

Forum / Tribune

Employing a Virtual Workplace Research Team within a Graduate Program

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ABSTRACT

This article describes the virtual-team process used by graduate students with a faculty guide at the University of Calgary over a 16-month period. Using a narrative-story technique, the article describes the four stages of work that were completed by the virtual team and identifies the unique strengths, pitfalls, and strategies that the team developed and experienced as it worked through the life of the project. The article concludes with learner, faculty, and research benefits of a virtual-team approach and provides recommendations for the use of virtual workplace research teams in adult graduate programs.

RÉSUMÉ

Dans cet article on y fait la description du processus d'équipe-virtuelle qu'a utilisé un groupe d'étudiants gradués pendant 16 mois tout en étant suivi par un conseiller du corps professoral à The University of Calgary. En utilisant la technique du récit explicatif, les auteurs décrivent les quatre étapes de travail complété par l'équipe virtuelle et identifient les forces uniques, les risques et les stratégies développés et vécus par cette équipe tout au long du projet. En conclusion, on y trouve les avantages qu'apporte une approche d'équipe-virtuelle à l'apprenant, au corps professoral ainsi qu'à la recherche. Aussi y incluse-t-on des recommandations pour l'utilisation de telles équipes en recherche sur les milieux de travail virtuels au sein des programmes d'études supérieures pour adultes.

INTRODUCTION

The Master's of Continuing Education (MCE) Program at the University of Calgary offers adult learners a way to achieve a graduate degree while continuing to live and work in local communities across Canada. The program is delivered using a blended course design of face-to-face institutes with online graduate courses. Adult learners are able to select specializations in either workplace learning or leadership and development, and they have the option of enrolling on a part-time basis while retaining full-time employment. Workplaces represented by students include, but are not limited to, federal, provincial, and municipal government sectors, private and public and health corporations, non-profit businesses, and workplace consulting firms.

One of the ways the MCE program remains current and innovative in Canada is through the development of new teaching and learning initiatives for mid-career adults. Such was the case at the Spring 2002 First-year Institute. A learner asked whether first-year students might focus on a research project on current knowledge-management practices used in workplaces. Several learners suggested an interview process was needed with employers working within the knowledge field. Although they knew what they wanted to explore, they were inexperienced in the design and completion of a research study. They suggested that if the co-author of this paper, as an MCE faculty member and experienced researcher, could "guide" them through the research process, then they could conduct a study of knowledge management in the workplace. They felt a qualitative study would be the most appropriate, featuring interviews with a cross-section of employers working in the field of knowledge management in Canada. It would be a pilot project designed to illustrate current practices, to present results at a national conference, to publish the findings, and to learn about completing a collaborative research study.

With learners living outside of Calgary, they assumed a virtual team could be established with the same asynchronous software used for research communication and online courses. They referred to themselves as the "virtual workplace research team." With the agreement of these learners-as-researchers, the faculty guide was asked to informally present the idea to the 2002 Summer Institute learners. Two additional students expressed an interest in participating in the study. By the end of July 2002, eight graduate students and one faculty guide were interested in the project.

Online group work was routinely employed in MCE courses, but the opportunity to initiate a research study, free of course credit, early in the program was a new development. The students were committed to working with peers; they were keen to research a workplace topic of interest to

them; and they appreciated the opportunity to have an MCE faculty guide working with them who could advise on the research process as the project developed. Many had worked in face-to-face teams in their workplace and were motivated and excited to work within a virtual-team environment. The learners wished to use the term “team” rather than “group,” as “team” was used most frequently in their workplaces. As Holpp (1999) suggested, virtual teams have become more commonly used in workplace settings.

As a faculty member with extensive experience in graduate group processes and teamwork, the faculty guide saw that several potential pitfalls were immediately apparent. The team had been created very quickly; learners were from different institutes and had not had the opportunity to meet; and, with eight learners, the team would require considerable organization to work together. Although the topic of the study had been agreed upon, the processes of working as a team would have to be developed by the membership. Some of these processes (e.g., role identification, goal-setting, feedback, consensus-building) could be developed at the outset of the project, while others (e.g., problem-solving, cohesion and listening skills, decision-making) would be developed as the team worked together.

