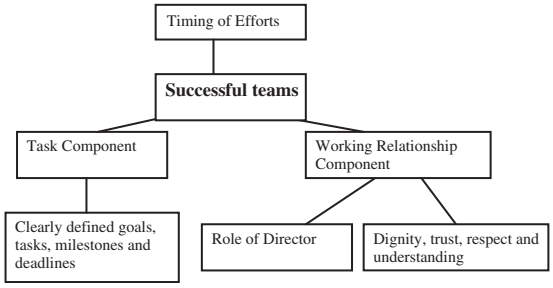

Fig. 2 Components of a successful team

a successful team project. A productive working relationship among team members must also be present and may even be more important than the task component to overall project success. The participants comment that it is by (un)productive working relationships that many projects live and die. These relationships are comprised of dignity, respect, trust, and understanding among team members at all project stages. As one interviewee stated, 'there is something about the interpersonal dimension that is really important'. Within this context, some participants comment on the tension that can exist in this regard between the technical-oriented members and academics on a team. For a working relationship to contribute to project success, the interviewees reflect that all members must be treated collegially and with respect, regardless of role or training.

The participants also provide several possible measures of successful work relationships. One participant suggests that a successful team is one where the 'team feels as happy getting together at the end of the project as they were in the beginning'. For another participant, trust must exist among the team members so that one is able to send a direct email asking ' ''have you done this yet'' and knowing that you are not being rude'. According to most participants, an effective working relationship can also be motivating and can create continued commitment to the project. As highlighted by several participants, the director/project lead plays an important role in creating this valuable relationship and has the responsibility to develop an environment that encourages trust and respect. One participant stated that an effective director 'finds what each person is good at and then finds a way for them to contributed and fulfill their potential in the project'. Building on this, another interviewee felt it was 'the role of the boss to respond' to problems. When they do not, 'an atmosphere of distrust and anger' may be created. If they do not accomplish this, the end result may be unsuccessful teams which may have accomplished the tasks but at the sacrifice of the working relationship.

The timing of these efforts to define tasks, outcomes and timelines and create an effective working relationship becomes the final consideration for a successful team. The participants stress the need to begin these activities as early as possible, often during the grant development process, before the actual 'work' commences. They also feel that these efforts must be reinforced on a regular basis throughout the project's life to ensure continued collaboration and commitment to it. Whether in person or by conference call, regular meetings are a key activity within these efforts. Finally, this time component often extends beyond the original project. One successful project may prompt people to work together on a second phase of that project or to even begin a new project. As a result, the participants feel that the subsequent projects with the same members may be better equipped to be successful because there is already an environment of trust and respect. As one participant articulates, 'a second project with the many of the same team is in place precisely because there was a first successful project'.

Because these participants have been involved in various projects, they are quite cognizant of the

Table 2 Benefits and challenges of team research

Benefits	Challenges
Richness of interaction and synergies	Personality and discipline difficulties
Greater accomplishments than possible by a single individual	Communication and coordination challenges
Social interaction	Inequitable distribution of effort
Creates potential for additional projects with same individuals	Time and commitment
	Funding
	Retention of team members

many challenges and benefits related to team research. The challenges are many and are predictable at times. Research teams often encounter personality difficulties and conflicts. This may be compounded by the 'I know best' attitude of many academics, as highlighted by several participants. Communication and coordination between team members on various levels provide ongoing challenges. These tend to reflect the tension that can exist between programmers and non-programmers, the varying perspectives of different disciplines, a lack of common language and understanding of the project between team members, and a possible feeling of isolation that can occur due to information gaps or geographical dispersion. Given the diversity of skills, disciplines, and individuals involved in many of these projects, standards on roles, expectations, outputs, and credit must be negotiated with each project. These issues can become compounded exponentially as the number of team members and the amount of geographical dispersion increases.

Teams also struggle with members who do not contribute equitably. One participant describes a successful team as a 'round thing' with equitable contribution by individual members. A team may become lopsided with uneven effort on the part of members. Time and commitment are ongoing issues given that individuals are generally limited in their ability to devote 100% of their time to a particular project. The final challenge relates to the need for ongoing funding and retention of team members. Digital Humanities projects often need more money than traditional Humanities projects. As a result, ensuring consistent funding can be a struggle. Thus, it may be difficult to keep people involved as money ebbs and flows over the life of the project. As a result, teams must often train many new people over the life of a project, creating another challenge.

