Introducing E-Learning in a Large Multisite Academic Health Sciences Centre: A Case Study of e-Curriculum Planning and Educator Support

Debra Wingfield

Department of Graduate and Undergraduate Studies in Education

Submitted in partial fulfillment of the requirements for the degree of Master of Education

Faculty of Education, Brock University
St. Catharines, Ontario

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Abstract

This qualitative study investigated how a team of 7 hospital educators collaborated to develop e-curriculum units to pilot for a newly acquired learning management system at a large, multisite academic health sciences centre. A case study approach was used to examine how the e-Curriculum Team was structured, how the educators worked together to develop strategies to better utilize e-learning in their own practice, what e-curriculum they chose to develop, and how they determined their priorities for e-curriculum development. It also inquired into how they planned to involve other educators in using e-learning. One set of semistructured interviews with the 6 hospital educators involved in the project, as well as minutes of team meetings and the researcher’s journal, were analyzed (the researcher was also a hospital educator on the team). Project management structure, educator support, and organizational pressures on the implementation project feature prominently in the case study. This study suggests that implementation of e-learning will be more successful if (a) educators involved in the development of e-learning curriculum are supported in their role as change agents, (b) the pain of unlearning current educational practice is considered, (c) the limitations of the software being implemented are recognized, (d) time is spent learning about best practice, and (e) the project is protected as much as possible from organizational pressures and distractions.
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CHAPTER ONE: INTRODUCTION TO THE STUDY

This case study investigated how a team of seven hospital educators collaborated to develop e-curricula modules to be piloted as part of newly acquired learning management system at a large, multisite academic health sciences centre. The researcher acted as a participant-observer to examine how the e-Curriculum Team worked together to develop strategies to better utilize e-learning in their own practice, what e-curriculum they chose to develop, how they determined their priorities for e-curriculum development, and how this affected their practice and their educational philosophy. The effect of learning about e-learning for the e-Curriculum Team, as well as the corresponding effect of organizational pressures on the implementation project as a whole, was studied.

This chapter introduces the study by presenting the background of the case. This sets the stage for the presentation of the problem underlying the case study as well as the theoretical framework and research questions that guided the study. Finally the scope of this study, limitations and researcher bias are presented. This chapter concludes by outlining how the remainder of the thesis is structured.

Background to the Problem

In late 2002, a large, multisite academic health sciences centre\(^1\) in southern Ontario contracted a software firm specializing in healthcare implementations to develop its internet and intranet presence. The mandate of the software firm was to develop a comprehensive internet and intranet presence using consistent software and practices throughout the organization, and to provide education and training for all staff using

\(^1\) The health sciences centre consisted of four major in-patient hospitals along with at least three other smaller sites focusing on out-patients and administrative functions.
decreased costs for staff travel to classroom-based educational events. The senior management team approved the plan presented in October 2004 and the LMS was purchased in December 2004.

A project management structure was developed that identified two teams as necessary for successful project execution. The mandate of the first team (the Project Team) was to focus on software issues, develop implementation timelines, and ultimately execute the project plan. This group handled the "nuts and bolts" of the implementation and was responsible for issues such as end-user identification, passwords, building reports, uploading personnel data, and solving software issues for the educator group. The mandate of the second team (the e-Curriculum Team) was to develop e-curricula that would be piloted to selected learners. The second team, known as the e-Curriculum Team, was the focus of this research.

The e-Curriculum Team

The leadership team of CP&E (of which the researcher is a member) met to discuss the criteria that would guide the formation of the e-Curriculum Team. Topics discussed included: (a) the organizational pressures, (b) learner expectations, (c) the level of computer skill within the educator group as a whole, (d) the critical nature of the learning management system implementation, and (e) the current workload of the educator group. The researcher, who became the project leader, was charged with developing a set of criteria for selection of the e-Curriculum Team.

The educators selected to be involved in the project were chosen based on organizational needs, identified above, and two theoretical frameworks. The first framework was Saye's (1998) Technology Use in the Classroom Continuum (See
Appendix A), which posits that there are predisposing factors that encourage teachers to utilize technology. His model places teachers on a continuum in relation to their acceptance and integration of computer technology into their teaching practice. In this way using technology in current teaching practice was made a pre-requisite to participating on the e-Curriculum Team.

The second model used to assist the CP&E Leadership team in selecting educators for this project was Lane’s (1996) Conceptual Model for Development of Healthcare Educators (See Appendix A). Lane’s model is specific to healthcare, and is based on the work of Patricia Benner, whose book From Novice to Expert: Excellence and Power in Clinical Nursing Practice (1984) is considered the foundation for most nursing-based education in the healthcare environment today. Lane’s model classifies healthcare educators into 3 levels based on their teaching experience and ability to think critically. The first level is the novice educator, who is most interested in following rules in order to survive. The second level, characterized by experimentation and testing boundaries, is the intermediate educator. The expert educator, represented by level three, functions at an autonomous level and is highly adaptable.

The learning management system implementation was an exciting one for the members of the CP&E service. The overwhelming pressure of changing technology and increased learner expectations had influenced the work of the educators involved. The healthcare workforce was changing, and more and more junior staff fresh from school were being hired. These younger staff came with very different expectations of the organization and what learning opportunities should be provided by the organization through their professional development. They came from a “wired world” perspective
(Brown, 2000; Oblinger, 2003), and they were socialized to use technology in everything that they did. For most younger learners, computer technology was not an expectation but a part of life. The opportunity to implement the new learning management system was important because it allowed educators to look to the future education of healthcare workers and to address current issues in the healthcare environment. This case study examined how the e-Curriculum Team worked together to develop the e-learning component of the learning management system.

Statement of the Problem

The learning management system purchased by the academic health sciences centre had data management capability (tracking, scoring, and testing by individual learner) as well as the ability to provide e-learning modules using a web-based interface, something very new for most educators in the organization. Early on in the process of developing the business case for a learning management system and evaluating different vendors, it was recognized that e-learning was not something that could be implemented and developed solely by one person. A team of healthcare educators needed to use the new e-learning software to develop e-curriculum modules.

The problem situation that guided this research was:

- The e-learning component of the learning management system needed to be developed and implemented by the staff (healthcare educators) who would be using it in their educational practice.

- Pilot curricula needed to be developed and pilot groups of adult learners needed to be selected in order to pilot the software so that both process and content could be developed.
There was little literature specific to health sciences centres available to guide the development process. Available literature typically focused on implementation in universities and teaching institutions where most learners were full-time students and e-curriculum was focused on graduate and undergraduate studies.

Developing e-curriculum was new for the Health Sciences Centre, in general, and for the CP&E service in particular. Furthermore, it was anticipated the e-curriculum units would continue to be developed in the future. Therefore, it was considered important that the process of developing e-curriculum should be well understood in order to support and sustain the initiative.

Purpose of the Study

The purpose of this study was to investigate how one team of hospital educators, selected from various areas of the health sciences centre, worked as a team to develop e-curriculum that would be piloted using the capability of a newly purchased LMS. It inquired into how the educators collaborated on this project, how they developed new practices, and how the larger organizational influences affected their work.

Theoretical Framework for the Study

In essence, the development of e-curriculum shifted pedagogy away from the established tradition of classroom teaching towards one that incorporated computer technologies. As Garrison and Anderson (2003) note, "e-learning is a disruptive technology in traditional institutions of higher education because it threatens the sustaining technology – the lecture" (p. 106). The e-Curriculum Team members were
front-line educators who worked with their peers to introduce and sustain the change related to the introduction of the new software and the new way of teaching.

Two theoretical frameworks guided this study. In phase one, Tuckman’s (2001) framework was used to organize findings. Tuckman examined 50 different studies that focussed on group development processes and identified four stages of consistent group behaviour: (a) forming, (b) storming, (c) norming, and (d) performing. These four stages of group development provided a consistent framework that helped explain group function such as implementing an educational change in practice through the use of e-learning. Teamwork is an important aspect of organizational life, and Deal and Kennedy (1999) note that often people form communities to accomplish goals and gain a sense of identity. The goals for the e-Curriculum team were to champion a change in practice and pilot a new way of learning for staff at the health sciences centre.

In Phase Two, Schein’s (1999) Steps for Creating Psychological Safety formed the basis for analysis of the findings. Change agents do their work in an environment of discomfort and resistance. Schein argues that “disconfirmation” must take place before someone can learn something new and make a change. To support those making a change, Schein suggests that survival anxiety must be strengthened and learning anxiety must be reduced. The goal is to create psychological safety, thus decreasing anxiety and creating new ways of doing things. Schein proposes that the creation of psychological safety is a key step for those experiencing transformational change. He has developed an eight step process for this (See Appendix B). Schein argues that all eight steps must be implemented simultaneously in order to support those implementing change. The findings from the case were analyzed using Schein’s framework.
Research Questions

The implementation of the learning management system and the e-learning component of it led to the following research questions:

- How did educators who joined the research project perceive their use of computer technology in their own practice before joining the research project, and how much did they perceive working on the project affected their use of computer technology?
- How did the organization benefit from educators' learning about their own practice through their participation in the research project?
- How did organizational issues affect the implementation of an e-learning system within an academic health sciences centre?
- How could Schein’s (1999) *Framework for Creating Psychological Safety* be used to analyze the process of developing e-curriculum as part of the larger implementation project?

These questions framed the focus of the case study and allowed me to begin investigating the e-curriculum development process that was part of the larger software implementation project.

Importance of the Study

As computer technology is used more frequently in hospitals and other non-academic teaching organizations to deliver education modules, it is important to understand how best to support the process of e-curriculum development. This case study is expected to contribute to the literature base for health sciences centres and other healthcare and education organizations in terms of software implementation strategies.
Existing literature focuses primarily on e-learning implementations in academic settings with student learners and this study has focused on hospital implementation and adult learners. It is also expected to provide insight into how healthcare educators can better utilize computer technology, specifically e-learning, in their own practice. The literature base for e-learning implementations in respect to hospitals and other healthcare organizations is very small, and this study will provide a new perspective from which others can learn. It is anticipated that the lessons learned from this case study will prove valuable for other large (and small) healthcare organizations.

Scope of the Study

The case study was focused on an e-curriculum development project at one large, multisite academic health sciences centre. The e-Curriculum Team met to begin its work in April 2005, and began to pilot curricula in December 2005, at which time team members were interviewed and the data-gathering phase of the study was completed. Before the e-curricula were piloted at the health sciences centre, the case study ended. The study focussed on the team that developed the e-curriculum, but did not include student perspectives or subsequent evaluation of the curricula provided.

Of the approximately 50 healthcare educators considered for participation in the e-curriculum development project 7 including the researcher were selected; all willingly agreed to participate in the project. During the course of this research, other educators also indicated their interest in becoming team members.
Study Limitations and Researcher Bias

Case studies are not without some risk. Because case studies are specific to an issue or situation, they are not usually replicable and cannot be generalized to a larger population. Any findings from the case study are “limited to the case itself or types of cases” (Zucker, 2001, p. 25), but case studies can be used to deepen our understanding of situations and events. Using case studies as a way of gaining insight into similar situations is common practice in fields such as law and medicine. A practitioner in one of these fields can use professional judgement to determine whether he/she feels the case is applicable (Merriam, as cited in Berge, 2001, p. 211). Readers will no doubt be able to identify similar issues within their own organizations.

In this case, the obvious bias was my own predisposition towards a successful system implementation because of the duality of my role as both project lead and member of the leadership team of the Clinical Practice and Education service. I ensured that although I was a part of the research, I could not unduly influence the outcome of the case study as a whole as I gathered data from multiple sources. My role on the leadership team of CP&E was as a coordinator, not a manager, and as such I had no line authority over the participants in the case.

In addition I took on the role of participant-observer, and recorded my observations in my research journal. As Yin (2003) notes, being a participant-observer allows the researcher access to more data as well as providing “the ability to perceive reality from the viewpoint of someone “inside” the case study rather than external to it” (p. 94). This is balanced by the potential bias of being able to manipulate data and the possibility of being unable to balance observation with participation in events of the case.
I was conscious of this tug of war throughout the case and worked hard to maintain sound research practices.

There are some ethical issues that must be considered in this discussion. As the researcher involved in this case study, I was also the leader of the larger implementation project. In my role as a facilitator I interacted with all participants on an equal basis and needed to be aware of personal bias (Karim, 2001). According to Williamson and Prosser (2002), the "researcher is a part of the situation as well as being a student of it" (p. 41). This involvement with the project as an active participant may have introduced a degree of bias based on my own practices, my beliefs, and my stake in creating a viable e-learning environment actively used by all the project participants. In addition, I may have introduced bias because I may have possessed leadership skills and knowledge that are more advanced than those of the participants (Karim), and this may have influenced the participants unduly.

Any researcher must balance the dual role of both researcher and worker. In this case, I was part of the CP&E leadership team, and while not a direct line manager of any of the participants engaged in the project, had a large stake in the success of the implementation. There are two things that were critical to a successful software implementation—the budget assigned to the project and the reputation of the project leader. This meant that the politics of the situation may have played a role in the research project (Williamson & Prosser, 2002) and I may have needed to focus on one role to the detriment of the other during the project. As Williams, cited in Williamson and Prosser, notes, participants may be somewhat confused by the researcher's role and may be unclear about to whom they are disclosing potentially sensitive information. The choice
of the case study methodology, then, was meant to overcome this natural tendency to bias and incorporate data from a more global and holistic perspective in order to benefit the research, the reader, and make a contribution to the literature base.

Outline of Chapters

In this chapter, an overview of the research study has been presented. The problem chosen was e-curriculum development in a healthcare organization that had purchased e-learning software to develop consistent inter and intra web presence across the organization. The chapter outlined the background to the study, the statement of the problem, the purpose of the study, and the two major theoretical frameworks that guided the data collection and analysis. It also outlined the research questions, the importance of the study, the scope of the research, its limitations and researcher bias.

The remainder of this document is organized into five chapters. In Chapter Two, relevant literature is discussed. This chapter defines e-learning and the challenges that it presents. Terms such as distributed learning, distance learning, and e-learning are defined. The educator's role in e-learning and strategies for faculty development are discussed with reference to Garrison and Anderson's (2003) conceptual framework for effective e-learning with its focus on social, cognitive and teaching presence. Literature related to computer literacy is discussed, as well as strategies for faculty development to support their use of e-learning. Ellis and Phelps' (2000) model of staff development is reviewed, and the literature emphasizing the need for reflection and mentoring is highlighted. Issues related to e-learning are examined. Finally, literature related to team development and the need for safety and protection is presented, with particular attention

Chapter Three presents the research methodology and its rationale. The research design is reviewed including site and participant selection, data collection and analysis, limitations of the methodology, and ethical considerations.

Chapter Four presents the research findings. The results are presented in chronological format and are organized using Tuckman's (2001) framework for team and group development: forming, storming, norming and performing. Data excerpts from all three research sources (interviews, research journal, and meeting minutes) are presented in order to describe and analyze the e-curriculum development process as it progressed from inception to the stage at which three e-curriculum units were ready to go to the pilot phase.