This article provides readers with a behind-the-scenes understanding of the processes that developed for this virtual research team. By describing the steps, needs, challenges, and benefits that occurred, it is possible to see how the team was established, the way in which it came to function effectively, and how it produced results that were useful to the team members, to workplace interviewees who participated in the study, and to the faculty guide who was interested in researching aspects of workplace environments.

STAGE ONE: DEVELOPING THE RESEARCH PLAN

The graduate students had moved from interested individuals to learners working together on a common project. To initiate this process, the faculty guide wrote an informal planning document in August 2002 (Willment, 2002) that outlined four important decision-making issues prior to commencing the research study.

Beginning with Self

Recognizing that learners had to “begin with themselves” (Hunt, 1987), each student needed to provide information about her or his goals and expectations to the group.

They needed to form goals, ask for assistance, and express their curiosity about the phenomenon they were studying. They were involved in establishing their own "practice-to-theory" as they developed each stage of the research project. (Willment, 2002, p. 3)

The learners would also have to identify why they were interested in working together and the strengths each could bring to the team. This is consistent with Wenger's (2002) discussion of social learning theory, in which he suggests this might include: a self-description of the personal qualities of the members; identifying the meaning(s) each member brings to the learning task; the ways in which learners practice and develop mutual engagement; and the way in which community is built by bringing together individual competencies for work.

Benefits of a Research Team

The informal planning document contained a brief summary of the verbal comments received from learners across both institutes. This was designed to reinforce the benefits of working together and to articulate ways in which MCE learners realized strengths by engaging in this project.

The opportunity to work with others through the process of working together enriches the adult learning MCE experience; it prepares learners for the final project at the conclusion of the program; it provides a rich research base for graduate adult learners; and it prepares adult MCE learners for further academic research opportunities. (Willment, 2002, p. 4)

Goals for the Research Team

Although the learners had discussed the goals of the research project at two separate institutes, it was important that these goals be included and agreed upon by all members of the team. This process was also consistent with the literature on small-group work (e.g., Johnson & Johnson, 1994; Shalinsky & Snider, 1985), which suggests that making goals and expectations explicit at the outset of a project may reduce confusion and problems later in the project. As a result, three general goals were included in the informal planning document:

- 1) To provide a team of dedicated MCE learners with a "hands-on," guided research study experience that would allow these students the opportunity to form the research idea, complete a successful ethics' approval, gather data and analysis, and complete the presentation of results to national and international research conferences.
- 2) To provide members with the opportunity to contribute books and course papers to the knowledge management project. This would

invite members to look for new resources useful for literature reviews and/or research presentations for the study.

- 3) To publish the results in peer-reviewed conference proceedings and/or journal articles. (Willment, 2002, p. 7)

Creation of Timelines for the Research Study

The planning document included a proposed timeline for initiating the study, and it identified how the steps might unfold for the completion of the research gathering and analysis processes. Target dates for conference proposals, papers, presentations, and publications were also noted on the timeline. These were included as a way to develop mini-goals for the team.

Adoption of the Planning Document

Minor clarifications and revisions were made, and adoption of the planning document was unanimously approved by a teleconference call in mid-September 2002. Shortly thereafter, two private e-mails were received indicating that, due to time requirements, two learners would have to withdraw from the study. Each was thanked by the faculty guide, and this information was conveyed to the remaining team members. The team membership remained the same for the sixteen-month period.

Although this reduced team membership from eight to six members, this adjustment was not a problem. The process provided an opportunity for each member to review the document, reinforced student interest and commitment to the project, and organized the processes that would be followed for the project. This transparent process provided a useful strategy for the development of committed and motivated learners for this research project.

STAGE TWO: FORMING THE RESEARCH TEAM

The process of establishing a team structure for the research study was the next stage of team development. This necessitated working through the steps indicated below.