However, team research creates many benefits that often offset the challenges, thus ensuring that team research continues. This larger network of individuals with a variety of skills and knowledge creates a richness of interaction and synergies that is often not found in solitary research. Certainly, team research presents an opportunity for social interaction. Single scholar research can often be a lonely affair, as pointed out by several interviewees. Team research ensures that knowledge gaps are addressed. As one participant reflects, 'team research prompts one to think at a different level about a project than is possible by oneself'. Another stated that 'it is rare that someone can do it all in digital projects'. Finally, team research builds ongoing relationships that can create the potential for future projects. As one participant remarks, team research is a 'double-edged sword'. Those very challenges ultimately translate into the benefits that allow a team to accomplish more than any single individual. Table 2 summaries the benefits and challenges of team research.

The research teams, in which these individuals participant, draw upon a variety of communication and collaboration tools. Given the nature of research within Digital Humanities, these research teams employ a range of digital and electronic communication and collaboration tools. The teams use wikis, blogs, websites, email, listserves, shared online project spaces, and instant messaging for record keeping of decisions, tasks and deadlines and the timely sharing of information with team members. Some teams also use instant messaging for quick exchanges in real time in a way that the other digital

tools do not allow. All these methods are particularly useful for those teams whose members are geographically dispersed and very busy. However, these tools present several challenges. The digital tools are sometimes viewed as one more task for already busy people. In addition, people struggle with overflowing email inboxes and often do not read nor respond to emails to the frustration of team members. The participants also feel that it is difficult to bond and establish productive working relationships or resolve contentious issues with digital tools.

These teams also draw heavily upon verbal communication tools in two forms to develop their collaborative work relationships. First, conference calls, either by phone or Skype, are standard for many teams. In addition, the participants meet face-to-face on a regular basis to fulfill several objectives. First, these meetings are useful for reviewing progress from previous meetings and planning next steps. Second, agenda items often include those 'thorny' issues, which cannot be easily resolved by conference calls or email. In other cases, some groups use face-to-face time for concentrated effort on direct project work. Finally, these meetings are also a time to 'enjoy each other's company over good meals and drinks', as highlighted by one interviewee. All these efforts contribute to the establishment of commitment, obligation, and responsibility to each other and the larger project. As one participant stated, 'if there is too much time between meetings, you do not feel like a team'. Another realized that they 'would never underestimate the value of this again'. These benefits, however, come with trade offs. Given the size of the teams, scheduling these meetings can be difficult and time-consuming. In addition, the projects generally face budget limitations, which can constrain the frequency with which the teams can meet. Funding guidelines may also impose constraints on hospitality budgets. (See Siemens, 2008 for a fuller discussion on the use of communication and collaboration tools in Digital Humanities research teams.)

For the most part, these participants have learned to work in teams through direct experience and/or observation of research teams. In some cases, participants have worked within a semi-formal apprenticeship model where they started as research assistants on a project and then developed skills, which led to increasing amounts of responsibility and contribution in subsequent projects. The participants express some skepticism about management training and its application to Digital Humanities research. However, they are open to the possibility and suggested that potential training might include exposure to the similarities and differences with other disciplines, ways to be a good colleague, and how to effectively chair meetings. Participants suggest that there may be a possibility for the incorporation of more team projects within classes as a way to train the next generation of Digital Humanities researchers.

5 Implications for practice

From this exploration of research teams within the Digital Humanities environment, several implications for practice can be recommended. These focus on various levels within a research team environment.

(1) Deliberate action and commitment on the part of the individual team member—When one decides to join a research team, one is committing to both identified components of a team, that is, common goals, tasks, and output, and accountability and commitment to the team. Thus, to be a productive team member is to commit oneself to the team's common goals, outcomes, and output as they have been negotiated by the members. Any individual goals and desired outcomes must then fit within these objectives and goals. Second, and perhaps more importantly, one is agreeing to certain expectations about working relationships and responsibility to other team members. Again, one cannot do one's own thing within a research team. As a result, individuals are well advised to evaluate their commitment to a team prior to joining it to ensure that they can follow through on it. Once one accepts this commitment, their most important role on the team is to be a 'good colleague', as suggested by one of the participants.

(2) Deliberate action by the project leader—As highlighted above, the project leader plays a particularly important role in shaping the work environment for these teams to ensure project and research success. They must ensure that team members understand the commitments they have made to the team and that they subsequently live up to these. To ensure productive work relationships, project leaders need to ensure that the project remains 'round', not lopsided, and respond to those who do not contribute equitably. The project leader also plays an important role as a model for the desired behaviours. Towards this end, project leaders must facilitate the necessary and ongoing discussions that establish the parameters of the team's working relationship.