Chapter Five answers the research questions in turn: How much did participants use technology before their involvement in the project, and how did their involvement affect their use of technology? What were the perceived organizational benefits of the e-curriculum project? How did organizational issues affect the development of e-curriculum? How valuable was Schein's (1999) framework for better understanding and supporting the e-curriculum development process?

The final chapter, Chapter Six provides a summary of the case study. It includes a review of relevant literature, background information, the research methodology and research design, and key findings. Implications for theory and practice are presented. A conceptual framework is presented that incorporates key theoretical and practical
findings. Suggestions for future research are presented. The chapter, and the thesis, concludes with the researcher's reflections and final thoughts.
CHAPTER TWO: REVIEW OF THE LITERATURE

This chapter presents a review of literature relevant to the case study being reported. The literature is presented in six sections. The first section focuses on the definition of e-learning and how e-learning is used in organizations to develop staff and provide learning opportunities through the use of computer technology. It also reviews the concept of organizational readiness for using computer-based technologies in teaching and learning. The second section addresses the educator's role in using and supporting e-learning. Included in this section is a discussion of the types of literacy required for an e-learning environment. In particular, a model for successful e-learning conceived by Garrison and Anderson (2003) is presented. The third section focuses on strategies for developing faculty who will use e-learning to benefit their students. The fourth section focuses on issues identified with the implementation of e-learning software in an organizational setting from an educator perspective. The fifth section describes Schein's (1999) Steps to Creating Psychological Safety in greater detail and relates it to relevant change theory. Finally the chapter concludes with a discussion of Tuckman's (2001) Stages of Team Development. This provides a background to the case and allows the reader to understand the issues around computer-based technology implementation.

Defining E-Learning and its Organizational Impact

The American Society for Training and Development (ASTD) defines e-learning as "a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM" (ASTD, as cited in Allen, 2003, p. 27). The
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In late 2002, a large, multisite academic health sciences centre\(^1\) in southern Ontario contracted a software firm specializing in healthcare implementations to develop its internet and intranet presence. The mandate of the software firm was to develop a comprehensive internet and intranet presence using consistent software and practices throughout the organization, and to provide education and training for all staff using

\(^1\) The health sciences centre consisted of four major in-patient hospitals along with at least three other smaller sites focusing on out-patients and administrative functions.
computer software. It was hoped that a more synchronized approach would increase productivity and improve bottlenecks in information maintenance. The software module supporting the internet and intranet applications could be augmented with two software modules—one that supported knowledge management through a searchable document database, and the other that supported a learning management system with e-learning capability.

In late 2003, the internal web presence (intranet) was launched, and a number of departmentally based project management teams were established. One was in the Clinical Practice and Education service (CP&E), the department primarily responsible for the education and training of staff. A small project management team of interested educators (who had indicated a desire to increase the use of computer technology in their own practice) was pulled together to develop CP&E's intranet pages.

At the same time, CP&E was approached by the Information and Communications Technology Department (ICT) to determine if it would continue with the project to consolidate information electronically by purchasing and developing a learning management system to integrate with the software used for web development. A business case was presented to the health sciences centre senior management team in September 2004. It outlined a number of benefits of learning management systems (LMS) that included (a) a refocusing of clinical educator time away from non-clinical education to value-added patient-safety focused activities, (b) the development of common standards for online educational materials, (c) increased availability of learning opportunities for staff that worked shifts, (d) improved learner tracking and reporting, (e) enhanced abilities to reach large groups of staff with "just-in-time" education, and (f)
decreased costs for staff travel to classroom-based educational events. The senior management team approved the plan presented in October 2004 and the LMS was purchased in December 2004.

A project management structure was developed that identified two teams as necessary for successful project execution. The mandate of the first team (the Project Team) was to focus on software issues, develop implementation timelines, and ultimately execute the project plan. This group handled the "nuts and bolts" of the implementation and was responsible for issues such as end-user identification, passwords, building reports, uploading personnel data, and solving software issues for the educator group. The mandate of the second team (the e-Curriculum Team) was to develop e-curricula that would be piloted to selected learners. The second team, known as the e-Curriculum Team, was the focus of this research.

The e-Curriculum Team

The leadership team of CP&E (of which the researcher is a member) met to discuss the criteria that would guide the formation of the e-Curriculum Team. Topics discussed included: (a) the organizational pressures, (b) learner expectations, (c) the level of computer skill within the educator group as a whole, (d) the critical nature of the learning management system implementation, and (e) the current workload of the educator group. The researcher, who became the project leader, was charged with developing a set of criteria for selection of the e-Curriculum Team.

The educators selected to be involved in the project were chosen based on organizational needs, identified above, and two theoretical frameworks. The first framework was Saye's (1998) *Technology Use in the Classroom Continuum* (See
Appendix A), which posits that there are predisposing factors that encourage teachers to utilize technology. His model places teachers on a continuum in relation to their acceptance and integration of computer technology into their teaching practice. In this way using technology in current teaching practice was made a pre-requisite to participating on the e-Curriculum Team.

The second model used to assist the CP&E Leadership team in selecting educators for this project was Lane’s (1996) Conceptual Model for Development of Healthcare Educators (See Appendix A). Lane’s model is specific to healthcare, and is based on the work of Patricia Benner, whose book From Novice to Expert: Excellence and Power in Clinical Nursing Practice (1984) is considered the foundation for most nursing-based education in the healthcare environment today. Lane’s model classifies healthcare educators into 3 levels based on their teaching experience and ability to think critically. The first level is the novice educator, who is most interested in following rules in order to survive. The second level, characterized by experimentation and testing boundaries, is the intermediate educator. The expert educator, represented by level three, functions at an autonomous level and is highly adaptable.

The learning management system implementation was an exciting one for the members of the CP&E service. The overwhelming pressure of changing technology and increased learner expectations had influenced the work of the educators involved. The healthcare workforce was changing, and more and more junior staff fresh from school were being hired. These younger staff came with very different expectations of the organization and what learning opportunities should be provided by the organization through their professional development. They came from a “wired world” perspective
(Brown, 2000; Oblinger, 2003), and they were socialized to use technology in everything that they did. For most younger learners, computer technology was not an expectation but a part of life. The opportunity to implement the new learning management system was important because it allowed educators to look to the future education of healthcare workers and to address current issues in the healthcare environment. This case study examined how the e-Curriculum Team worked together to develop the e-learning component of the learning management system.

Statement of the Problem

The learning management system purchased by the academic health sciences centre had data management capability (tracking, scoring, and testing by individual learner) as well as the ability to provide e-learning modules using a web-based interface, something very new for most educators in the organization. Early on in the process of developing the business case for a learning management system and evaluating different vendors, it was recognized that e-learning was not something that could be implemented and developed solely by one person. A team of healthcare educators needed to use the new e-learning software to develop e-curriculum modules.

The problem situation that guided this research was:

- The e-learning component of the learning management system needed to be developed and implemented by the staff (healthcare educators) who would be using it in their educational practice.
- Pilot curricula needed to be developed and pilot groups of adult learners needed to be selected in order to pilot the software so that both process and content could be developed.
• There was little literature specific to health sciences centres available to guide the development process. Available literature typically focused on implementation in universities and teaching institutions where most learners were full-time students and e-curriculum was focused on graduate and undergraduate studies.

• Developing e-curriculum was new for the Health Sciences Centre, in general, and for the CP&E service in particular. Furthermore, it was anticipated the e-curriculum units would continue to be developed in the future. Therefore, it was considered important that the process of developing e-curriculum should be well understood in order to support and sustain the initiative.

Purpose of the Study

The purpose of this study was to investigate how one team of hospital educators, selected from various areas of the health sciences centre, worked as a team to develop e-curriculum that would be piloted using the capability of a newly purchased LMS. It inquired into how the educators collaborated on this project, how they developed new practices, and how the larger organizational influences affected their work.

Theoretical Framework for the Study

In essence, the development of e-curriculum shifted pedagogy away from the established tradition of classroom teaching towards one that incorporated computer technologies. As Garrison and Anderson (2003) note, “e-learning is a disruptive technology in traditional institutions of higher education because it threatens the sustaining technology – the lecture” (p. 106). The e-Curriculum Team members were
front-line educators who worked with their peers to introduce and sustain the change related to the introduction of the new software and the new way of teaching.

Two theoretical frameworks guided this study. In phase one, Tuckman’s (2001) framework was used to organize findings. Tuckman examined 50 different studies that focussed on group development processes and identified four stages of consistent group behaviour: (a) forming, (b) storming, (c) norming, and (d) performing. These four stages of group development provided a consistent framework that helped explain group function such as implementing an educational change in practice through the use of e-learning. Teamwork is an important aspect of organizational life, and Deal and Kennedy (1999) note that often people form communities to accomplish goals and gain a sense of identity. The goals for the e-Curriculum team were to champion a change in practice and pilot a new way of learning for staff at the health sciences centre.

In Phase Two, Schein’s (1999) Steps for Creating Psychological Safety formed the basis for analysis of the findings. Change agents do their work in an environment of discomfort and resistance. Schein argues that “disconfirmation” must take place before someone can learn something new and make a change. To support those making a change, Schein suggests that survival anxiety must be strengthened and learning anxiety must be reduced. The goal is to create psychological safety, thus decreasing anxiety and creating new ways of doing things. Schein proposes that the creation of psychological safety is a key step for those experiencing transformational change. He has developed an eight step process for this (See Appendix B). Schein argues that all eight steps must be implemented simultaneously in order to support those implementing change. The findings from the case were analyzed using Schein’s framework.
Research Questions

The implementation of the learning management system and the e-learning component of it led to the following research questions:

• How did educators who joined the research project perceive their use of computer technology in their own practice before joining the research project, and how much did they perceive working on the project affected their use of computer technology?

• How did the organization benefit from educators’ learning about their own practice through their participation in the research project?

• How did organizational issues affect the implementation of an e-learning system within an academic health sciences centre?

• How could Schein’s (1999) *Framework for Creating Psychological Safety* be used to analyze the process of developing e-curriculum as part of the larger implementation project?

These questions framed the focus of the case study and allowed me to begin investigating the e-curriculum development process that was part of the larger software implementation project.

Importance of the Study

As computer technology is used more frequently in hospitals and other non-academic teaching organizations to deliver education modules, it is important to understand how best to support the process of e-curriculum development. This case study is expected to contribute to the literature base for health sciences centres and other healthcare and education organizations in terms of software implementation strategies.
Existing literature focuses primarily on e-learning implementations in academic settings with student learners and this study has focused on hospital implementation and adult learners. It is also expected to provide insight into how healthcare educators can better utilize computer technology, specifically e-learning, in their own practice. The literature base for e-learning implementations in respect to hospitals and other healthcare organizations is very small, and this study will provide a new perspective from which others can learn. It is anticipated that the lessons learned from this case study will prove valuable for other large (and small) healthcare organizations.

Scope of the Study

The case study was focused on an e-curriculum development project at one large, multisite academic health sciences centre. The e-Curriculum Team met to begin its work in April 2005, and began to pilot curricula in December 2005, at which time team members were interviewed and the data-gathering phase of the study was completed. Before the e-curricula were piloted at the health sciences centre, the case study ended. The study focussed on the team that developed the e-curriculum, but did not include student perspectives or subsequent evaluation of the curricula provided.

Of the approximately 50 healthcare educators considered for participation in the e-curriculum development project 7 including the researcher were selected; all willingly agreed to participate in the project. During the course of this research, other educators also indicated their interest in becoming team members.
Study Limitations and Researcher Bias

Case studies are not without some risk. Because case studies are specific to an issue or situation, they are not usually replicable and cannot be generalized to a larger population. Any findings from the case study are “limited to the case itself or types of cases” (Zucker, 2001, p. 25), but case studies can be used to deepen our understanding of situations and events. Using case studies as a way of gaining insight into similar situations is common practice in fields such as law and medicine. A practitioner in one of these fields can use professional judgement to determine whether he/she feels the case is applicable (Merriam, as cited in Berge, 2001, p. 211). Readers will no doubt be able to identify similar issues within their own organizations.

In this case, the obvious bias was my own predisposition towards a successful system implementation because of the duality of my role as both project lead and member of the leadership team of the Clinical Practice and Education service. I ensured that although I was a part of the research, I could not unduly influence the outcome of the case study as a whole as I gathered data from multiple sources. My role on the leadership team of CP&E was as a coordinator, not a manager, and as such I had no line authority over the participants in the case.

In addition I took on the role of participant-observer, and recorded my observations in my research journal. As Yin (2003) notes, being a participant-observer allows the researcher access to more data as well as providing “the ability to perceive reality from the viewpoint of someone “inside” the case study rather than external to it” (p. 94). This is balanced by the potential bias of being able to manipulate data and the possibility of being unable to balance observation with participation in events of the case.
I was conscious of this tug of war throughout the case and worked hard to maintain sound research practices.

There are some ethical issues that must be considered in this discussion. As the researcher involved in this case study, I was also the leader of the larger implementation project. In my role as a facilitator I interacted with all participants on an equal basis and needed to be aware of personal bias (Karim, 2001). According to Williamson and Prosser (2002), the “researcher is a part of the situation as well as being a student of it” (p. 41). This involvement with the project as an active participant may have introduced a degree of bias based on my own practices, my beliefs, and my stake in creating a viable e-learning environment actively used by all the project participants. In addition, I may have introduced bias because I may have possessed leadership skills and knowledge that are more advanced than those of the participants (Karim), and this may have influenced the participants unduly.

Any researcher must balance the dual role of both researcher and worker. In this case, I was part of the CP&E leadership team, and while not a direct line manager of any of the participants engaged in the project, had a large stake in the success of the implementation. There are two things that were critical to a successful software implementation—the budget assigned to the project and the reputation of the project leader. This meant that the politics of the situation may have played a role in the research project (Williamson & Prosser, 2002) and I may have needed to focus on one role to the detriment of the other during the project. As Williams, cited in Williamson and Prosser, notes, participants may be somewhat confused by the researcher’s role and may be unclear about to whom they are disclosing potentially sensitive information. The choice
of the case study methodology, then, was meant to overcome this natural tendency to bias and incorporate data from a more global and holistic perspective in order to benefit the research, the reader, and make a contribution to the literature base.

Outline of Chapters

In this chapter, an overview of the research study has been presented. The problem chosen was e-curriculum development in a healthcare organization that had purchased e-learning software to develop consistent inter and intra web presence across the organization. The chapter outlined the background to the study, the statement of the problem, the purpose of the study, and the two major theoretical frameworks that guided the data collection and analysis. It also outlined the research questions, the importance of the study, the scope of the research, its limitations and researcher bias.