Sharing Learner Responses with Others

Members were asked to provide reasons why they wished to work on the research team. Responses included (a) the opportunity to work with an experienced MCE faculty member familiar with the challenges frequently faced by first-year graduate students; (b) the experience of working with others on a research topic of personal interest to the learner; (c) the ability

to learn about research prior to undertaking an MCE research project at the conclusion of the program; (d) the exploration of how the concept of knowledge management is used in workplace environments; (e) gathering “best practices” in knowledge strategies used by interview participants; (f) listing of this research study in their curriculum vitae; and (g) gathering research experience to evaluate if further academic research directions were of interest to members.

These responses were consistent with the work of Boyle and Boice (1998), who indicated that first-year graduate students go through a cultural learning process to learn how to become productive members of graduate departments. In their study of best practices used by exemplary graduate departments in the United States, fostering collegiality through support and trust between first-year students and faculty were two important goals. For example, some of these programs had first-year students completing research work and presenting research studies to conferences, followed by submission of work for peer-review and journal publication. Collectively, these activities served as an introduction to the culture of academia and developed support and strength through this process, while providing research and publication strengths early in a graduate program.

The replies received from the MCE team mirrored the way in which Schrage (1990) described the development of virtual learners. Creating virtual communities of learning involved the development of a shared experience by offering participatory dialogues, question-and-answer conversations, and mutual interaction between colleagues. The MCE members enjoyed the opportunity of meeting, talking, and coming to consensus on issues with others.

Selection of the Roles of the Team

Learners were asked to establish a list of the strengths each could contribute to the research team. The list was extensive, as indicated below.

Learner Strengths	No. of Learners
Student Writers	4
Editors	2
Student Researchers	6
Document Archivist	1
Drafter of Documentation	3
Proofreaders	3
Meeting Timekeeper	6
Meeting Minute-taker	6
Expert Software Users (e.g., PowerPoint, Excel)	3

The faculty guide was experienced in these tasks, had worked with groups on process and content issues, had taught graduate courses in online communication and facilitation, had worked with students in face-to-face and online class work, and had extensive experience in completing research studies.

Developing Virtual Resources for the Team

With male and female team members residing in Ontario, Manitoba, and Alberta, the development of a secure software structure was essential for the team. The faculty guide established an online research “course” that enabled all meetings to be handled synchronously, with documents stored asynchronously for further work. Online folders were created for interview transcripts, data-analysis work, conference writings, and bibliographies.

Organization of Virtual Meetings

Following team discussion and agreement, the research team selected a one-hour time period per week for virtual team research meetings. The faculty guide created the meeting agendas, while the team members took turns taking minutes. A timekeeper volunteered at each meeting to ensure the meeting was kept to an hour. Follow-up action items were noted and recorded in the minutes for later use. These meetings were used to report on progress with assigned tasks, to receive clarification on issues, and to converse and decide on team tasks.

Completing a Conjoint Ethics Application for the Study

A successful application for ethics' approval was required before the commencement of the human-subject research. The first draft of the ethics application was completed by a team member, followed by specific questions from the faculty guide about the recruitment process, privacy, confidentiality, anonymity, and interview questions. The team knew why an ethics application was needed, but did not know what, or how much, information to include in such an application. Although team members remained professional, tension and frustration began to develop as time grew shorter for the completion of this activity. The faculty guide suggested that perhaps the loss of group cohesion was caused by the team's lack of research experience in knowing how to approach a research problem. A solution might become evident if they could break down the problem into manageable "chunks."

The team resolved the problem by working in pairs. The team of six became three pairs of two, with each pair volunteering to complete two questions asked on the ethics application form. The faculty guide was available to answer technical and research issues as each pair responded to its questions. This, in turn, was entered into the ethics application stored in the online file. By sharing question responses and receiving feedback from the faculty guide, all members were able to read and learn how to respond effectively to an ethics application. The team congratulated each other with the completion of the application, and again with its acceptance by the conjoint University ethics committee.