(3) Deliberate action by the team—Potential team members must reflect at the beginning of any discussions toward a team research project on the inherent benefits and challenges of team research. By recognizing these in advance, teams can take deliberate steps to maximize the benefits while minimizing the challenges. These steps might include focused discussion and negotiation of project goals, outcomes, and tasks with the aim of building commitment and buy-in. In addition, teams must develop a common language among members from various discipline backgrounds so that communication and collaboration can be effective and efficient. Members might also explore the similarities and differences between the various academic cultures and disciplines as well as the ones between technical and non-technical team members. As Liu and Smith (2007) argue, team members must be open to the differences that exist between various discipline perspectives and take active steps to explore these differences in advance to reduce confusion and misunderstandings.

(4) Deliberate training—On-the-job training of technical and team skills can be effective; however, it must be used again with deliberate action. Senior team members must model desired behaviours and create learning environments where junior members can gain necessary skills and responsibilities while contributing to projects. Group projects within courses may be an additional way to develop the necessary skills within students in advance of participation in team research projects. Ultimately, the development of team collaborative skills will serve students well as they look for employment within and without the academy. This training can be supplemented with reflection on team processes. Through reflection, team members can establish the key behaviours, tasks, and other factors that contribute to project success. These lessons can then be transferred to other teams through both formal and informal mechanisms. For example, at recent conferences for Digital Humanities, Society for Digital Humanities/Société pour l'étude des médias interactifs and other associations, several papers focusing on various aspects of team processes were presented. In addition, these lessons are transferred to groups as people move between various research teams. As a practical example, Ruecker and Radzikowska (2008a) outline the expanding use of a project charter among various teams in which they are involved.

(5) Balance between digital and in-personal communication and collaboration tools—Digital communication and collaboration tools are very effective for geographically dispersed teams, particularly for Digital Humanities teams, which already have an affinity for the digital environment. However, the digital cannot replace the many benefits that flow from in-person interactions, including the development of positive working relationships. A balance between the digital and the personal must be established and ensure that the tools selected support both the task and working relationship components of successful teams. As a result, budgeting for the use of digital and in-person tools, including face-to-face meetings, must be included in project plans and budgets. Money and time is needed to support these tools and it can be argued that project success often hinges on them, a point to stress with project funders.

6 Conclusion

Research teams are widely used in the Digital Humanities community to undertake various research projects. The teams in which these participants have been involved have been successful and found ways to manage many of the various challenges associated with this type of work. This study is one step towards understanding the nature of these research teams while recommending several best practices. However, there is more research to be done. At this point, a relatively small number of individuals involved in Digital Humanities research projects based in Canada, the US, and England have been interviewed. Additional interviews are ongoing. In addition, a survey will be conducted to explore the above themes further within the community at large and provide more empirical data. Further, as more Digital Humanities research teams involve members from a variety of countries, the issues of different cultures, languages, and geography should be explored to determine the impact that these may have on these teams. Finally, further study of research teams in other disciplines might provide further learnings for Digital Humanities research teams. With this knowledge, further research protocols and supports can be developed to support the ongoing Digital Humanities research work, capitalizing on these positive aspects of the community even further.

References

Amabile, T. M., Patterson, C., Mueller, J. *et al.* (2001). Academic-practitioner collaboration in management research: a case of cross-profession collaboration. *Academy of Management Journal*, **44**(2): 418–31.

Birnbaum, P. H. (1981). Academic interdisciplinary research: characteristics of successful projects. *Journal of the Society of Research Administrators*, **13**(1): 5–16.

Bracken, L. J. and Oughton, E. A. (2006). 'What do you mean?' the importance of language in developing interdisciplinary research. *Transactions of the Institute of British Geographers*, **31**(3): 371–82.

Cech, T. R. and Rubin, G. M. (2004). Nurturing interdisciplinary research. *Nature Structural & Molecular Biology*, **11**(12): 1166–9.

Cuneo, C. (2003). Interdisciplinary teams – let's make them work. *University Affairs*. November: 18–21.

Fennel, M. and Sandefur, G. D. (1983). Structural clarity of interdisciplinary teams: a research note. *The Journal of Applied Behavioral Science*, **19**(2): 193–202.