The remainder of this document is organized into five chapters. In Chapter Two, relevant literature is discussed. This chapter defines e-learning and the challenges that it presents. Terms such as distributed learning, distance learning, and e-learning are defined. The educator's role in e-learning and strategies for faculty development are discussed with reference to Garrison and Anderson's (2003) conceptual framework for effective e-learning with its focus on social, cognitive and teaching presence. Literature related to computer literacy is discussed, as well as strategies for faculty development to support their use of e-learning. Ellis and Phelps' (2000) model of staff development is reviewed, and the literature emphasizing the need for reflection and mentoring is highlighted. Issues related to e-learning are examined. Finally, literature related to team development and the need for safety and protection is presented, with particular attention
to Schein’s (1999) framework to guide the development of a safe environment for change, and Tuckman’s (2001) team development theory.

Chapter Three presents the research methodology and its rationale. The research design is reviewed including site and participant selection, data collection and analysis, limitations of the methodology, and ethical considerations.

Chapter Four presents the research findings. The results are presented in chronological format and are organized using Tuckman’s (2001) framework for team and group development: forming, storming, norming and performing. Data excerpts from all three research sources (interviews, research journal, and meeting minutes) are presented in order to describe and analyze the e-curriculum development process as it progressed from inception to the stage at which three e-curriculum units were ready to go to the pilot phase.

Chapter Five answers the research questions in turn: How much did participants use technology before their involvement in the project, and how did their involvement affect their use of technology? What were the perceived organizational benefits of the e-curriculum project? How did organizational issues affect the development of e-curriculum? How valuable was Schein’s (1999) framework for better understanding and supporting the e-curriculum development process?

The final chapter, Chapter Six provides a summary of the case study. It includes a review of relevant literature, background information, the research methodology and research design, and key findings. Implications for theory and practice are presented. A conceptual framework is presented that incorporates key theoretical and practical
findings. Suggestions for future research are presented. The chapter, and the thesis, concludes with the researcher’s reflections and final thoughts.
CHAPTER TWO: REVIEW OF THE LITERATURE

This chapter presents a review of literature relevant to the case study being reported. The literature is presented in six sections. The first section focuses on the definition of e-learning and how e-learning is used in organizations to develop staff and provide learning opportunities through the use of computer technology. It also reviews the concept of organizational readiness for using computer-based technologies in teaching and learning. The second section addresses the educator’s role in using and supporting e-learning. Included in this section is a discussion of the types of literacy required for an e-learning environment. In particular, a model for successful e-learning conceived by Garrison and Anderson (2003) is presented. The third section focuses on strategies for developing faculty who will use e-learning to benefit their students. The fourth section focuses on issues identified with the implementation of e-learning software in an organizational setting from an educator perspective. The fifth section describes Schein’s (1999) Steps to Creating Psychological Safety in greater detail and relates it to relevant change theory. Finally the chapter concludes with a discussion of Tuckman’s (2001) Stages of Team Development. This provides a background to the case and allows the reader to understand the issues around computer-based technology implementation.

Defining E-Learning and its Organizational Impact

The American Society for Training and Development (ASTD) defines e-learning as “a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM” (ASTD, as cited in Allen, 2003, p. 27). The
United States Commission on Technology and Adult Learning (2001) has gone even further to define e-learning as “instructional content or learning experiences delivered or enabled by electronic technology….in other words, it is not just Web-based instruction or distance learning but includes many ways in which individuals exchange information and gain knowledge” (p. 7). These definitions are very broad in scope and include many different forms of electronic technology from computers to videoconferencing. As shown in these examples, e-learning (also known as online learning) is an inclusive term that is used for any type of learning that is facilitated by computer and communication technologies, from simple email to more complex videoconferencing technologies.

E-learning software provides the opportunity for computer-assisted instruction, which according to Bates (1995) is

pre-programmed computer-based learning (e.g. CBL, CAL, CAI, CBT, CML, CMI), but while there are subtle differences in approach of each of these terms, what each has in common is that the learner works through pre-designed materials, interacting by answering questions embedded within the materials and choosing options or ‘routes’ through the learning material. The computer program is also capable of using student responses to questions to control routes through the material, and/or provide feedback on learner responses to questions. (p. 189)

Each of these terms, whether it is CBL (computer-based learning) or CML (computer-meditated learning) describe computer-assisted learning in some way and have overlapping meaning, whether it be for the “student,” the “learner,” or the “worker”. A list of acronyms can be found in Appendix C. Based on this definition of preprogrammed
computer-based learning, e-learning software allows the educator to develop and deliver e-curriculum based on the learning needs of the individual learner.

Focusing on the learning needs of the individual may also mean that learning cannot take place at a time or location that is necessarily convenient for the educator, the learner, and the organization. Oblinger, Barone, and Hawkins (2001) describe this separation in both time and space as *distributed learning*, a broad term meant to describe learning without the limitations of walls and time. They purposively chose the concept of "distribution" because "distance" learning describes technologies that can be used in a classroom environment (p. 1). Distributed learning implies fewer boundaries and increased flexibility, including the opportunity for interaction between instructor and students and even student to student. Berge (2001) refines the concept of distributed learning further by noting that "distance" describes how the organization and instructor deal with the separation of learners and learning resources versus "distributed," which describes how the learner uses the learning that is conveyed over a distance. Most commonly, distribution is enabled through the use of a computer network of some type, increasing flexibility and breaking down existing barriers. Garrison and Anderson (2003) agree with the utility of computer networks, as they believe it makes e-learning "a new learning ecology" (p. 122).

Networked computer technologies provide organizations with a multitude of tools that staff can use in their daily work. They also present access to information 24 hours a day, 7 days a week, providing opportunities to leverage the technology to benefit staff as learners. Haughey and Anderson (1998) describe a network as
a group of interconnected computers that are used to accomplish a set of tasks...connected by a communications channel...a common language or communication standard...[and] each computer on the network and each user of each networked computer must have a unique address. (pp. 10-11)

The fact that a network requires unique identifiers for each user means that each learner using the network can be identified by relevant learning needs and that education provided to each learner can be customized to those needs. This opens up even more possibilities for e-learning (a specific form of distributed learning) and provides an organization with a number of challenges in managing organizational learning. Berge (2001) sees technology used for learning in organizations as a catalyst for change and an opportunity for educators to explore their beliefs about learners, learning, and teaching.

The idea of distributed learning is relatively new but has been evolving and changing since its inception. Many scholars (c.f. Bates, 1995, Bates, 2005; Garrison & Anderson, 2003; Moonen, 1997; Richardson, 1995; Taylor, 1995) have identified at least four generations of distributed learning. The first generation was focused on independent study by the learner and was “characterised by the predominant use of a single technology, and lack of direct student interaction with the institution providing the teaching or awarding accreditation” (Bates, 2005, p. 6). The second generation retained the focus on independent study but added advanced technologies such as video. In this generation, interaction between learners and educators was limited to the same modalities that characterized the first generation of distance learning–telephone and mail. The third generation introduced communication between educators and learners. It marked the true beginnings of e-learning, primarily because of the increased focus on communication and
the use of communication instruments such as email. The fourth generation has added the immediacy and breadth of knowledge provided by the Internet.

Taylor (1995) postulated a fifth generation of distributed learning, where the e-learning software will be programmed to provide answers to questions posed and direct each learner down a different learning path depending on the learner’s knowledge. Clark and Mayer (2004) predict that the fifth generation of e-learning will move to focus on business needs and job requirements while allowing learners to map their problem-solving abilities and compare their performance to experts in specific subject areas. This is not dissimilar to the views of Alfred Bork (2001), who claims to be working on a computer program that can replicate the way a skilled tutor interacts with a learner by having some sort of decision tree programmed, with every possible branch included, in the software itself. Kaufman, as cited in Bates (2005), notes that with each generation of distributed learning there has been an increase in learner control and increased opportunities for communication and discussion. Kaufman sees an increasing emphasis on the development of higher order thinking skills, which makes distributed learning (and e-learning) more desirable for learners.

In addition to benefiting learners, e-learning can benefit organizations. Berge (2001) asserts that technology-based education allows organizations to provide just-in-time learning that is more effective than classroom-based, instructor-centred education. He argues that e-learning must become a part of the fabric of a successful organization and, building on Schreiber’s work (1998, as cited in Berge), has proposed a model describing how e-learning would evolve in an organization:

Stage One: Infrequent technology-based learning events occur.
Stage Two: The organization has the technical infrastructure to support technology-based learning and it is replicated by an interdisciplinary team to the rest of the organization. Recommendations are made regarding technology-based learning by the team to senior management.

Stage Three: The organization has a technology-based learning policy, along with procedures to ensure a stable process that supports identification and selection of learning opportunities.

Stage Four: Technology-based learning is part of the organizational culture and it supports the organization’s mission, vision, and strategic objectives. Learning events are systematically assessed for organizational benefit. (pp. 15-16)

This model allows an organization to assess its readiness for e-learning so that it can work towards Stage Four, which would require a computer network, strategic goals for which e-learning is a key success factor, educators who are computer literate and visionary enough to be able to leverage the technology, educational leadership, and an organizational budget for such things as e-learning software (including upgrades), hardware, and development time for learning materials.

Software to support e-learning on an organizational level through a computer network is often referred to as learning management systems (LMS). As noted by Hall (2003), learning management systems provide “the platform for the enterprise’s online learning environment by enabling the management, delivery and tracking of blended learning (i.e. online and traditional classroom) for employees, stakeholders and customers” (¶2). Thorne (2003) asserts that blended learning “represents an opportunity to integrate the innovative and technological advances offered by online learning [e-
learning] with the interaction and participation offered in the best of traditional learning” (p. 2). Often, e-learning is but one component of an integrated learning management system designed to deploy, track, and report on educational encounters (both classroom and online) of staff in the work environment. To be of most value to an organization, an LMS should possess “interoperability”. Interoperability is the process of “ensuring that the systems, procedures and culture of an organisation are managed in such a way as to maximise opportunities for exchange and re-use of information, whether internally or externally” (Miller, 2000, ¶7). Interoperability in software terms means that data are able to flow between two or more pieces of software without intervention or manipulation. This facilitates the flow of information throughout an organization.

The Educator’s Role in E-Learning

How does an educator utilize this new technology in ways that will enhance learning? There is much in the academic teaching literature focused on understanding the role of the educator but little to guide the typical healthcare educator who practices in a hybrid environment. The hybrid environment has many aspects of the academic world (affiliation with an accredited university, educators who hold dual roles of academic tutors and staff instructors, and student clinical placements) and yet has many of the pressures of the business world. Familiarity with both worlds means that an educator can prepare him/herself to utilize e-learning by talking to colleagues (both in his/her own teaching centre and throughout other hospitals), reading the literature related to e-learning (from both a business and an academic perspective), understanding the models and frameworks of effective e-learning, and learning the language associated with e-learning.
A key framework to promote better understanding of e-learning and related technologies as well as the role of the educator, is the one presented by Garrison and Anderson (2003). Their framework for e-learning (Figure 1) incorporates three key elements—social presence, cognitive presence, and teaching presence. When these elements are completely present for the learner, they help form a learning community that encourages learners to seek and share information, and thus create a learning discourse where critical thinking and creative inquiry are welcome. In such a community of inquiry “students can take responsibility and control of their learning through negotiating meaning, diagnosing misconceptions, and challenging accepted beliefs – essential ingredients for deep and meaningful learning outcomes” (Ramsden, as cited in Garrison & Anderson, p. 27).

Social Presence

Social presence is defined as “the ability of participants in a community of inquiry to project themselves socially and emotionally, as ‘real’ people (i.e., their full personality), through the medium of communication being used” (Garrison, Anderson, & Archer, 2000, as cited in Garrison & Anderson, 2003, p. 49). Learning is not an isolated experience, although learning is intensely personal. Adults learn best when learning is a collaborative endeavour between the learners and between the learners and the educator. For the educator, this is an important element. The educator must be able to understand how to create a community while not being able to communicate using all senses, and he/she must be alert to the cues and signals received from the group of learners—from lack of participation to frustration with the electronic medium. Because communication in an e-learning environment is most often text based, he/she must also be aware of the clues
Figure 1. Garrison and Anderson's conceptual framework for e-learning: community of inquiry (2003, p. 28).
that indicate a learner is not engaged, since he/she does not have the luxury of observing body language and listening to vocal intonation. As well, he/she must be prepared to set the tone and lead by example—“by establishing familiarity through the use of greetings, encouragement, paralinguistic emphasis (e.g., capitals, punctuation, emoticons), and personal vignettes (i.e., self-disclosure)” (Rourke & Anderson, in press, as cited in Garrison & Anderson, 2003, p. 50).

This can be compared to the learner experience contemplated by Mann (2003) in her journal which outlined her experience as an online learner. The journal provided a useful way to help the reader understand how a learner feels when first engaging in an online conversation with other learners he/she has met only through online discourse. Mann worried about being more self-conscious than normal when online, as the record of everything she said online was now written down, and at times “the weight of the words, clunky and burdensome” (p. 121) distracted her from the essence of the discussion. Others such as Dringus (n.d.) have had similar experiences in their roles as learners and then facilitators of online learning, and they bring a useful reminder of the student perspective for educators.

Garrison and Anderson (2003) point out that there “may be an optimal level of social presence. Too little social presence may not sustain the community. On the other hand, too much social presence may inhibit disagreement and encourage surface comments and social banter” (p. 53). Other educators have noted the same concerns, and Burge wrote about one web conference where:

the issue was how to encourage participants to carry their responsibility for action without my being perceived as lazy. I knew of my preference for using intuitive
and metaphorical thinking styles, but worried that such use online, with people I could not see, might inhibit rather than encourage participation. (Burge, Larocque, & Boak, 2000, ¶26)

Garrison and Anderson note that establishing social presence will not necessarily lead to a community of inquiry, but that it needs to be combined with both cognitive and teaching presence in order to become a true learning experience for all involved.

Some e-learning systems do not have the capability to provide learners with more interactive forums, such as discussion groups and email. Anderson (2004) suggests that this type of limited system is a difficult one to work with, as the instructor is challenged "to create collaborative learning or social activities when students are at very different places in the curriculum" (p. 278). He suggests other strategies for involving students and establishing social presence, such as videos of the instructor talking about his or her own learning journey in the subject being presented. Without a degree of social presence, it is difficult for learners to learn from each other and develop the type of online relationships noted in the literature and in this model.

**Cognitive Presence**

Cognitive presence is at the core of the learning experience. It is defined as "the intellectual environment that supports sustained critical discourse and higher-order knowledge acquisition and application.... facilitating the analysis, construction, and confirmation of meaning and understanding within a community of learners through sustained discourse and reflection largely supported by text-based communication" (Garrison & Anderson, 2003, p. 55). Garrison and Anderson (2003) ground their discussion of cognitive presence in the work of John Dewey (1933), who believed that
critical thinking is a key educational aim (Dewey, as cited in Garrison & Anderson, p. 56). They deepen our understanding of critical thinking in the e-learning context by presenting a model that explains practical inquiry as a basis for critical thinking.