From a process perspective, members began to see the benefits of functioning as a team rather than as individual learners. This development was a significant step in the life of the research team. By breaking up a challenge into smaller, more manageable tasks, team members realized how they could resolve challenges quickly and efficiently within short time periods.

How teams manage their tasks is important to a collaborative research team. Rethinking how to use existing talents to solve a challenge was a positive step for this team. Although this issue took time to resolve, the task was completed without compromising the cohesion of the group, it promoted team-building, and it enhanced the respect and esteem of team members. This was consistent with Shalinsky and Snider (1985), who reported that when face-to-face student groups are able to create constructive strategies to resolve group conflict, groups often moved forward with increasing team maturity. This seemed true for the virtual team in this study.

STAGE THREE: CONDUCTING THE RESEARCH STUDY

By January 2003, the virtual team was required to complete multiple tasks within limited time frames. Although the ethics application had been approved, enabling the commencement of the research study, names of potential interviewees had to be finalized, consent forms were required before interviews could proceed, and the acceptance of proposals for two conferences in Spring 2003 required that papers be written for both conference proceedings. In addition, team members had to arrange workplace release time to present at one or both of these conferences, and financial commitments for conference fees and travel costs also had to be addressed.

Identification of Role Responsibilities

Shalinsky & Snider (1985) reported that when face-to-face teams were confronted with multiple demands, efficiency was completely dependent on the degree of co-operation among the group members. This proved accurate for this virtual team. The faculty guide began by developing a list of all tasks. The result was a complex work schedule in which tasks were managed by individuals or pairs or triads of team members, while others were handled by the entire research team.

Work Tasks	Roles
1. Assignment of research interviews	interview assigner
2. Conference paper #1	2 student writers
3. Conference paper #2	2 student writers
4. Editing of written papers	1 student editor
5. Research interviews & transcripts	6 researchers assuming responsibility for 5 interviews & transcripts
6. Drafter of preliminary research	6 researchers assuming responsibility for summarizing one question from the transcript postings
7. Presentation slides for conferences	2 PowerPoint developers
8. Arranging work release time to attend conferences	6 researchers & faculty guide
9. Presentation at conferences	each researcher participates in at least one conference
10. Resource provider, coordinator	faculty guide & troubleshooter

Team members reported on the progress of the tasks in weekly meetings. There were some “unexpected surprises” (Hunt, 1987) that became apparent in this process. Humorous comments were often expressed among team members and the faculty guide, compliments were often spontaneously extended in appreciation for work completed by a team member, and members frequently demonstrated considerable flexibility and helped to cover for each other when the need arose. For example, members volunteered to take on additional tasks for a team member who was unexpectedly admitted to hospital. When the member was released, the team immediately issued a caution with specific instructions: “You are working too hard; you are making the rest of us look lazy! Don’t work so hard, take it easy.”

This expression of a positive and mutually respectful relationship was comparable to the collaborative research experiences discussed by Solomon, Boud, Leontios, and Staron (2001). In analyzing the sessions and stories of university and workplace partners working together, researchers consistently shared stories of personal details of their lives outside the research project, they referred to themselves as “we” when discussing the project, and they used humour on many occasions. The appreciation of others’ suggestions throughout the project indicated the strong interpersonal connection that had developed between group members. These shared experiences were consistent with those expressed by the MCE virtual workplace research team.

Developing Team Conference Strategies

As novice researchers, team members asked many questions related to the role of academic conferences. How can a conference paper be written when research results are not yet available? What is the difference between a conference paper and a conference presentation? How much material is appropriate for the allotted time at a conference? Working through these questions with the faculty guide, team members settled on a strategy that served them well. By electing to submit papers for conference proceedings, they could address highlights of a brief literature search, include a framework for the study, and offer an up-to-date, in-progress statement of the research interviewing progress. The conference presentation provided the preliminary results of the full research study.