Garland, D. R., O'Connor, M. K., Wolfer, T. A. *et al.* (2006). Team-based research: Notes from the field. *Qualitative Social Work*, **5**(1): 93–109.

Glaser, B. G. and Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York, NY: Aldine De Gruyter.

Kishchuk, N. (2005). *Performance Report: SSHRC's Major Collaborative Research Initiatives (MCRI) Program*, Ottawa, Ontario: SSHRC.

Kraut, R. E., Galegher, J., and Egido, C. (1987–1988). Relationships and tasks in scientific research collaboration. *Human-Computer Interaction*, **3**(1): 31–58.

Liu, Y. and Smith, J. (2007). *Aligning the Agendas of Humanities and Computer Science Research: A Risk/reward Analysis, SDH-SEMI 2007*, Saskatoon, Saskatchewan.

Marshall, C. and Rossman, G. B. (1999). *Designing Qualitative Research*. Thousand Oaks, CA: SAGE Publications.

Massey, C., Alpass, F., Flett, R. *et al.* (2006). Crossing fields: The case of a multi-disciplinary research team. *Qualitative Research*, **6**(2): 131–49.

McCarty, W. (2005a). *19.215 How Far Collaboration? Humanist Discussion Group*. http://lists.village.virginia.edu/lists_archive/Humanist/v19/0211.html (accessed 18 August 2005).

McCarty, W. (2005b). *Humanities Computing*. New York, NY: Palgrave MacMillan.

McCracken, G. (1988). *The Long Interview*. Newbury Park, CA: SAGE Publications.

Newell, S. and Swan, J. (2000). Trust and inter-organizational networking. *Human Relations*, **53**(10): 1287–328.

Ramsay, S. (2008). Rules of the Order: The Sociology of Large, Multi-institutional Software Development Projects. *Digital Humanities 2008*, Oulu, Finland.

Rubin, H. J. and Rubin, I. S. (1995). *Qualitative Interviewing: The Art of Hearing Data*. Thousand Oaks, CA: SAGE Publications.

Ruecker, S. and Radzikowska, M. (2008a). *The Iterative Design of a Project Charter for Interdisciplinary Research, DIS 2008*, Cape Town, South Africa.

Ruecker, S., Radzikowska, M., and Sinclair, S. (2008b). *Hackfests, Designfests, and Writingfests: The Role of Intense Periods of Face-to-face Collaboration in International Research Teams. Digital Humanities 2008*, Oulu, Finland.

Siemens, L. (2008). *The Balance Between On-line and In-person Interactions: Methods for the Development of Digital Humanities Collaboration, SDH-SEMI 2008*, Vancouver, British Columbia.

Siemens, R. G., Best, M., Grove-White, E. *et al.* (2002). The credibility of electronic publishing: A report to the humanities and social sciences federation of Canada. *Text Technology*, **11**(1): 1–128.

Smith, J. and Liu, Y. (2008). *Collaboration Space: Characterizing the Challenges of Interdisciplinary Collaboration Projects, SDH-SEMI 2008*, Vancouver, British Columbia.

SSHRC. (2005). *Report on the Consultations*. www.ssshrc.ca/web/whatsnew/initiatives/transformation/reports/intro_e.asp (accessed 22 March 2005).

Toms, E., Rockwell, G., Sinclair, S. *et al*. (2004). The humanities scholar in the twenty-first century: How research is done and what support is needed. *Joint International Conference of the Association for Computers and the Humanities and the Association for Literary & Linguistic Computing*. Göteborg, Sweden. Published results forthcoming; results reported by Siemens, *et al.*, in abstract available at http://www.hum.gu.se/allcach2004/AP/html/prop139.html (accessed 25 March 2006).

Unsworth, J. (2003). The humanist: ''dances with wolves'' or ''bowls alone''? *Scholarly Tribes and Tribulations: How Tradition and Technology are Driving Disciplinary Change*. Washington, DC: Association of Research Libraries.

Unsworth, J. (2007). *Learning from Nora: Distributed Software Development in the Humanities*. Presented at Indiana University, Bloomington, IN.

Warwick, C. (2004). ''No such thing as humanities computing?'' An analytical history of digital resource creation and computing in the humanities. *Joint International Conference of the Association for Computers and the Humanities and the Association for Literary & Linguistic Computing*, Göteborg, Sweden. (Prepublication document available at http://tapor.humanities.mcmaster.ca/html/Nosuchthing_1.pdf. [accessed 25 March 2006]).