In their model, Garrison and Anderson (2003) note that a triggering event often begins the first phase of practical inquiry. In an educational context, this is often a contrived activity, but it should be structured to draw out the learner’s previous experiences and/or learning. This is followed by the exploration phase, which entails a search for understanding of the problem, for further information, and potential reasons as to why the problem occurred. In an e-learning environment, this is best done through a community of inquiry, utilizing discussion and sharing of experiences and questions, often in an asynchronous format. Integration, or constructing meaning for the learner, is the next phase, and this involves discussion by all the participants in order to better shape their understanding of the issue at hand.

Garrison and Anderson (2003) feel that it is at this point in their model that e-learning provides the most meaningful learning outcomes. An asynchronous discussion allows for reflection, deeper thought, and the construction of relevance for learners. Mann (2003) points out that “how we use language is inextricably bound to our knowledge and frameworks of assumption and when we use language we can’t help but act and construct reality and understanding through it” (p. 118). This is when many reticent learners “come out of their shells” and begin to contribute much more to an online discussion than they ever would to a classroom discussion, as they have time to create their own understanding and reality. For them the anonymity of the e-learning format is a positive thing that allows them to contribute with much less anxiety.
The fourth phase of the practical inquiry model is resolution of the issue, often through the construction of a model or framework based on the discussion from the exploration and integration phases (Garrison & Anderson, 2003, pp. 58-60). An educator must be able to feel comfortable enough to develop cognitive presence while at the same time responding to the social needs of the learning community that is developing before her. Without an understanding and a comfort with electronic technology, he/she will not be able to establish both types of presence. Garrison and Anderson underscore that this model can be used to assess cognitive presence, and in their experience, the most success is to be found in the first two phases of the model.

As with social presence, the lack of an interactive component in the software being used can affect cognitive presence. Learners often learn from discussion and collaboration with each other as well as their instructor, and without discussion boards or email present in the software this aspect of the model is not as robust as it could be. Alternate methods of developing cognitive presence, such as in-depth case studies, discussion questions, and a link to a blended learning format (e-learning followed by a face-to-face classroom session), would allow learners to be more reflective regarding their own experiences as well as the experiences of others and would encourage the development of cognitive presence.

Where Garrison and Anderson (2003) see a lack of consistent cognitive presence is in the last phase of the model, the resolution phase, where learners and educators must be able to make sense of their exploration and apply their learning to their own experiences. They note that this framework is only a beginning and that much follow-up work needs to be done in order to refine it.
**Teaching Presence**

Teaching presence is "defined as 'the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes’" (Anderson et al., as cited in Garrison & Anderson, 2003, p. 29). This implies that the partnership between learner and educator is a solid one, because without the educator to guide, to question, and to occasionally steer, the learner would not necessarily be acquiring useful knowledge. This is not to say that the educator is in complete control, as the learner is also responsible for the learning that takes place.

The educator’s role is to design ways to learn that complement the learner’s characteristics and ways to learn that challenge the learner to reach higher levels of synthesis and greater understanding. It requires that the educator be “a subject matter expert, an educational designer, a social facilitator, and a teacher” (Garrison & Anderson, 2003, p. 65). Easton (2003) agrees with this multifaceted role and notes that in her research she has uncovered three roles for the educator, the first being a course designer and content expert, the second being a mentor or guide, and the third being a combination of the two (p. 100). She goes on to assert that an e-learning educator needs “to develop new course management techniques for teaching virtually. This element includes organizing, engaging, monitoring, and evaluating” (p. 101).

Garrison and Anderson (2003) compare various authors’ perceptions of the educator role in e-learning and make the point that there are many similarities and few differences. They divide teaching presence into three components: design and organization, facilitating discourse, and direct instruction. Design and organization is
more than just putting an existing classroom-based course in an electronic format. It is a complete redesign of the curriculum to utilize the power and new aspects of the e-learning environment. It is interesting that they note content needs to be both increased and decreased in order to facilitate more interactivity (i.e., adding hyperlinks to websites) within the e-curriculum. This reflects the work of Crichton and LaBonte (2003), who use the term “shovel-ware” to describe the tendency to present too much content at the price of reduction of social interaction (p. 72). Certainly the tendency to present interactive hyperlinks to content throughout the Internet requires the educator to develop information literacy skills so that the information presented for the learner is relevant and authentic.

The educator is also responsible for facilitating discourse in order to further understanding. This is more than just managing social presence, as it requires drawing out learning and challenging learners to higher level thinking. Of course, the educator cannot force this thinking but must walk a balance that acknowledges learners’ contributions but does not discourage them. Even though this is done in an e-learning environment, it is helpful to understand the principles of facilitating adult learning, as presented by Dorothy MacKeracher in her book, Making Sense of Adult Learning (2004). MacKeracher discusses the adult learner and notes that optimization of adult learning occurs when learning is relevant, when the learner is considered as a unique individual with a body of experience, and when the learner is treated as someone who is responsible for her own learning. Adult learners are the same, whether they are in a real-world classroom or in a virtual classroom linked by electronic technology.

Finally, the educator is also required to provide direct instruction where and when appropriate. This requires the educator to be an expert in teaching and learning so that
opportunities for learning can be correctly identified. As well, the educator can "identify the ideas and concepts worthy of study, provide the conceptual order, organize learning activities, guide the discourse and offer additional sources of information, and diagnose misconceptions and interject when required" (Garrison & Anderson, 2003, p. 71). An educator provides the structure for the learning and knows how much and when to intervene to provide more guidance and direction. Without the educator, the learner would not be supported enough, particularly in those situations that require the development of parallel skills, such as the development of information literacy.

As noted in the discussion of both social presence and cognitive presence, the development of a learning community is a key to successful e-learning. Developing teaching presence can also be supported by collaborative learning and learning communities. Discussion can enrich the learning experience in many ways, and learners can learn from both the instructor and other learners. Of note is that many organizations do not have software that can enable learners to discuss online, and Clark and Mayer (2004) discuss this, citing Galvin, who writes that "in spite of the availability of collaborative tools, few organizations other than educational institutions are making use of them in e-learning" (pp. 200-201). Clark and Mayer go on to say that there is little business-based research at this time to advocate for learning communities but predict that this will change in the next few years as business takes its cue from the research in the academic setting.

Garrison and Anderson's Framework as It Relates to Literacy

Garrison and Anderson's (2003) framework is important in helping the educator to understand how he/she must provide support to the learner throughout the teaching and
learning interaction in an e-learning environment. In order to provide this support to learners, the educator must be competent in all three facets of literacy required for the e-learning environment.

Computer literacy is essential—the educator must be comfortable in the electronic environment and also be able to extend his/her knowledge of this environment to others. Many older adult learners have not experienced learning in an electronic environment, so they will require support and encouragement to develop their own computer literacy. In the beginning of any e-learning endeavour, there is a period of chaos as learners access the electronic resources, configure internet browsers, use their passwords, set up their internet connections, access secure sites, and generally become used to the electronic environment. As Susan Easton (2003) notes,

the first few weeks of the course were reported to be overwhelming and chaotic. Although F2F [face-to-face] classes often have a similar pattern, the classroom instructor can contain the majority of problem-solving to a class meeting to address questions and resolve problems. (p. 101)

An educator using e-learning must be conscious of this anticipated chaos and develop strategies to support learners and begin to develop a social presence. One way could be to have all learners complete a survey assessing their computer literacy skills. However, this may not be a true assessment of computer literacy, as Cartwright and Menkens (2002) determined when they reviewed the literature around computer literacy. Their literature review indicated that learners tend to overstate their computer literacy skills. To compensate for this, they spent a great deal of time developing a more comprehensive literacy survey and also provided a half-day computer orientation for all learners (p. 144).
If a learner is not computer literate, he/she will not be able to participate in asynchronous discussions, send and receive email, and even click on hypertext links where provided. This would present a disadvantage in terms of group socialization, as nonliterate learners would always be following the group, not able to actually keep pace with it. They would also feel frustration and possibly disengage from the group, thus making it much more difficult for the educator to establish a social presence with the entire group. Their contributions to group learning, as part of the development of cognitive presence, would be missed. The group would not necessarily realize this, but each learner contributes valuable learning to group interaction, and this would be a loss (Palloff & Pratt, 1999). The educator would also be challenged in terms of developing a strong teaching presence, as his/her focus would be on developing literacy skills in the learner as opposed to developing higher order thinking about the subject matter or task at hand. It would be a challenge to bring a non-computer-literate learner along without some personal face-to-face intervention. This could not even be considered unless the educator has sound computer literacy skills or is able to find someone who can provide them.

If a learner were not online literate, he/she would not be able to participate in some of the group’s formative social interactions and could potentially choose to withdraw or disengage from the group, either partially or fully. This would again present a challenge to the educator, who would need to pay special attention to this type of learner. One helpful way to develop online literacy is to provide a glossary of terms at the beginning of a course or e-learning session. This would help the educator establish a social presence, as he/she could indicate that it took her a long time to discover all the
different ways of expressing his/herself online, or he/she could invite others to add to his/her glossary. Lack of online literacy could also affect cognitive presence, again impeding group discussions. If a learner is not able to successfully engage in a threaded discussion, his/her points may be very critical to advancing the discussion, but other learners may miss them if they are not added to the correct discussion thread. This would result in learners going back over previously discussed information, losing their place in the development of ideas, or not moving forward in developing higher level thinking. If an educator did not possess online literacy, he/she would not be able to spur the group on to higher level thinking by redirecting the misposted thread or reposting the message in the correct thread.

Again, the educator would be challenged in terms of developing a strong teaching presence, as his/her focus would be on developing literacy skills in the learner as opposed to developing higher order thinking about the subject matter or task at hand. This could not even be considered unless the educator has sound online literacy skills him/herself. She would need to understand the feelings that Sarah Mann (2003) talks about from her own personal experience when she recounts that “the paradox emerged for me of being more self-conscious online than face to face. There is a record of everything one says. One becomes visibly inscribed in the text” (p. 115).

Educators using e-learning must be literate in the use of computer technology. Saye (1998; Appendix A) has developed a continuum that puts some criteria around what qualities a technologically literate educator must possess. At one extreme of the continuum is the “accidental tourist,” an educator who has a high concern and need for control and structure in her classroom. This type of educator prefers a learning
environment that is predictable and comfortable for the teacher. Therefore, their lesson focus is teacher centred, with an emphasis on the lower order development of thought. At the other extreme is the “voyageur,” an educator with high concern for making the classroom more student centred and experimental. For this teacher, the learning environment is much less predictable and much more flexible, and the lesson focus is on the higher order development of thought. Both classroom environments have useful aspects for the learner, and it is possible for learners to thrive at both ends of the continuum, depending upon personal learning style. Katz (as cited in Saye) notes that the use of computer technology in a classroom environment can be associated with a degree of risk for the educator, and Saye’s continuum reflects this. Although his continuum was developed in a more traditional school environment, there are parallels to the healthcare teaching environment and the receptivity of educators to the use of technology in their teaching practice.

Information literacy is perhaps the most difficult literacy to assess and to attain. We are all seduced by the rampant availability of information. Links to further information on topics we are interested in are everywhere, in documents we receive by email, embedded in PowerPoint presentations, and on Internet pages, inviting us to view them. Sternberger (2002) asserts that learners need to develop excellent time-management strategies because of information proliferation. She notes that if learners “are surfing the Web and finding one interesting site after another, they lose focus on the assignment and find the two hours have passed unproductively” (p. 173). Arvan (1997) stresses that learners have a finite amount of time, and the educator must make the best use of it, because the learner is learning the coursework as well as how to manage her
own time. The coursework presented to the learner, therefore, must be valuable for the learner. Information literacy is essential in developing engaged learners, as an educator must know what information is essential and relevant for the learners.

The learners also have a responsibility to become information literate, as they can become overwhelmed by the availability of information, whether relevant or not (Palloff & Pratt, 1999). This will primarily impact the cognitive presence an educator tries to establish, as non-information-literate learners will add meaningless information to discussions, steer the group off course, and could potentially misinform other learners. This lack of literacy could also impact teaching presence, as the information presented could challenge accepted and researched information (which is not always a bad thing, provided it is backed up by research) and could bring into question the educator’s knowledge base, even if the information presented were incorrect. This could impact the educator’s credibility, particularly if the educator is not information literate enough him/herself to challenge and, if necessary, repudiate the presented information. The educator needs to understand (and to convey this to her learners) that “having access to unlimited information is not the same as being able to search efficiently for the most significant information, or to even know what is most significant” (Merriam & Caffarella, 1999, p. 17). All this discord and controversy would ultimately impact social presence, and the group could potentially break apart from the sheer weight of the controversy attached to every discussion it attempted.

As has been shown in the preceding discussion, Garrison and Anderson’s (2003) framework for successful e-learning is a powerful one. It is even more powerful if the educator utilizing e-learning has the skills necessary to support the learners as he/she
develops the competencies that will allow him/her to develop sound e-learning curricula and approaches to practice.

Strategies for Faculty Development

The literature that informs faculty development is expanding. Bennett, Priest, and Macpherson (1999) report on a faculty development project that invited faculty to become learners, learning about a subject that was totally unrelated to their current teaching practice or their subject expertise, so that they could immerse themselves as learners in an e-learning environment. Forty-six faculty members studied the Irish Potato Famine in small groups. Each group was assigned a tutor who was a member of the faculty development team. Groups were small, support was high, and this worked well in encouraging faculty to learn about the technology in a supportive environment. One year later, faculty were surveyed about their experiences and upon reflection they felt that their learning was beneficial and the project encouraged them to break down their personal barriers to utilizing e-learning in their own practice.

In Australia, Kennedy, Webster, Benson, James, and Bailey (2002) found that a collaborative approach in planning and development, which involved as many people as possible in the early stages of the design of the portal, was successful in engaging faculty in the portal by customizing their own web page and browsing the hypertext links. They found that the portal provided a useful forum for sharing e-learning teaching strategies and dilemmas.

In an action research project Ellis and Phelps (2000) reported on their experiences at Southern Cross University. They found that faculty started to own the technology once they began to mentor others. Subsequently Ellis (currently in press) developed a 4 stage
model for faculty development. In this model, Ellis identifies tasks that tend to predominate at each level (Figure 2). The final stage of the model utilizes the increased knowledge base of e-learning faculty and encourages them to mentor other faculty who are in stage one of the model. Ellis and Phelps found this process to be an iterative one and that mentorship was a powerful tool to get other faculty on board. Clay's (1999) model for stages of faculty development is similar to that of Ellis and Phelps. Clay proposes a four-stage process from awareness of e-learning to innovation, where educators use e-learning technology and find ways to mentor others. She encourages education development through web-based tutorials, observation of other e-learning courses, mentorship, and group sessions. Clay identifies two levels of curriculum. In *beginning curriculum*, techniques focus on encouraging interaction, copyright and legal issues, developing back-up and contingency plans, and understanding the impact on learners. *Advanced curriculum* addresses management of problem behaviours online, variation in the instructional mix, and needs assessment in distance education. Clay reviews common educator mistakes ranging from putting the course text online to not taking the time to learn and understand the technology in order to support students.