Team members also developed a writing process that met their needs and timelines. Working together, two team members created an initial draft of a conference paper. This was posted online for others’ feedback. If needed, questions were asked, clarification was given, and additions and revisions were incorporated into the paper until the team was satisfied. The paper was then reviewed by a team editor, followed by final approval from the faculty guide. A copy was retained online, while a second copy was forwarded by e-mail to the conference organizers for publication in the conference proceed-

ings. This system worked effectively and was similar to the way in which Reid (1993) handled collaborative writing assignments in English-as-second-language classes.

Developing a Team Research Approach

Following the completion of all research interviews, a strategy was instituted to allow each team member to work on all phases of the data analysis. First, each team member removed all interviewee identification, converted interviews into transcripts, and posted these into an online file. Second, to make efficient use of time, each member took responsibility for gathering transcript responses for one question across all transcripts. Third, these data were compiled and each question was posted into a separate online file. This produced seven online files in response to the seven questions. Fourth, each team member was asked to examine his/her question responses and then to provide a brief written description noting two or three themes that were obvious from reading the question responses. Finally, each of these questions and key themes were transferred into PowerPoint for the conference presentation.

Prior to each presentation, the research team made arrangements to rehearse in the scheduled conference room. Consistent with the work of McKeachie (1999), the team succeeded when they were given the opportunity to work, think, talk, revise, practise, and evaluate their efforts together. As one member summed it up after the practice session, "You know, I actually FEEL like a researcher!"

STAGE FOUR: COMPLETING THE STUDY

Following national and international conference presentations in May and July 2003, the team regrouped in Fall 2003 to review the study and examine their findings in closer detail. A final report was assembled for interview participants, as required by the conjoint University ethics committee.

Preparation of the Study Report

During the Fall of 2003, a tertiary analysis was assumed by assembling the results of the questions into one of three different workplace categories. Each team member selected a question number, examined the results based on the similarities and differences noted within and across the three workplace categories, and wrote on these findings.

The study report was based on the writings contained in the ethics application, the conference proceedings and presentations, and the analysis reports written by team members. This produced a draft study report in December 2003, with a final copy distributed to research participants in Spring 2004.

Team Completion Activities

To complete the team activities for this innovative project, members were invited to share their virtual research experiences with the team. Although their remarks were not recorded, each team member talked of the learning that had occurred by taking an idea, designing it into a research study, and working with the data to produce tangible outcome results. One team member summed up their experiences as follows:

The focus and rigor [of the study] assisted us to advance an intricate piece of work into publishable research quality. It was an amazing project. (December 2003)

LESSONS LEARNED

The MCE virtual research team was rich in learning opportunities for the team members, for the faculty guide, and for the program. These are summarized below.

Benefits to Team Members

This first-year graduate virtual research team developed goals and processes that enabled team members to come together to complete a successful research study. Although the team was separated physically, team members communicated both asynchronously and synchronously in an online environment, participated in team planning activities, resolved challenges by rethinking ways in which the team could work together in different combinations at various times (i.e., working as individuals, dyads, or triads; pooling team members' strengths for tasks; volunteering to complete tasks for the team; rotating tasks to provide team members with consistent new team opportunities), and achieved this while maintaining an effective, trusting, and supportive environment. Further, by using the strengths of consensus-building, organization, feedback, decision-making, and critical-thinking skills, the team functioned as a collaborative entity in a working environment.

Working with their faculty guide, each member participated in the steps involved in research—from planning to conducting to analyzing research—produced written conference proceedings, and presented them at conferences with the tutorage of an experienced faculty guide. The MCE virtual workplace team produced eight research papers over a year and a half, including planning and ethics application documents, University presentations, conference proposals, peer-reviewed national and international conference proceedings, articles in non-peer journals, a major research report for participants interviewed in the study, and a peer-reviewed article for publication.

