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Abstract

Use of project teams is increasing, however little is known about collaboration as it actually occurs over the life of projects. This article explores the nature of collaboration within Implementing New Knowledge Environments (INKE) after three years of funded research. The third year is characterized by change and transition with new team members, partners, and sub-research areas. INKE continues to draw upon structures and processes, including team-building activities, in-person meetings, multiple communication channels, evolving governance documents to support the collaboration, and the incorporation of collaboration-ready individuals. The article concludes with recommendations for similar long term, large-scale project teams.

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Introduction

Supported by funding programs for national and international large-scale initiatives, Humanities researchers are using collaborative and multi-disciplinary teams to explore increasingly complex and sophisticated research questions, drawing upon models more commonly seen in the Sciences (Newell & Swan, 2000; SSHRC, 2005). To work within these teams, many of these scholars have had to (re)orient themselves away from the individual-oriented, single disciplinary approach (developed through graduate school and reinforced through institutional and disciplinary policies) toward more integrative and collaborative approaches (Hara, Solomon, Kim, & Sonnenwald, 2003; Newell & Swan, 2000). To facilitate the development needed in order to achieve objectives, collaborative projects must develop processes to coordinate tasks, knowledge, and communication while minimizing associated challenges (Amabile, Patterson, Mueller, Wojcik, Odomirok, Marsh, & Kramer, 2001; Lawrence, 2006; Melin, 2000). Most of these work patterns are established at a collaboration's outset, built through the development of the grant application; however, projects need to establish processes to facilitate the inevitable changes in team members, research approaches, and other factors that occurs over a grant's life.

In a variety of forms, teams formally reflect on their experiences and articulate smart practices for consideration (for example, see Bracken & Oughton, 2006; Bryan, Negretti, Christensen, & Stokes, 2002; Kishchuk, 2005; Trnka, 2008; Williford & Henry, 2012). This is supplemented by research studies, which explore the experiences of various collaborations (Cramton & Webber, 2005; Diercks-O'Brien & Sharratt, 2002; Hagstrom, 1964; Kishchuk, 2005). However, much of this work occurs after project completion, which may mean that the benefit of some learnings have been reduced or even forgotten. Additional understandings may be possible if a collaboration is examined as it is underway, with a particular focus on a team's handling of the inevitable changes in people and research directions and transitions within working relationships. This article contributes to that discussion with an exploration of a particular large-scale collaboration at the end of its third year of funded research and builds upon earlier reflections (L. Siemens & INKE Research Group, 2010a, 2010b, 2011, 2012a, 2012b).

The article is structured as follows. First, the literature on academic research teams with a focus on processes related to change and transition will be outlined. Next, the case study is described and findings from interviews with team members reported. The article concludes with recommendations for other large-scale long-term research teams.

CONTEXT

Across all academic disciplines, researchers are collaborating to explore complex research questions, providing these projects with increased research quality, depth, scope, creativity, and social interaction (Hara et al., 2003; Newell & Swan, 2000; L. Siemens & Burr, forthcoming; L. Siemens, Cunningham, Duff, & Warwick, 2011). However, these collaborations are not without challenges. These challenges can impact a project's success and personal relationships. Consequently, processes that facilitate communication and coordination and address disciplinary differences are required (Gold & Gold, 1985; Hara et al., 2003; Newell & Swan, 2000; Northcraft & Neale, 1993;

Saxberg & Newell, 1983). Individuals must also exhibit proficiency in negotiation, conflict resolution, and planning, as well as patience, flexibility, and openness – these are skills and attitudes not often taught in graduate training (Kraut, Galegher, & Egido, 1987; L. Siemens & Burr, forthcoming).