As described by Anderson and Shannon (1988) mentorship is:

a nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels, and befriends a less skilled or less experienced person for the purpose of promoting the latter's professional and/or personal development. (p. 40)
**Stage One**
*Raise interest and increase motivation for staff to get them excited about being involved.*
- Facilitate hardware and software access
- Provide bookmarked sites in areas of interest.
- Offer short seminars on online activities within the institution.
- Organize talks by visiting experts.

**Stage Two**
*Give support to staff to undertake a clearly defined online project.*
- Educate staff in instructional design and issues of online pedagogy.
- Train staff how to use appropriate software products.
- Test developed materials using real students.
- Revise curricula and retest.

**Stage Three**
*Challenge the staff involved to increase complexity and technical difficulty.*
- Increase staff and student interaction.
- Add streaming video.
- Utilize collaborative student projects to be completed online.
- Get the staff to assess each other’s courses.

**Stage Four**
*Acknowledge skills of staff by getting them to mentor others interested in developing online courses.*
- Keep the momentum going.
- Consolidate learning.
- Use knowledgeable staff as a resource.

*Figure 2. Ellis and Phelps’s (2000, ¶26, 27, 28, & 29) model for online staff development.*
Mentorship is also used at The Royal Melbourne Institute of Technology to encourage faculty who are tentative about using e-learning (McNaught & Kennedy, 2000). Both these models tie in nicely to Nonaka's Modes of Knowledge Creation Model, as Nonaka (1991) asserts that organizational learning occurs not only through explicit information sharing (actual teaching) but through tacit information sharing as the apprentice observes the master. Salmon and Giles (1999) report similar benefits from an action research project used at the Open University Business school in the United Kingdom, a pilot project that was undertaken with both educators and learners.

Both Matuga (2001) and Ruth (1997), in reflecting on their personal experiences as e-learning educators of undergraduate students, noted that integrating technology into existing practice improved student results. Ruth found that the students rose to the challenge and preferred the e-learning environment. He believed that students benefited from his enthusiasm and renewed sense of excitement about instruction that teaching with technology provided. In contrast, while Matuga found the challenge to design a course from scratch a positive experience, she concluded that a more traditional classroom environment was more engaging because of its three-dimensional nature.

Other examples of educator development from the healthcare literature specifically focus on the development of nursing courses for university education. Barker (2003), Bentley, Cook, Davis, Murphy, and Berding (2003), MacIntosh, MacKay, Mallet-Boucher, and Wiggins (2002), and Morris, Buck-Rolland, and Gagne (2002) all report on utilizing e-learning technologies and preparing faculty for the change in practice. The use of a colearning model by MacIntosh et al. (as conceived by Freire) was seen as a way to build bridges between educators and learners in the new
environment. For Morris et al., the key component of educator success was the support of a director of technology-based learning. For Barker, success was a result of a strategic use of mentorship, a thorough force field analysis, and the fact that e-learning was not mandatory for all educators.

Candiotti and Clark, as cited in Schrum and Hong (2002), posit that educators, even if they use computer technology extensively, initially have difficulty in using e-learning because it involves changing the way they actually teach. An understanding of what it means to be a learner is then essential for effective e-learning practice. They identified dimensions of successful learners through a review of institutions offering e-learning, then verified the dimensions through a literature review, and asked e-learning educators to review the dimensions based on their experience. The four dimensions are (a) availability of appropriate tools, (b) experience with technology, (c) learning style, and (d) study habits. They assert that learners too must alter the way they learn in an e-learning environment.

Lane (1996; Appendix A) developed a model based on Benner’s (1984) work to classify healthcare educators in terms of teaching development and experience. Lane sees healthcare educator development on a continuum, with three major levels. When at Level One, instructors use a structured approach to education, as they are somewhat unsure of themselves and fearful of failure. They understand that education is more than just a teaching encounter, but they do not formally assess needs or evaluate programming on a consistent basis. Level Two instructors are more aware of education program development but need support in utilizing creative teaching methods, teamwork, and marketing. Level Three instructors are very self-sufficient and reflective in their own
practice and are often mentors to others. Their learning needs are centred more on things like organizational theory, project planning, change management, and writing for publication and presentation. Healthcare educators found to be confident in their own practice are generally more receptive to new ideas and creative teaching solutions.

Issues with E-Learning From an Educator Perspective

The introduction of e-learning into an organization is not without some concerns. The academic literature clearly presents the concerns of faculty regarding the challenges of utilizing technology in new and different ways. The most discussed issue from a faculty perspective is that workload is increased for faculty when and where e-learning is used (Barker, 2003; Bentley et al., 2003; Clay, 1999; Lazarus, 2003; McKenzie, Mims, Bennett, & Waugh, 2000; Palloff & Pratt, 1999; Wilson, 1998). Increased workload occurs when developing a course for e-learning purposes, facilitating the course during the semester (managing discussion groups and moderating participation), responding to student queries, and maintaining the materials (checking validity of hypertext links, changing content, etc.). This issue would be applicable to an academic health sciences centre environment as well, as educators involved in implementing e-learning would also be responsible for developing content, developing their computer skills, some design, and any follow-up with learners, including discussion groups and testing. They currently have these responsibilities with more traditional teaching formats, but the literature suggests that workload will increase with e-learning. As with academic faculty, there are other responsibilities that must be met. And while the courses developed may not be of the same duration as in an academic setting, there may indeed be a higher volume of courses and subjects that would be made available via e-learning.
Recognition for teaching using an e-learning environment is also a concern for academic faculty. Merit pay, laptops, student assistants, and recognition of course development as scholarly work are all types of recognition requested by faculty (Bentley et al., 2003; McKenzie et al., 2000).

Scepticism of the value of e-learning by other faculty members is another concern. Moore, as cited in Clay (1999), notes that some faculty have negative attitudes regarding e-learning and they can be very vocal in their opposition to its use. Some academic institutions have recognized this challenge by allowing faculty to "opt out" of e-learning if they are not interested in using it as a means of teaching some of their course load (Barker, 2003, p. 274).

Dependability of the technology is also a significant concern (Barker, 2003; McKenzie et al., 2000; Wilson, 1998), as faculty have experience with lack of support when things go wrong. Careful attention to backup and contingency plans must be part of any educator's toolkit, whether in the face-to-face or e-learning environment.

Copyright and legal issues are also of some concern to faculty, as this is still untested in the courts in many instances (Bentley et al., 2003; Uitdehaage, Contini, Candler, & Dennis, 2003; Wilson, 1998). At this point, some common resources generously made available by their authors are shared via data repositories such as MERLOT (generic resources) and HealNet (healthcare specific resources) on the Internet.

E-learning and Organizational Change Agents

E-learning is a change in both educational and organizational practice. Organizational adaptation of e-learning as a tool for organizational development and
growth is critical. Garrison and Anderson (2003) maintain that e-learning is a disruptive technology for institutions of higher education. They cite Christensen (1997), who asserts that disruptive technologies cause firms to fail if they do not adapt to them. The challenge is to implement the technology without risking the core business of the organization and its customer base. They assert that “adopting e-learning in its full potential is a transformative process that requires a long-term commitment to overcome the inevitable resistance” (p. 113). Implementers of such a transformative process are often seen to be change agents or local line leaders (Senge et al., 1999), responsible for influencing others and creating the momentum for change at the grassroots level. Change agents do their work in an environment of discomfort and resistance. Schein (1999) argues that “disconfirmation” must take place before someone can learn something new and make a change. This discomfort is an emotional experience, and Mezirow’s (2000) transformational learning theory posits that when a learner reframes existing knowledge, “it is often an intensely threatening emotional experience in which we have to become aware of both the assumptions undergirding our ideas and those supporting our emotional responses to the need to change” (p. 7). In other words, the acceptance of change is not easy and may elicit a strong emotional response from those championing the change.

Even if someone is receptive to the proposed change, there must be some sort of threat or pressure that forces the individual or organization to become uncomfortable with the status quo in order to make the change.

Reframing existing knowledge or learning new ways of doing things can create learning anxiety. Learning anxiety can stem from a fear of incompetence. Even if the incompetence is only temporary, it is uncomfortable for an adult to be seen as
incompetent. Seel (2001) asserts that “change provokes anxiety in most of us. Even in smaller groups people sometimes behave in surprising, and even disturbing ways” (p. 493). The fear of incompetence can be great, and even established educators can experience discomfort with learning new ways of doing things. They need to understand and to relearn how to teach using an electronic system that would limit their face-to-face interaction with learners. As Caplan (2004) suggests, “many of the skills that faculty had honed in face-to-face settings no longer apply online; and some teachers must ‘unlearn’ certain teaching methods as much as they need to learn new ones” (p.182). This means rebuilding and relearning how to teach, a difficult realization for a seasoned educator.

To decrease learning anxiety, Schein (1999) suggests that survival anxiety must be strengthened and learning anxiety must be reduced. The goal is to create psychological safety for these change agents, thus decreasing anxiety and creating a new way of delivering education. Schein’s framework is key to creating a safe environment for change and allowing those involved on the front line of change to focus on their role as change agents.

Schein (1999) proposes that the creation of psychological safety is a key step for those experiencing transformational change. According to Edmonson (1999),

team psychological safety is defined as a shared belief that the team is safe for interpersonal risk taking. For the most part, this belief tends to be tacit – taken for granted and not given direct attention either by individuals or by the team as a whole. (p. 352)

Edmonson asserts that team psychological safety facilitates learning behaviour and is a key to group learning. Like Maslow (1970) and his hierarchy of needs for individuals,
Schein views the creation of a safe environment as the basis for further development of the individual and, as a consequence, of the team. His eight steps (Figure 4) for the creation of psychological safety are simple. He argues that all eight steps must be implemented simultaneously, unlike Maslow, who saw the achievement of needs as a developmental pyramid, beginning with safety and security. For a more detailed review of strategies for each step of Schein’s framework, see Appendix B.

Schein’s (1999) framework notes the importance of teams in introducing organizational change. Tuckman (2001; originally published in 1965) has studied team function and identified that teams go through four stages of development in pursuit of a vision and team goals. These stages are: (a) forming, (b) storming, (c) norming, and (d) performing. Along with Mary Ann Jensen (1977) he added a fifth stage, adjourning, based on studies published since 1965. Tuckman noted that the first stage of group development, which he called forming, was characterized by an orientation of group members to the task at hand and member testing of group behavioural norms. The second stage, called storming, occurred when group members engaged in conflict with one another and with the assigned task. Tuckman observed that this stage is often characterized by a great deal of emotion at the expense of work accomplishment. The third stage, or norming, is considered to be one of cohesion, as the members of the group begin to function as a more cohesive unit and show support for each other. This is also a stage where learning often begins to truly take place. The fourth stage, known as performing, is one of team unity and a concentration on task as a stable team structure emerges. The final stage, known as adjourning, occurs when team members have
completed the task and spend some time disengaging from each other and evaluating both the work product and the team relationship.

Tuckman’s (2001) findings have formed the basis for further research into team function. Morgan, Salas, and Glickman (2001) have identified nine stages of team development and an additional stage of pre-forming that recognizes the forces that brings team members together for goal accomplishment. Unlike Tuckman, their model, known as TEAM (Team Evolution and Maturation) separates task completion from interpersonal team functions by identifying two activity tracks. Morgan et al. (2001) advocate for team training and development that focuses not only on task achievement, but also on teamwork skill development. Skill development in both areas is also emphasized by Caple (1978), who notes that “failure to develop the necessary skills, relationships, and structure within any one stage will either prevent passage to the next stage or affect seriously its subsequent development” (p. 476).

Ploetz (2004) provides additional insight into why some educators may not wish to use e-learning technology and become change agents or members of a change team. When relating an incident where a group of educators were meeting with a group of learning developers, the technical language created a barrier between the two teams, particularly when using the term “learning objects”.

In fact, there are many ways that “techno-speak” is creeping into the e-learning environment, and this may create disorientation for educators who wish to explore the use of the technology in their own practice. Educators who understand the issues of learners are more likely to be successful in their use of e-learning technology. In fact, the idea of techno-realism is described by Burge (1998) as “an informed and cautious approach to
the function and impact of technologies in our lives,” (¶1) and this is an important caution to those who may be ahead of the pack in terms of adoption of e-learning technologies.

Summary of Chapter

This chapter presented the relevant literature related to e-learning and developing e-curriculum. E-learning (along with interchangeable terminology) was defined, organizational readiness has been discussed, and a framework for effective e-learning by Garrison and Anderson (2003) was presented. The critical nature of computer literacy was integrated in relationship to the framework. Faculty engagement strategies, along with a discussion of organizational change, were included. Some concerns have been noted. Feenberg (1999) sums it up well when he notes that “in the actual experience of online education, technology is not a predefined thing at all, but an environment, an empty space faculty must inhabit and enliven” (¶34).

There is a caveat to e-learning. As Saye (2000) so aptly puts it, we should not do technology-based activities simply because it is possible to do so. To demonstrate the power of technology for assisting in the transformation of learning, we must only do those things that we should, not all of the things that we can. (p. 258)

His caution is that e-learning is not necessarily the best way to journey in all circumstances, and a true online educator has developed the wisdom to understand that distinction. Geissler, as cited in Merriam and Caffarella (1999), echoes Saye’s thoughts when he says that “adult education finds itself in the position of being ‘both a victim and a perpetrator of the modernization process’” (p. 6).
The integration of electronic and computer technologies into the way we learn has been an exciting journey and will continue to be for many years to come as we experience even more technological advances. A competent online educator will realize that “educational technology is not about computers. It’s about educating our students, serving our communities, and improving our institutions and society” (Burniske, 2001, p. 524).
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This study investigated how a team of hospital educators collaborated to develop e-curriculum to support the implementation of an organization-wide e-learning system in a large, multisite academic health sciences centre as part of a planned organizational change. A case study approach was used to examine how the e-Curriculum Team was structured, how the educators worked together to develop strategies to better utilize e-learning in their own practice, what e-curriculum they chose to develop, and how they determined their priorities for e-curriculum development. It also inquired into how they planned to involve other educators in using e-learning. The e-curriculum they chose to give priority to was a result of both project planning and organizational priorities. This chapter outlines the procedures and methodology that were utilized for the study. It includes: (a) the rationale for the chosen methodology, (b) the initial research questions, (c) the final research questions, (d) participant selection, (e) data collection and analysis, (f) limitations of the methodology, and (g) ethical considerations.