Each team member had an insightful personal view into the academic world of research. One team member described it in the following way:

I started to think seriously about a career in academia. Before I was involved in this virtual research team, I thought a great deal about it but didn't think I could do it. Now I have developed the confidence in myself to pursue an academic dream. (August 2003)

Benefits to the Faculty Guide

This experience provided insight into the way in which a faculty guide provided support and guidance to graduate students working on a virtual team project. Many of the group processes used in face-to-face, small-group work (e.g., identifying goals and objectives, good communication skills, group organization, stages of development, problem-solving and decision-making, pooling resources) were found to work effectively in the virtual team environment. The establishment of a secure software site was crucial to the success of this online project.

Because the project developed quickly, often the faculty guide responded to needs of the team as and when they became apparent. Past experience with face-to-face student groups and online groups served as an excellent backdrop to the study, and the guide was able to identify potential problems and work with the team to resolve these difficulties before they became larger problems. Further, she responded openly to questions raised by the team, helped the team with organizational pressures, functioning as a team organizer during times of high pressure, and worked with the team to create a collaborative process that would enable members to contribute, share, and grow from these experiences. These steps were crucial and were in addition to the shared research guidance. As a pilot project, these tasks were often done with minimal advance notice, but nonetheless proved to be essential to the success of the research study.

This experience demonstrated that virtual teams can be used effectively by graduate students, providing they are given the benefit of working with a faculty guide. Virtual teams can address many issues in a way that provides support and team decision-making for students in their first year of graduate study.

Benefits to the Research Field

Virtual team research represents a leading-edge research approach within the field of adult learning research. For example, Saari (2003) argued that research work has moved to a collaborative approach in which co-operative opportunities between and among research teams are increasingly the norm.

... research work today is not being conducted in isolation in individual investigator's chambers, but goes on in research groups or teams connected with other research groups and users. ... What seems to be the crucial source of learning and creativity is the lively collaboration and interaction both within the group and within its research partners and users. (Saari, 2003, p. i)

Virtual teams are also consistent with the findings of others who suggest that collaborative research has a place within workplace learning environments. For example, a decade ago, Baskett and Jackson (1994) proposed that faculties and graduate programs would find new research opportunities if they focused on specialized workplace issues in co-operation with universities, employers, and workplaces. By using virtual workplace teams, it is possible to link the strengths of collaborative research with teams of graduate students to explore new areas within workplace settings in a virtual setting.

RECOMMENDATIONS FOR FUTURE DEVELOPMENTS

The MCE virtual workplace team was an innovative virtual team approach that provided deep learning opportunities for both learners and faculty. To promote this research within Canadian graduate programs, the following recommendations are offered.

1. To build ownership in the process, learners must be given opportunities to develop their studies from conception through to completion. They can learn much from these experiences.
2. Use of a secure online software system is essential and must be developed for the virtual team. The software should include synchronous and asynchronous communication and the capacity to store and retrieve documents electronically by all team members. An audio-conference system using either telephone or audio webcasting should be available to virtual teams. Faculty guides and team members must both be comfortable in adapting to these computer-based procedures.
3. It is most useful if the faculty guide has experience in small-group work and is comfortable with technology, patient with others, and able to observe, guide, and offer useful strategies that may be helpful to a team.
4. A planning document should be written by the faculty guide at the beginning of the project, outlining the study, its goals, and its potential outcomes. Team members should meet to discuss this document and should have the opportunity to modify or add objectives, after which the team should agree to proceed according to this plan. As well, the faculty guide and team members need the opportunity to develop col-

laborative strategies that can help them progress together through the phases of the research study. This is critically important to building the confidence and mutual interdependence of first-year graduate students.

5. When pitfalls arise, ensure the team has the opportunity to discuss these problems and to develop strategies that will eliminate difficulties in future.
6. Team members should always be provided with opportunities to share and discuss issues with the team and the guide. This promotes the development of effective communication throughout the study.
7. Inclusiveness, time for updates and questions, humour, stories, discussions, and feedback comments should always be welcomed between team members.
8. Ensure sufficient time is provided for the completion of tasks.
9. The team should feel free to adjust to changes, as and when needed.
10. Regularly celebrate the successes and work efforts of the virtual workplace research team.

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BIOGRAPHIES

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