A growing body of research articulates aspects of effective work patterns and processes (Amabile et al., 2001; Bracken & Oughton, 2006; Bryan et al., 2002; Lawrence, 2006). However, much of this work has been generated through reflections, interviews, and surveys at a project's end. As observed above, this may mean that some learnings are forgotten or minimized through the passage of time. In particular, a knowledge gap seems to exist in relation to effective ways to manage the inevitable change and transition that occurs among team members, relationships, tasks, and research approaches over a grant's life. For example, Barry, Britten, Barber, Bradley, and Stevenson (1999) highlight that their research team incorporated new members into existing relationships, with little explanation about the ways that they accomplished this integration. Finally, in her review of a series of major collaborative research projects, Kishchuk (2005) provided a series of best practices around collaboration, training and mentorship, research productivity, and other important issues; however, she does not explore mechanisms to manage the inevitable change and transition.

Following Implementing New Knowledge Environments (INKE) over its seven-year funded research project provides an opportunity to explore how individual teams operate as they conduct their research during the life of the project, rather than after the fact through interviews or through the aggregate data and statistics of many projects (Melin, 2000). An exploration of Year Three will contribute to the discussion regarding change and transition and ways to integrate new researchers into existing relationships between researchers, sub-research areas, and the team as a whole. This article will build on earlier reflections of INKE (L. Siemens & INKE Research Group, 2010a, 2010b, 2011, 2012a, 2012b).

CASE STUDY

The INKE research project is a seven-year multidisciplinary project, with 35 active researchers plus postdoctoral fellows, graduate research assistants, and partner organizations across four countries, and a budget of approximately \$13 million of cash and in-kind funding (INKE, 2012). It took over five years to discuss, plan, and develop the grant application for this project before it was successfully funded through Canada's Social Sciences and Humanities Research Council's (SSHRC) Major Collaborative Research Initiatives (MCRI) (L. Siemens, 2010a). This granting program funds large-scale integrative and collaborative research projects within the Humanities and Social Sciences, supporting students' and postdoctoral fellows' development and training in collaborative and interdisciplinary research and promoting and encouraging active partnerships with stakeholders in the public and private sectors and the larger scholarly community (SSHRC, 2010).

INKE will “study different elements of reading and texts, both digital and printed” and contribute “to the development of new digital information/knowledge environments” (see R.G. Siemens, Warwick, Cunningham, Dobson, Galey, Ruecker, Schreiberman, & the INKE Research Group, 2009, para. 1; SSHRC, 2009, 2010). As outlined in the grant

application, the team envisions an integrated program of research with a supporting administrative structure. This structure includes an executive committee, operating as trustee of the project's research direction and budget; an advisory board, providing outside expert perspectives and advice on the research; a partners committee, representing stakeholding research partners; a sub-area research administrative structure, comprising of a committee of the leaders from the sub-areas who provide administrative oversight to their respective sub-areas; and finally the individual researchers. The full grant application can be found at R.G. Siemens et al., 2009. In its first few months of funded collaboration, INKE developed governance documents and accountability processes to underpin this long-term working relationship (L. Siemens & INKE Research Group, 2012a, 2012b). In its third year, INKE reorganized from the four original sub-research areas into three with Modelling and Prototyping (MP) joining Interface Design (ID) and Textual Studies (TS) (See L. Siemens & INKE Research Group, 2011 for discussion on reasons for reorganization). Consequently, some researchers joined new sub-research teams, while researchers and partners, who were not previously actively involved in INKE, joined the collaboration.

METHODOLOGY

Members of the administrative team, researchers, graduate research assistants, and others are asked, on an annual basis, about their experiences collaborating within INKE, in order to understand the nature of collaboration and ways that it may change over a grant's long-term life. The interview questions focus on understanding the nature of collaboration and on the advantages and challenges associated with collaboration within INKE's context. These interviews allow the researcher to explore topics more fully and deeply with probing and follow-up questions, while participants are able to reflect on their own experiences and emphasize those issues that are important to them (Marshall & Rossman, 1999; McCracken, 1988; Newell & Swan, 2000; Rubin & Rubin, 1995). This round of interviews centred on the project's third's year.

Data analysis involves a grounded theory approach, which focuses on the themes that emerge from the data. This analysis is broken up 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, and constantly comparing the data to itself and the developing themes (Glaser & Strauss, 1967; Marshall & Rossman, 1999).