The Research Methodology

Denscombe (2003) notes that the purpose of a case study is to “illuminate the general by looking at the particular” (p. 30). A case study is an excellent way to examine an in-depth or particular instance with an eye to seeing the “whole” rather than just a portion of it. Creswell (1997) points out that a case study is often rich with detail from both before, during, and after the issue was first discovered. In this instance, the case chosen for study allowed the researcher to pursue it in its particular context to provide insight into how an e-curriculum development project can be structured, how
priorities for e-curriculum can be determined, and how educational philosophies can be impacted.

Yin (2003) argues that a case study is most useful when the researcher has relatively little control over events in a real-life situation. Following past practice in the organization being studied, the project was structured based on project management theory, which meant that a large number of people were involved in implementing the software and shaping the direction of the implementation. As part of this, the e-Curriculum Team used a project management plan to develop the e-learning system.

Kerzner (as cited in Quinn, Faerman, Thompson, & McGrath, 1996) notes that a project is a specific series of tasks that have a clear objective with well-defined start and finish dates that consume limited resources such as money and people's time. He goes on to define project management as the act of planning and monitoring the progress of the project over its defined life span. Included in the management process is a clear statement of project scope and purpose, along with defined roles for each person involved in the project. Monitoring the project's process and keeping the work on track requires coordination and regular adjustments to the original project plan. The researcher's job was to present information from different sources in order to chart the journey as the e-curriculum development project unfolded.

A case study involves a number of sources of information that help the reader visualize the setting and the resulting "case." Background detail provided by the researcher "set the scene" and provided a beginning to the story. Cases have a beginning, middle, and end that are bounded by a defined time period (Creswell, 1997). In this instance, the time frame occurred over a 7-1/2 month period, from April 2005 until mid-
December 2005. Like many software implementation projects, the project did not follow its original course and did not follow planned timelines. As part of project management methodology, the project team constantly monitored the project and corrected its path. This constant correction meant that although there was a plan, it was constantly updated. This directly impacted the e-Curriculum Team responsible for developing e-curriculum and changing educator practice.

A case study, according to Lincoln and Guba (1985), as cited in Creswell (1997, p. 63), outlines a problem or issue, provides descriptive context in which the problem is set, and ends with "lessons learned." Denscombe (2003) also notes that a case study has a focus on relationships and processes and occurs in a natural setting. In other words, the research project does not alter what naturally happens in a setting, and the situation would occur normally as a part of practice. Avis, as cited in Coghlan and Casey (2001), notes that "credibility of the research findings should be judged on the usefulness of the research project" (p. 680). The results of the case study will also serve as a learning example for the organization that was studied as well as other healthcare institutions.

The focus of a case study is not necessarily on end results, as it seeks to understand the issue or problem as it occurs. End results are of interest, but the most important thing to the researcher is the study of processes in how the outcomes were derived. Tellis (1997) and Soy (1996) argue that a case study methodology explores the "how" or "why" of a chosen issue or problem. They both point out that the chosen research question in a case study should start with the word "how" or the word "why." If it is not possible to frame the research question using this language, the case study is not the most appropriate methodology to use. Yin (2003) agrees with this assessment, noting
that how and why questions are better served by the use of case studies "because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence" (p. 6). The focus of this case study was on how the educators found ways to utilize e-learning in their own practice and how their practice changed organizational practice. If they were successful, it was because of how they developed an understanding of their learners, their own practice, and the system that was implemented. In either case, the "how" is the journey that is undertaken, and that was the focus of this case study.

Rationale for Research Methodology

The suitability of a specific case for study is often difficult to determine. Cases chosen for study can fall into one or more of four categories that make them worthy of study (Denscombe, 2003). The case chosen for this study was a typical instance, with clear boundaries, and was consistent with undocumented or "typical" practice regarding information technology implementations within the organization being studied (Yin, 2003). Project management methodology has been in common use throughout the organization and is in fact growing in use throughout information technology research (Myers, 1997). This typical case, then, can be broadly applied to other instances, both within and without the organization. According to Stake (2000), cases can also be suitable for study by virtue of their intrinsic interest, and one could argue that because of the lack of relevant literature in this area, this case will prove to be of interest to other hospital educators who are interested in a "how-to" case involving the implementation and adoption of e-learning software. It is intended that this case study will allow the collaborative group of educators to share their growing knowledge of e-learning with
other healthcare educators both in their own organization and in their sister organizations. In the chosen case study, the organization studied has successfully used project management methodology in the past to implement web-based software systems, and this has become an accepted implementation strategy. A case study of an implementation project such as this one is an excellent opportunity to add to the hospital literature base and establish a documented baseline for practice within the organization studied.

Site Selection

The site selected for this study was based on convenience as the researcher was involved in the development of the business case used to purchase a learning management system at a large multi-site academic health sciences centre in Southern Ontario. The organization purchased the LMS, and was then faced with implementing it. In order to engage staff in using the LMS, it was necessary to develop e-curriculum and make it available electronically to staff learners.

Participant Selection

The participants for this study (the educators on the e-curriculum team) had been purposively selected from a group of approximately 50 clinical educators. All participants in the e-curriculum development team (known throughout the case study as the e-Curriculum Team) were approached at the beginning of the project for their participation in one interview at the end of the project once the e-curriculum was made available to staff.

The researcher had been requested, by the leadership team of Clinical Practice and Education (CP&E), to review the literature and prepare a draft list of selection criteria for membership in the e-Curriculum Team. The leadership team consisted of the
Director of CP&E and three coordinators, one of whom was the researcher. None of the coordinators were line managers of any of the educators being considered for participation on the e-Curriculum Team.

Two sets of criteria were used to guide the selection of team members. The review of the literature provided two models (Lane, 1996; Saye, 1998) that were used to guide participant selection and inform a list of criteria. The leadership team used these criteria (adapted from Saye and Lane) to guide them in negotiating team membership. Existing workload of each prospective team member was also considered. Once team members were identified, they were approached by the researcher (who was not their line manager) and were asked to consider participation in the e-curriculum development project. They were provided with a role description (see Appendix D) and given at least a week to consider their participation in the project and make a decision.

The following criteria were agreed to by the leadership team of CP&E for participant selection:

- Showed some degree of computer literacy as evaluated by the CP&E leadership team. Evaluation of computer literacy was limited to our prior observation and knowledge of the participants.
- Expressed interest in using computer-based educational technology in their own practice or were judged likely to be interested by the leadership team of CP&E. Saye’s Technology Use in the Classroom Continuum (1998) was used to guide decision-making (Appendix A) and choose team members who were considered to be “voyageurs” and open to using computer technology in new ways to augment their teaching practice.
• Represented the diversity within the CP&E service. Diversity in this instance would be the educator role (RN versus other health professionals), the clinical speciality represented (medicine versus critical care), and type of learners taught (students versus staff).

• Exhibited some experience with the concept of reflective practice.\(^2\)

• Were in a teaching role in the organization for at least 1 year and would be considered a Level Two or Level Three Educator in terms of Lane’s (1996) conceptual model for the development of healthcare educators (Appendix A).

• Were considered able to devote 3 to 4 hours each week to participate in research group meetings for the pilot phase of the project (April to approximately October) as well as prepare any follow-up work that the group agreed to for subsequent meetings.

Each educator approached by the researcher for his or her participation in the project agreed to devote the time requested and the e-Curriculum Team was formed.

Data Collection and Analysis

Multiple data sources, including data from documents, interviews, questionnaires, and even meeting minutes, were used to frame the situation and provide more context to the issue studied. These sources allowed a more detailed analysis (Denscombe, 2003; Yin, 2003) and helped create construct validity, which made the research more credible and reliable.

The sources, as suggested by the literature, were:

\(^2\) For registered nurses and other health professionals, this was an annual requirement mandated by their professional colleges. For any staff in a leadership role within the organization (all educators are considered leaders by the organization), reflective practice is a part of the annual performance review process.
- Semistructured interviews with the 6 participants of e-Curriculum Team (Denscombe, 2003). The interview schedule used for these interviews is attached in Appendix E. These interviews took place in a hospital location negotiated in advance with the participant and were scheduled approximately 2 weeks after the first e-learning curricula were made available to the pilot groups.

- Biweekly meeting minutes, recorded by the 6 participants on a rotational basis and typed up by a secretary, from the regular meetings of the e-Curriculum Team from April to December 2005 (Arhar, Holly, & Kastem, 2001; Denscombe, 2003; Riley, 1990) as a way of tracking the development of curricula and of the progress of the e-Curriculum Team, and

- A reflective journal kept by the researcher throughout the course of the research project as a way of recording observations, project progress, perceptions, thoughts, and learning (Cole & Knowles, 2000; Denscombe, 2003; Riley, 1990; Royer, 2002).

The role of the researcher was as a participant-observer and the reflective journal contained field notes based on observation. In this case, the researcher’s role was overt in that e-Curriculum Team members, project team members, and the Project Champion were aware of the fact that the researcher was gathering case study data. Being a participant-observer meant that the researcher performed “multiple roles during the course of a project and gain[ed] at least a comfortable degree of rapport, even intimacy, with the people, situations, and settings of research” (Jorgensen, 1989, p. 21). The role of a participant-observer, then, was designed to allow access into processes that were
privileged and even hidden to those outside the organization as the researcher was a member of the organization. Jorgensen asserts that “accurate (objective and truthful) findings are more rather than less likely as the researcher becomes involved directly, personally, and existentially with people in daily life” (p. 56).

All the noted sources of data were reviewed and analyzed in order to gain a clear understanding of the case study. All documents were coded and then reviewed in order to ensure that the coding of the data were consistent (Denscombe, 2003). The coded documents were then themed, and these themes were added to a database for comparison and organizational purposes (Coffey & Atkinson, 1996; Yin, 2003).

Coding the data was a tool to both tease out themes that emerged and ask further questions about the data (Strauss, as cited in Coffey & Atkinson, 1996). As suggested by Coffey and Atkinson, a useful way to code the data “is to start from the foreshadowed research question that inspired the research project” (p. 32). The four chosen research questions allowed a beginning way to categorize data from all sources. Once the data were themed in this way, it was apparent that there was an abundance of data. The intent was to look for “patterns, themes, and regularities as well as contrasts, paradoxes, and irregularities” (Delamont, as cited in Coffey & Atkinson, p. 47). Key passages from each theme were put into a second database and sorted according to chronological order and theme. These passages were chosen because they revealed new questions or presented new information that advanced the case.

Instances of each theme were also counted for frequency in order to determine relative importance. These key passages were also arranged in chronological order and compared to the frequency database in order to determine whether the themes were
spread throughout the duration of the case or were seen to occur only at specific times during the case. This allowed me to determine patterns in data and utilize Ellis and Phelps’s (2000) Model for Online Staff Development (Figure 2 in Chapter Two) to further the analysis and present the case in a logical manner. Tools such as process flowcharts (Appendix F) and keywords were useful in identifying similarities and differences between the data (Ryan & Bernard, 2000). Keywords were also important, particularly those that focused on words that conveyed emotion such as frustration and anger. This in turn was used to ask further questions about the data and begin to understand some of the underlying story as it emerged from the data and resulting analysis, particularly relating to pedagogical and organizational issues. By using a process flowchart, the stages of team development were identified following the model by Tuckman (2001).

Detailed analysis as outlined in the preceding paragraph provided construct validity and allowed confirmation of issues and processes central to the discussion and reporting of the case (Soy, 1996). In addition, Schein’s (1999) Steps for Creating Psychological Safety were used to analyze the e-Curriculum Team’s reaction to the software, the new way or providing education, the organizational pressures, and the project progress. This model allowed deeper insight into team reactions and evolution.

As Naumes and Naumes (1999) note, “the opportunity to study an actual situation in a realistic setting is the principal advantage of case research. This allows the researcher to determine not only what happened but why it happened” (p. 59). Through the selection of multiple representative data sources, careful analysis, and thoughtful
reflection, a holistic perspective was gained. The timeline for the data gathering, research, and reporting is presented in Appendix G.

Limitations of the Methodology

Case studies are not generalizable to a wider spectrum of situations and as such present some difficulty in understanding how the outcomes presented will influence the practice of readers of the study. However, the insights gained can be applied directly to other organizations. In addition, it was difficult to draw clear boundaries around the study, and decisions had to be made about the inclusion of data and whether they were relevant to the outcomes discussed. Student perspectives were not included in this study nor was the work of the advisory group developed to support the ongoing implementation process for e-learning. The study focused on the process of the implementation project and educator development.

Even though case studies are specific to their context, it is anticipated that the resulting study will augment the literature base with regards to software implementation strategies and has provided further directions for research and practice in a multisite academic health sciences centre. Yin (2003) asserts that if a case study has rigour in its methods, it can contribute to a larger understanding of similar events and issues and truly be scientific in nature. Rigour was applied to the analysis of the data through the use of multiple data sources and the repeated review of data.

Some critics argue that the researcher may become so immersed in a case as to bias the findings (Soy, 1996, ¶2), particularly if the case is a prospective one. Yin (2003) notes this as well but argues that "bias also can enter into the conduct of experiments (see Rosenthal, 1966) and the use of other research strategies, such as designing
questionnaires for surveys (Sudman & Bradburn, 1982) or conducting historical research (Gottschalk, 1968)” (p. 10). As Yin (as cited in Tellis, 1997, ¶16) notes, “the researcher is called upon to work with the situation that presents itself in each case,” and this was the researcher’s guiding philosophy in ensuring that personal biases did not come into play throughout the analysis and reporting of the case.

Being a participant-observer in a case study can be a challenge. In this role, the researcher has a duty to rely on multiple sources of data (Jorgensen, 1989) and balance the multiple roles that he or she takes on. In this case, the researcher wore a number of hats that included: (a) researcher, (b) e-Curriculum Team member, (c) Project team member, (d) project leader, and (e) participant-observer. Yin (2003) asserts that being a participant takes time away from being an observer, and this caution was noted. The balance between the roles is difficult to maintain, and every effort was made to preserve relationships and uphold sound research practice.

Yin (2003) also notes that case studies have a reputation of taking large amounts of time to complete “and result in massive, unreadable documents. This complaint may be appropriate, given the way case studies have been done in the past” (p. 11). Perhaps this has occurred because case studies tell a story, and good story-telling is rich with detail and description. A good story-teller can embellish a story and make it come alive without sacrificing the plot. A poor story-teller can get bogged down in detail without ever getting to the point of the story. As Naumes and Naumes (1999) note, “an effective case researcher needs to be a good listener who does not intrude into the data-gathering process” (p. 61). It was then a challenge to write a case study report that balanced description with brevity, particularly given the large amount of data collected. This is a
caution that was noted and has guided the researcher during the analysis and reporting of this case.

Ethical Considerations

Ethics plays a key role in any research project and has three key considerations for the researcher: respect for the dignity and rights of anyone participating in the research project; avoidance of harm befalling anyone participating in the research project because of the research that is being undertaken; and maintenance of the honesty and integrity of the researcher (Denscombe, 2003). To this end, the study was conducted with approvals from both the Brock University Ethics Review Board (Appendix H), and the Research Ethics Board of the large multisite academic health sciences centre.