FINDINGS

A total of seven individuals were interviewed, with representation from three of the four groups within the project, including graduate research assistants (GRAs), researchers (Rs), and administrative leads (ALs). Several had been previously interviewed at the end of INKE's Years One and Two (L. Siemens & INKE Research Group, 2010b, 2011).

Overall, Year Three can be characterized by change and transition on several levels. With the creation of a new sub-research area (MP), new researchers and partners (not previously actively engaged in INKE) were recruited to provide necessary expertise.

Other areas saw turnover, as several long-term GRAs graduated. Finally, INKE integrated several partners as more active researchers in addition to their roles as data and content providers. The team needed to manage these changes and transitions to the collaboration's benefit, while still achieving research objectives as dictated by project plans and the grant application.

BENEFITS ASSOCIATED WITH CHANGE AND TRANSITION

These changes and transitions provided benefits to the team as a whole and to individual members. One admin leader (AL2)¹ commented that because the new team members were situated in research areas that were adjacent but not overlapping, they brought "fresh ideas" and that "more hands" meant "more ideas." New INKE members also had an opportunity to broaden the "scope of own work" with access to a wider range of expertise, while preventing the myopia that might come with focusing on just one project (R1). Another admin leader reinforced these views by suggesting that by working with colleagues who "share and augment research interests," one can do more, outweighing the potential drawbacks, such as a loss of individualism (AL1). Of course, inherent in the challenge of joining new projects is the danger of being "stretched too thin" with "one more thing to do" (R1). The new sub-research area with its co-leads also restored strength to the team's overall leadership, closer to the seven administrative leaders who were present at the start of funded research (AL2).

A further plus to INKE is the fact that while the new team members were new to INKE, they had knowledge of the project and its team members and were building on existing personal and professional relationships. For example, given similar research interests, these new researchers had been long time collaborators with INKE researchers, had participated in associated panels and papers, and could thus be integrated more quickly.

CHALLENGES ASSOCIATED WITH CHANGE AND TRANSITION

The integration of new team members and sub-research areas brings challenges. In particular, the project's culture must be explained, understood, and accepted so that the newly configured team can accomplish its research goals. As one researcher commented, they were coming into the grant "half way" (R1). One admin leader realized that there was a need to adjust to established processes and roles without a full appreciation of the project's history (AL3). Another admin leader recognized this fact and looked for ways to engage new members in the team's culture, without necessarily dictating specific actions to achieve this goal (AL1). All team members struggled with how best to get new team members "up to speed" with INKE's culture, work patterns, processes, and roles (AL2).

The new team members realized that working relationships and processes were already in place and were articulated through governance documents and the grant application. On one hand, they were relieved that they did not have to write these documents; however, because they had not participated in the process, they did not fully understand the reasons for the project structure and perhaps even lacked a "sense of ownership" as a result (AL4). Another new member stated that they "have to live with the rules but had no say in their development" (AL3). The consequence was that those new to the team needed to be careful that they did not "put their own individual

culture onto a team that has worked together for a while” (AL1). Another issue was the need to understand and enact roles as defined by the team. For example, new administrative leaders needed to find the balance between being a researcher and being a lead who facilitates “the work of others” and provides “oversight” and motivation to sub-research team members (AL3), as articulated through the governance documents and processes.

The team changes also prompted redefinition of collaboration and communication patterns between existing and new researchers, sub-research areas, and partners. Given that some partners were taking a more active research role in INKE, the team needed to formulate new relationships between INKE and these more active partners, which would more fully integrate them into the work (AL3). Another admin lead questioned how the collaboration with new sub-research areas would actually work and whether they would want or “be able to join calls” with other areas as a way to build the collaboration (AL2).

PROCESSES TO MANAGE CHANGE AND TRANSITION

INKE drew upon several processes to manage these transitions and changes. As a first step, the team held a planning meeting in Kyoto in conjunction with the annual “Birds of a Feather” gathering. Over the three-day period, the new researchers and partners, as well as key researchers and administrative leaders from other sub-research areas walked and talked their way through the city, engaging in conversation on specific topics related to the new sub-research area and its integration into the larger project. These “focused engagements” took on a more “spontaneous nature” and led to rich discussions about the proposed research (AL1). This more informal time culminated with a formal planning meeting that established the new sub-research area’s direction within the project’s larger context and administrative leadership. One admin leader described this as one of the “most exciting, more collaborative” events in which they had even taken part (AL1). Another said that they were “enthused by what was put on the table” (AL2). Ultimately, this time together “allowed relationships to build” between new team members (AL3) and the team as a whole. This experience was valued and assisted with team-building. One team member felt that the gains greatly outweighed the costs associated with travel to Japan (AL1).

The face-to-face time was further supplemented with conference calls and mentorship from other team members as well as documentation on the project online workspaces and public website, which included team publications, resources, tools, and project history. Team members could use the INKE.ca website to “see what the other projects were about,” which could inform one’s own “corner of the work” (GRA1). New team members were also added to other sub-research areas so that they “see at a glance what others were working on” (AL4). This individual further articulated that discussions and feedback from the other administrative leaders ensured that their yearly plan was “more realistic” (AL4).

Discussion

INKE provides further insight into the process of research collaboration in a long-term grant. While the full impact of these changes and transitions will be felt well into Year Four and beyond as the new sub-research area works its first full year plan and collaborates with INKE, some preliminary observations can be made about managing change and transition in a way that maximizes its benefits while minimizing its challenges.

First, the process of integrating new members into an existing team takes time, allowing new collaboration patterns to form and solidify within and across new and existing sub-research areas and within a team as a whole – a process that occurs even as the research continues. Key to this integration is the ability of new members to understand and accept the shared mental model about the project and existing team relationships, structure, and processes (Salas, Sims, & Burke, 2005). Typically shaped during the project definition phase, this jointly developed and shared understanding of the project and the way it operates, and agreed upon vocabulary ensure that team members are able to communicate effectively and efficiently (Jarvenpaa & Leidner, 1999; Lingard, Schryer, Spafford, & Campbell, 2007; Sackett, 1990). After a certain time period, a team's culture becomes tacit and may not be easily explained to new members in ways that allow them to easily incorporate the “rules of the game” (Lingard et al., 2007, pg. 515). Flory (1998) echoed this challenge. Collaborations must find the most efficient and effective ways to achieve this.

An important step in this regard is ensuring that new members have access to and read existing project documentation (such as governance and planning documents and the grant application) and to ask questions. New team members can then incorporate these “rules of the game” and be effective and collaborative team members. Mentorship from current members can further support this process.

Formal and informal face-to-face meetings are also important parts of the process. Formal meetings provide the forum for those discussions that can be difficult over email and other electronic means and allow teams to more easily plan a new research area's integration and people into the existing overall research project, with associated tasks and deadlines. People can more easily develop the sense of a team when they can see and hear each other clearly – potential for misunderstanding is reduced and tension can be diffused (Finholt, Sproull, & Kiesler, 1990; Galegher & Kraut, 1990; Poole & Zhang, 2005).

Further, the more informal times, which might take place over meals, drinks, and walks, allow individuals to get to know each other on a personal, not merely professional level (Kraut & Galegher, 1990). Taking advantage of the ideas brought forward by new members, these conversations in informal settings can also lead to innovative breakthroughs and creative problem-solving, which can be difficult in more formal meetings (Kraut et al., 1987; Lawrence, 2006; Olson & Olson, 2000). As one admin leader suggested, these “focused engagements” in Kyoto took on a “spontaneous nature” that led to exciting discussions about the new research directions and integration within the larger project (AL1).

These discussions also become opportunities to explain the established work patterns and team culture so that new members can work within these parameters without projecting their own individual or disciplinary work patterns on the established team (AL1). This is an acknowledged challenge for new members who did not participate in the development of governance documents, a step which can be important in establishing ownership and accountability to them (L. Siemens & INKE Research Group, 2012a). Ultimately, these important foundations are supported and reinforced by regular communication with conference calls, emails, online project spaces, and mentorship (Lawrence, 2006; L. Siemens, 2010b).