The researcher has a responsibility to the participants of this study. Respect of their rights is an important part of how participants have been treated throughout the course of the study. The aim was to alleviate any of their concerns regarding the study process and to ensure that they were guaranteed the level of confidentiality they expected. All consents were obtained and participants were provided with an opportunity to discuss the research project in advance of their participation. If any participant chose to leave the project at any time during the course of the study, their wishes would have been met and their confidentiality maintained without any rancour or penalty. In addition, all interviewees were provided with transcripts of their personal interviews and were invited to comment on its accuracy.

Summary of Chapter

This chapter has presented the case that was researched: how a team of hospital educators worked together collaboratively in an e-learning implementation project to
develop strategies to effectively use an organizational e-learning system in their own practice. The research methodology was discussed, and its basis for use in this instance was justified. Site and participant selection were also presented. An examination of data collection methods and subsequent analysis strategies was also included. The overall purpose of the case study was to provide insight into how e-curriculum for an e-learning module of a learning management system was developed at one academic health sciences centre. The healthcare educators directly involved in the e-curriculum development project developed strategies and recommendations for use of the technology by the members of the organization’s Clinical Practice and Education service. Limitations of the methodology and ethical considerations were also discussed.
CHAPTER FOUR: THE CASE STUDY

This chapter uses Tuckman’s (2001) Stages of Group Development to organize and discuss data collected through participant observation as recorded in a research journal, meeting minutes and personal interviews. The stages of forming, storming, norming, and performing provide a way to frame how the e-Curriculum Team worked together to develop strategies to better utilize e-learning in their own practice, what e-curriculum they chose to develop, how they determined their priorities for e-curriculum development, and how this affected their practice and educational philosophy. This discussion highlights the challenges the team encountered in their efforts to develop e-learning skills, the group dynamics that developed, and the effects of other organizational pressures on the implementation project as a whole. A chronological flowchart that illustrates the sequence of events and how the models noted were used to classify events can be found in Appendix F.

Preparation for the Formation of the e-Curriculum Team

As noted in Chapter One, Saye’s (1998) and Lane’s (1996) frameworks were used to guide the choice of team participants. Following the purchase of the learning management software in January 2005, a core group of computer technology educators met with the software vendor to discuss the implementation options of a tentative project plan. Discussion related to developing a test environment (later conceptualized by the researcher as a “sandbox”) began in late February. It was anticipated that the software would be piloted in early summer. In initial discussions, members of the CP&E leadership team suggested team membership could fluctuate, based on the needs of the e-
curriculum to be developed. Having reflected on Tuckman’s (2001) framework of group development, I opposed the idea, and noted,

The idea that the curriculum development group [also known to readers as the e-Curriculum Team] will change membership has some problems, the first of which is team dynamics . . . we will have more problems moving through the stages of team development with changing membership. As well, each new member to the team will need to develop expertise in the software itself, and as I’ve seen, the software is not that intuitive. As well, developing modules for e-learning is far different than presenting content in a classroom, so we’ll need to do some learning around what works best in an electronic format. I’d hate to have to re-teach that each time a new person comes on board. (Research journal, February 4, 2006)

Careful consideration was given in selecting e-Curriculum team members. The intent was to ensure that members could convert existing curricula to the e-learning platform quickly, and with a minimum of training time, to provide e-learning content to the organization within a period of months. The realization that the plan was optimistic, and the expectations for e-learning were high is apparent in a journal entry in which I noted,

People view it [e-learning] as the panacea to correct all the issues out there, even if they’re not educational issues. I don’t disagree that there are educational gaps and curriculum that needs to be addressed, and perhaps e-learning can assist in filling these gaps. What I don’t agree with is that e-learning will solve everything . . . If there are no common practices, inconsistent messages, poor support, why
would e-learning make a difference? We need to fix some of the underlying issues, and then of course we can develop e-learning curriculum and other ways of addressing staff whose learning style is not met through e-learning. (Research journal, March 10, 2005)

An awareness of team dynamics was an important consideration for the success of the project, as the team was quite small (7 members) relative to the size of the organization (approximately 8,200 staff) and relative to the planned scope of the software implementation.

Stage One of Group Development—“Forming”

At the request of the project champion, a role description was drafted as a way to help orient the e-Curriculum team members. The role description (Appendix D) spelled the responsibilities of the team members and presented the proposed project management framework to be used by the team. It was felt that the success of the project was very much contingent on having team members realize that they represented specific groups and that the interests of the groups they represented should be taken into account during group decision-making and e-curriculum development activities. With this in mind, each team member was approached to solicit his or her interest and given a role description.

In early March 2005, prospective team members were invited to a “visioning” session to learn more about what the project would entail and what their potential involvement would look like. This gave the planning team an opportunity to gauge interest in the project in the larger CP&E educator group. It also allowed educators outside the group to contribute to the project vision. As noted in the journal, the project
champion, “Z,” who had been advocating for the use of e-learning in the organization for a number of years, was excited about the project, and anxious to move forward with it:

Z... wanted to get to the heart of the matter without doing some of the preliminary visioning. I guess that’s because she’s now past the vision as it’s been rolling around in her head for so long. But for the rest of the group, they needed to talk about their own vision of e-learning. (Research journal, March 4, 2005)

The visioning session, which was facilitated by project managers from the ICT, focused on the essential components of the project, which allowed the participants to actually see the learning management system in action. Once the visioning work was complete, the prospective members of the e-Curriculum Team were given some time to think about whether or not they wished to be involved in the project as “e-curriculum developers.”

By the last week of March 2005, all educators who had been approached to participate in the project indicated their desire to become team members. The first meeting was scheduled for mid-April 2005. In order to prepare for this meeting, each member was asked to identify (a) topics of interest to them as e-curriculum developers and (b) suggested topics for the learning management system pilot. It was expected that this would allow the team members to explore many possibilities. The members brought these lists to the first meeting of the team for review. In addition, they were asked to think about what groups of staff should pilot the learning management system.

At that first meeting of the e-Curriculum Team, it was apparent that most of the educators knew each other and were relatively comfortable with each other, having worked together on other projects in the past. Three of the members worked in critical care environments, and three members (including me) were members of the ad hoc
planning group and information technology educators. The seventh team member worked in an area with a rehabilitation focus and had a slightly different role within her area of specialization. After the project was over, she spoke of how she appreciated her opportunity to work with others on the team.

I'm not a nurse, so I don't always have a chance to work closely with the other educators, with the team to develop things. It was a really good experience in that sense because I felt… connected to the group in a way that we each had something different to bring to the table and that was a very valuable experience for me personally... to have an opportunity even just interact with other educators is a great plus. (Interview D, Dec. 19, 2005)

As well as getting to know each other, the team discussed the functionality of the learning management software at that first meeting. The list developed in that first meeting included:

- pre-testing, post-testing, surveys (e.g. like a "Taking Stock" tool);
- multi-media - video, CD, Flash, Captivate, etc.;
- ability to direct learning based on needs (through use of a pre-test);
- different types and sizes of packages (size of files and length of learning session). (Team minutes, April 22, 2005)

The “Taking Stock” tool was a standardized evaluation form used for most education sessions in the organization.

The software, however, did not have a discussion board feature, which the educators thought would be useful. The need for this feature is reflected in Garrison and Anderson's (2003) framework that advocates for learner collaboration as an important
element of successful e-learning. An electronic discussion board was considered an excellent way to promote discourse and allow learners to learn from each other through discussion, which would increase “cognitive presence” and higher order thinking. The team realized that the software lacked this functionality but they were prepared to move ahead with development because the vendor had indicated a newer version of the software with increased capability for electronic discourse, was being developed.

In the end, the team was pleased with the software functionality, and members brought forward their preferences for e-curriculum development as they felt that once the e-curriculum was chosen, the target group of learners would be more easily identified. At their first meeting, the team agreed on the following criteria for selecting e-curriculum to pilot. The e-curriculum:

- will have no hands-on learning component;
- will be targeted to existing staff only, not new staff (e.g. orientation);
- will be already developed and in existence;
- will be chosen based on consensus decision of this team, and
- the 'owner' of the curriculum should be easily accessible. (Team minutes, April 22, 2005)

Members also agreed to bring a piece of potential e-curriculum for development of an e-learning module to the next meeting.

Two more meetings were held to discuss chosen curricula and evaluation strategies. Members needed time to gather their information and reflect on the curricula they would champion. Because they had chosen excellent curricula using the criteria set in the previous meeting, it was decided that each educator would develop a piece of e-
curriculum they felt comfortable with. As well, they would be required to begin
development in an e-learning format during the two scheduled days of training with the
software vendor in June 2005. I commented on how this would facilitate pilot timelines.

We would like to pilot curriculum with learners in September 2005. There was
some confusion about when the content would need to be ready—we are planning
on developing content during the training sessions in June. It does NOT need to
be ready for June, just available to be put into e-learning format. (Research
journal, April 22, 2005)

Once the various pieces of curricula had been developed to some extent, the team would
make a decision about what learning would be best to pilot.

In the interim, a development day for all CP&E educators was scheduled for late
May. A local e-learning author affiliated with the Faculty of Health Sciences offered to
speak about e-learning and offer advice to the educators as novice e-learning developers.
The development day was well attended, and most of the team members were in
attendance. Although they felt the day was worthwhile, they also felt that there was an
undercurrent of exclusion in the room. This theme is identified in the research journal,
which noted,

I think there was some concern about who was on the curriculum development
team [e-Curriculum Team] (from a why not me? type of perspective), but I hope
that if people are concerned, they will realize that everyone will have an
opportunity to get involved at some point. I think they also need to realize that
we need people who are savvy with technology, and while many of the educators
understand the technology of healthcare, not many understand computer technology. Two very different things! (Research journal, May 30, 2005)

The development day got the team thinking about evaluation strategies. Each piece of e-curriculum would have an evaluation form attached to it, but the team wanted to find out more about the whole e-learning experience and how the learners viewed learning via a computer. The meeting minutes reflected this lengthy discussion and the team’s struggle with evaluation. For example, it noted,

Data can be separated into hard and soft data, and we can establish measurable indicators. Hard data can be linked to quality, e.g. how many errors are made, cost divided by time of the educator to develop, time of the participant to complete the content. Soft data would capture things like how the educators "feel" about the content. We have some of this data retrospectively and can recreate it if necessary. We could even schedule a focus group with this curriculum development team [e-Curriculum Team] as we are the potential participants in the survey. Focus group data is much richer and can provide more insight as the participants build on each other's responses. (Team minutes, June 2, 2005)

This discussion surrounding evaluation was not resolved, as the team was not sure if it wanted to measure hard or soft data, and so it became my task to sort through the questions that the team had developed and putting them together in a survey that would be given to every participant in the e-learning pilot. Once the survey was drafted, the team wanted further discussion about whether they wanted to survey, gather statistics, have a focus group, or do a combination of all three things.
At this point, the team was having trouble making firm decisions and was still exploring all their options. They were orienting themselves to the task, asking themselves questions about the task, looking to me, as the project leader, for guidance, and trying to understand their role. As Tuckman (2001) points out, groups in the “forming” stage are interested in orienting themselves to their role and determining how they will accomplish the task they are assigned. This stage took approximately 2 months for the group to move through, and as they approached their training dates with the software vendor, they began to make some decisions, even if it meant referring the work to be done back to me.

In terms of the Ellis and Phelps (2000) model for online staff development, this phase of the project (Stage One of the model) was devoted to increasing motivation and awareness for those involved in using the e-learning software. This first stage of the model is important, as it develops a foundation for acceptance of the concept of e-learning by members of the team involved in e-curriculum development. Motivation and awareness were created in a number of different ways: through the development of a clear role description for team members; the participation by prospective team members in a visioning session for the project; and the presentation by a faculty member on the topic of e-curriculum development for e-learning. In April, the e-Curriculum Team began to move into phase two of the model, as they agreed to participate in planning and e-curriculum development activities.

Stage Two of Group Development—“Storming”

Observation suggests that the e-Curriculum Team entered the “storming” phase of group development during their two scheduled days of training with the software vendor.
Prior to this date, the team had been quite polite and collegial with each other and with the task, but the training days proved to be a turning point. The two days of training were scheduled on consecutive days in mid-June 2005. All team members were present, and the software vendor had provided a trainer for the session who was conversant with the software. The first day was a review of the functionality of the software and an overview of how to actually “author” an e-learning module. At the end of this first day of training dissatisfaction with the software and process were noted in the research journal which stated,

I must admit that I really struggled today. I found it very difficult to both lead the group and still be a learner. I think that people like . . . looked to me for leadership, and yet I wanted to detach from the leadership role and be more of a follower, as I am almost as green as they are when it comes to this software. [One] reaction was a bit overboard, and yet I know where s/he’s coming from, because I left the session feeling torn because of my struggle. The session wasn’t as good as I needed it to be, as I wanted to feel comfortable enough to learn without having to worry about the comfort of everyone else. (Research journal, June 13, 2005)

It was difficult to balance the need to be a learner with the need to lead the team effectively.

I approached the trainer at the beginning of the second day and discussed my concerns with him. As a novice trainer, he appeared uncomfortable working without his prepared script. A couple of changes were made to allow for more hands-on practice, but
the bulk of the day remained unchanged. The trainer did not want the team to leave the
two days of training feeling as if they had learned nothing.

Day Two was still not as good as it could have been. I still felt the stress from
Day One and wanted to be able to let myself learn, not lead and learn. At one
point I tried to hijack the agenda [the trainer’s] by asking him to take us all
through the same piece of content from front to back so that we could all learn
together. I got the sense he was working off a script and wasn’t prepared to do
that for us. And I could see the frustration in the room growing. (Research
journal, June 14, 2005)

Because the training experience had been frustrating for me, I developed a survey using a
free online survey tool called Survey Monkey. The results of the short survey confirmed
that other team members were also dissatisfied with the training. I set aside sufficient
time on the next meeting’s agenda to discuss my personal reaction and to gauge the
reaction of other members. The team minutes confirmed the disappointment with the
training session:

The group was very disappointed with the training and had a number of
suggestions for improvement. They are: hire an experienced educator to teach
appropriately; the training was too structured and did not allow for the individual
needs of learners; more than one copy of the manual should be provided; share the
Survey Monkey results with [the vendor] and let them know the results of this
discussion; get [the vendor] to come back in-house for further training...and fix
certain aspects of the software to make it easier for an author to publish content.
(Team minutes, June 27, 2005)
The team asked me to contact the software vendor with their feedback and recommendations and in addition ask for another day of training at no charge as compensation for the unsatisfactory experience.

I both emailed and called my vendor contact. The reaction from the vendor was quite swift and very apologetic, and another training day was scheduled for early September, once the vacation season was over. After that experience, I reflected upon my struggle to maintain healthy relationships with many different groups since the project’s inception.