Given the “compressed time period” (AL4) associated with bringing in new people while still meeting research plans and objectives, the selection of appropriate people to join an existing collaboration becomes very important. Unlike INKE’s five to six year grant development stage, where potential team members engaged in many discussions about the research and work relationships before actually starting the work (L. Siemens, 2010a), new members needed to integrate themselves as well as their new sub-research areas very quickly into the overall project so that they could produce research results. Little time existed for the long discussions about ways to collaborate that characterized the earlier grant development stage. This reinforces the need for people who are “collaboration ready” from the outset (Olson & Olson, 2000). In addition, the “right” team member is one with knowledge about the project and existing relationships with other team members, not just the needed content expertise. The collaborative work relationships can be built more quickly because some level of trust is already in place (Newell & Swan, 2000). Finally, those who consider joining a project already underway may need to be even more flexible and open to collaboration than those considering a project in start-up stages (Bracken & Oughton, 2006). The new members must accept the planning, reporting and collaborative processes, research direction, and accountability structures that are already in place and realize that they cannot change these, at least in the short-term. As one admin leader stressed, they know some “colleagues who would not work well within INKE” because they would not be willing to give up their independence to join a collaboration of this nature (AL4).

However, no amount of upfront discussion about an existing team’s cultures and work processes will fully prepare new members for what they face when joining an established collaboration. They face both a practical challenge in the form of understanding established relationships and work patterns and a philosophical challenge associated with joining a project with specific funded research objectives that cannot be changed (Massey, Alpass, Flett, Lewis, Morris, & Sligo, 2006). Even current members realized that they had “developed a shorthand” only when they needed to explain their work relationships with the new members (AL1). Further, though they had some knowledge of INKE, new members felt that some things came “out of left field” because they did not fully understand the project’s history (R1). Only by working through project planning did one administrative leader (AL4) learn how to “dream big” and “then pare down” to something that was realistic and integrated with the project. This reflected lessons that INKE learned through the first year planning cycle and then implemented more smoothly in subsequent years. Further, new team members experienced the ongoing challenges associated with recruiting and retaining

GRAs and post-doctoral fellows who had the appropriate technical, content, and collaborative expertise (L. Siemens & INKE Research Group, 2011). Some lessons may always have to be (re)learned by new team members.

Implications for practice

While each academic collaboration must develop its own mechanisms and processes that support its work (McGinn, Shields, Manley-Casimir, & Dixon, 2005), this reflection on INKE's third year suggests some processes that are important to managing change and transition in existing teams.

First, both current and new team members have a responsibility to incorporate new members into a project with minimal interruption to the overall research. The focus of present members should be on ensuring that all relevant documents about research, work processes, and accountability structures are available to new members (Lawrence, 2006). Online project workspaces with document and message archives and public websites are invaluable in this regard, as are face-to-face meetings for further explanation.

New members have the responsibility to read these documents and accept that an established team will have their own way of doing things, into which they must fit to be effective and achieve the collaborative research objectives. A useful metaphor might be to view new team members as embarking on an international trip. To fully enjoy the experience, tourists often prepare for the journey by reading history books, travel guides, and other books, which provide insight into a country's culture. Further, they generally also assume that things will not be like home and come with open eyes and willingness to do things as the local residents do. The current team members become guides to introduce and interpret the culture and assist new team members to become fully immersed in the country.

Despite the urgency to do so, the integration of new individuals takes time – the whole team needs to adjust to new individuals who are learning and internalizing a team's working patterns and establishing collaborative relationships. After all, the team took over five years to develop itself and write the grant application (L. Siemens, 2010a) and the governance documents were written over a couple of months before the actual research took place (L. Siemens & INKE Research Group, 2012a). This did not happen overnight, nor will it with new team members. At the same time, the process of integrating new individuals can be supported by recruiting those with the appropriate mindset and openness to collaboration, with the hope that this integration can be done more quickly (Olson & Olson, 2000).

INKE is in the process of managing these changes and transitions to the benefit of the project as a whole while working to minimize associated challenges. The next year will demonstrate the effectiveness of these processes to fully integrate new members into an existing team and research mandate.

Note

1. Individuals will be identified by abbreviation for the group that they represent. For example, a graduate research assistant will be named as GRA1.

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