This reminds me that it’s all about relationships, and that I need to manage the relationships more than I need to manage the technology. I think of del Bueno, Griffin, Burke & Foley’s (1990) three domains of job competence here—even though I am working for the most part in the technical domain, I know that the other two domains will cause me more worry and stress. In the critical thinking domain, there’s the decision-making I need to do…and the way I approach the development of the software. I worry that I’m missing something, that I might overlook a piece and then have to go back and recreate that piece…that would be a nightmare if that happened, as my name is all over this project. I also need to keep things moving with the curriculum development team and ensure that whatever decisions are made by that group are enacted and supported. (Research journal, July 7, 2005)

But this was only the first sign of friction for the team. Members were finding that the software was more difficult to use than they had anticipated. In addition, they were going through a steep learning curve regarding how to actually develop an
educationally sound e-learning module. This was also much more difficult than they anticipated. One team member reflected upon his e-curriculum development experience and his struggle with the paradox of teaching in this new modality.

I, as an instructor, have skill at mastering a class—whether it's 2 or 50 or in the...auditorium. I read people's faces, I judge my audience, I target my words to how things are going or not going, you just know an expert if they know how to read their audience, how to tailor the class to their level—are you going to use basic words or advanced language? Is it time for a break now because you can sense that it is, or do you keep going until the next logical break in the curriculum? None of this, absolutely none of what I just said, occurs with e-learning. And so, you have to know this when you're designing your curriculum, and again the second time around will be so much easier because now I know this. The first time—I knew it the first time, but I didn't know it, if that makes any sense at all. You have to anticipate and teach probably to the lowest common denominator, and the second time I say it would be much easier. (Interview F, December 22, 2005)

Other team members commented on this same theme. For example, D noted the challenge of adding presence to the e-environment:

It's not as simple, and you know this has come up in our meetings, several times, where we said it's not about taking a PowerPoint presentation and plopping it into an e-learning format and calling that e-learning, that's not as I see it—it doesn't speak for itself. (Interview D, December 19, 2005)
Similarly, ‘A’ reflected on the challenge of translating face-to-face learning to an on-line medium.

It’s different, and you question yourself every step of the way—you think, gosh, did I use the right font, did I use the right verbiage, the right audio, did I use too much action, all of those—am I doing it right. And there’s no real right answer out there—I mean it’s sort of—there aren’t cut and dry rules that when you’re doing it this way you must do it this way—you need to be a good online teacher, a learning guru. (Interview A, December 5, 2005)

C also noted the challenge of teaching with no immediate feedback with which to gauge learner understanding:

But then the wording, because it’s so—the verbal portion of it—because it’s so carved in stone once you say it—you’ve got to make sure you say it right because nobody will be able to ask you that question. In the classroom, one on one, in the classroom setting, if they don’t understand what you said—you reword it. Now you’ve got to say it the right way the first time—but is it the right way? (Interview C, December 19, 2005)

Many of the group members struggled with their e-curriculum even though they were very familiar with it. What they were not familiar with was the best way to translate that e-curriculum into an e-learning format.

In addition, there were issues between team members regarding workload and the task at hand. One team member felt that she didn’t have sufficient time to develop an appealing e-learning module and wanted to leave most of the module as an online
booklet, which was not a significant change from the way it was made available to staff currently. I noted this struggle with the team member, A, in my research journal.

She's pretty adamant that she can't do any more to the content without getting some additional hours or some extra help. I think I need to talk to [the project champion] at some point about this, because A doesn't directly report to me...I understand her position, as none of us have gotten any extra time to do this, and yet we are being expected to provide e-learning content that will sell the concept and the system. It's a tall order and rather intimidating, actually. (Research journal, July 22, 2005)

Eventually, after prodding from the rest of the team, A decided that the booklet format would not appeal to learners, and she developed an engaging e-learning module that incorporated slides, a voice-over soundtrack, and a printable booklet.

I, too, was struggling with my own identity and that of the team. I mediated conflict within the group, and outside the group as well. I found myself defending the territory of the e-Curriculum Team, as we were being challenged as the education experts. I wrote of my discussions with the ICT staff assigned to the project as support staff.

This is another territory issue, as they [ICT staff] need to remember that they bring ICT experience and expertise to the table, not adult education or technology in education experience and expertise. That is our area of expertise (and yes, I say "ours" because the team has pretty diverse experience and are experts in their fields), not the expertise of ICT staff. Do I sound a little tough? I am, but I need to be very clear within my own mind about where the lines are. I find that
sometimes people walk into our space and think that education is “easy.” It’s not, it never will be, and it requires a lot of knowledge of a number of fields, one of which is the discipline of education. That is the one thing for certain I have learned above all else during my time doing this degree. The practice of education is hard work. (Research journal, July 24, 2005)

I found myself, as project leader, trying to safeguard the time and focus of the e-Curriculum Team. It was a difficult balance because the team was also fighting against the task, the learning curve they were going through, and sometimes even with each other.

In addition, in a parallel process, the Project Team was working on pulling together the environment that learners would see as they accessed the e-learning software. This team consisted of three members of the e-Curriculum Team as well as the ICT project manager. It was not concerned about curricula but rather with how learners would navigate through the system and how they would access the software. Their goal was to make the entry into the system easy and quick, so learners would be able to take full advantage of the e-learning curricula and not be frustrated by more technical issues (such as system access) that were not directly related to the learning process.

At this point, the e-Curriculum Team members were struggling with the task at hand, their own learning, as well as their relationships with others on the team. Attendance at the biweekly meetings was inconsistent, due in part to the summer vacation season, workload, and even motivation at times. One member remarked on the ebb of team motivation.
I think when you work right in the environment that you are responsible for, which is a great thing, your time is never your own. You can shut the door if you want, but they’re still going to knock on the door, and you’re still going to get pulled out into the unit. Even when I tried to give myself a 4-hour block of time where I was focused on that, the interruptions just took your mind away from it and made it difficult. (Interview B, December 15, 2005)

Tuckman describes this “storming” stage in terms of unrest and disharmony, and these qualities were certainly evident as the group struggled to find its way through the summer months.

If Ellis and Phelps’ (2000) model is used to review e-Curriculum Team progress, it becomes apparent that the team was clearly engaged in the task when they were invited to attend the training session in June. This second stage of the model focuses on inviting team members to participate in e-learning development by providing them with training. The bulk of formal training did take place during this phase of the project, although it was limited to software training and not training regarding principles of instructional design. The team was clearly still in stage two of the model, continuing to learn about instructional design (through trial and error) and the use of the software. Curricula were being developed, some testing was being done, and further technical training was still to come.

Stage Three of Group Development—“Norming”

Once September 2005 arrived, the group seemed to free itself of most of the internal conflict and began to focus on decision-making and moving forward with the project. At this point, the team had been in existence for just over 4 months and had
actually gone through a significant amount of professional development related to e-
learning in that relatively short period of time. In addition, the team had another day of
training with the vendor in mid-September.

Before that day of training with the vendor, the e-Curriculum Team met to discuss
three key things. The first was to set an agenda for the training day, as they wanted a
better outcome. They prepared a list of questions and provided it to the vendor
beforehand.

We reviewed the list of things we want to get out of the training, and the team
seems really excited to get their questions answered. Now that all of us have had
a chance to use the system, we can ask more informed questions about things, and
we will understand the concepts much more clearly. I think it will help that X
will be here as well, because he is the architect of the system, and if he can’t
answer our questions, then we know there’s something wrong! (Research journal,
September 12, 2005)

This was an action that put the team squarely in the driver’s seat.

The second thing the e-Curriculum Team did that day was discuss evaluation
strategies. Instead of going in circles this time, it became clear the team wanted to test a
survey, as the learning management system was able to survey end users and generate a
report. The team was quite decisive in its approach, as the research journal suggests:

We also reviewed the types of things the team would like to see in the evaluation,
and I am going to draft an evaluation survey that will go out to all pilot users. In
addition, I will draft an evaluation of each piece of courseware, to be attached to
each course, just like a “Taking Stock” tool. (Research journal, September 12, 2005)

The third key action was the decision made by the team that all learning curricula would follow certain standards—standards that were discussed in the spring but ones that were never finalized. September was a time to decide the standards for the pilot curricula, as the implementation was fast approaching.

It was decided that the pilot packages should all meet the following standards:

- learning objectives;
- evaluation form for the learner to complete;
- interactivity - hyperlinks, case scenarios, movies, tests;
- font will be either Arial or Verdana, no less than 10 point;
- all attachments (e.g. movies, etc.) will be preceded by an introduction;
- the help function will be accessible and consistent throughout;
- navigation will be accessible and consistent throughout;
- packages will be either portrait or landscape and will avoid mixing the two orientations;
- no more than 5 to 9 pieces of learning information on the screen at any one time;
- all hyperlinks will be tested for functionality;
- all audio-visual will be tested for functionality;
- each section of curriculum (modules) will be no more than 20 minutes in length (movies, PowerPoints, documents, etc.);
- the corporate template will be used consistently throughout all educational
materials (prefer blue background with white or yellow writing). (Team minutes, September 12, 2005)

It was apparent that the storming phase of the past couple of months was over, as the team approached decision-making with a renewed vigour and focus.

The training session facilitated by the vendor confirmed that the e-Curriculum Team was ready to move forward. Team members were able to ask questions, and they were able to place their learning in a much deeper context this time. In fact I recognized the struggle of the team over the past few months and noted that the team was learning a lot about e-learning.

I think it was overwhelming for all of us, and in retrospect, we had difficulty separating the learning about technology from the learning about the design for technology. Two very different things. I’ve done a lot more reading about design for technology (you can’t really ground it in reality until you’ve actually tried to design something yourself), and it’s a lot more than putting a PowerPoint presentation into a web viewer. The setup is so important—giving an introduction to the learning, letting the learner know what to expect (tests, scenarios, etc.)—and the learning itself needs to be easy enough to follow without the technology getting in the way. The Ally (2004) article I read in the summer really got me thinking about what I was trying to accomplish. (Research journal, September 16, 2005)

Decision-making was much easier, and the group came to consensus regarding what curricula to pilot. The Code Red (Fire Safety), WHMIS (Workplace Hazardous Materials Information System), and the Understanding Chest Drainage modules were
chosen. The first two chosen pieces of e-curriculum were mandatory learning that all staff had to do each year, and the Understanding Chest Drainage e-curriculum was a clinical review for staff who did not encounter chest drainage on a regular basis. All three e-learning modules were almost ready for learners by early October, and the pilot date of October 14 was chosen to coincide with their estimated completion date and the promised date from the vendor.

Before the pilot could commence, the vendor was asked to fix three minor problems with the software. These minor issues were related to how the learner was expected to navigate through the software, and the team felt that learners needed specific direction in order to be able to navigate correctly through a module from beginning to end. The vendor promised that these issues were relatively minor in scope and that they would be completed by mid-October.

The chosen pilot date came and went, without anything happening. Soon it became apparent that the pilot would not take place until early November, based on further feedback from the vendor. Timelines were continuing to shift, and I felt the pressure to set a firm date to begin the pilot:

I sent out an email today updating everyone involved in pilot activities. It basically said that our original launch date of October 14 was a go from our perspective but not from the software perspective. Since that time, we've been waiting on fixes from [the vendor]. I've tentatively set Monday, November 21 as the date, but I was only "lukewarm" in my message so that they wouldn't hold me to it. (Research journal, November 9, 2005)
Team discussions were rich during this time, with many viewpoints expressed. Work was getting done, and decisions were being made. However, the team was feeling pressure from the external environment because of a corporate change that was being introduced. The team was distracted by the organizational noise that began to filter into our discussions.

I need to think about sustainability I guess. I know that the team is losing some of its interest as other things get in the way of this project. That’s inevitable, and it’s probably a good thing that a lot of our development time was scheduled over the summer, when activities are a lot slower-paced as so many people are on vacation. But now we’re back to the frenetic activity of the fall, and our “busyness” is getting in the way of working on things associated with this project. (Research journal, October 6, 2005)

Shortly after this journal entry the organization announced that it was publishing a list of corporate initiatives (also known as corporate objectives), and that the organizational energy must be directed toward the accomplishment of these initiatives utilizing a 90-day planning cycle. There was some consternation on the team, as some of the educators felt that their work was not valued by the organization. In fact, the project champion, Z, decided to attend the next scheduled meeting of the team in order to address their concerns.

Managing the politics of a situation like this is important . . . has a lot of friends, and I don’t want [that individual] spreading a negative image of something that isn’t all that negative. Being a corporate objective doesn’t mean more resources or dedicated time, all it means is that the project supersedes others that may come
along. And yes, we would support corporate objectives first and foremost, but perhaps we could use e-learning to support them by providing online learning content that will support the specific initiative! (Research journal, October 21, 2005)

The meeting minutes from the next team meeting also reflected this discussion.

The project does not meet the criteria for being a corporate project as it is currently only a pilot and affects only a small number of staff, and most of those staff are in CP&E. This project, once launched, can support other projects through the use of e-learning technologies and this cannot be overlooked. The reality of all of this is that the corporate projects must take priority if there are decisions to be made about time and resources. (Team minutes, October 26, 2005)

The members had a frank discussion with the project champion, Z, and appeared to be satisfied with the answers they were given.

In retrospect, the team members were not as satisfied as they appeared. In interviews conducted just after the pilot curricula were electronically assigned to learners involved in the pilot, several members expressed concern over the messages they heard that day in late October. Upon reflection, members expressed dissatisfaction after the discussion with the project champion.

It became even more clear fairly recently, is that this is not our life, this is not even important anymore, but by definition of the hospital, and how can we expect people to become involved when it’s not part of, when it’s not deemed “as one of the major projects of the hospital,” and so then how can we get people like the educators enthused about it? (Interview C, December 19, 2005)
I guess I approached it thinking it was a fairly high priority and came out feeling like the priority maybe isn’t here right now, it’s not to say that it won’t be back, but that kind of makes you wonder where your own—how do I fit into this now?...I just don’t know--I don’t know if it’s as valued as I thought it might be.

(Interview D, December 19, 2005)

The team members had obviously had time to reflect on their discussion with the project champion, and it was difficult for them to accept that the organization did not embrace the learning management system implementation in the way that they so obviously did.

The project was now in a bit of a holding pattern. The e-Curriculum Team waited for the software to be ready and had the opportunity to reflect on their learning to date. For one team member, this meant the opportunity to reflect on how he developed computer skills initially.

I think, as I reflect upon my personal frustration and challenges, I think it boils down to a couple of topics—first of all I blame it on Microsoft, and the reason why I say that is we have Microsoft classes that we have attended here, we have Microsoft Office suites on our computers that we all use here at work, it’s a graphical user interface. Once you learn some basic rules in one program, you can carry that over to their other software tools—so basically once you learn to right justify in Word, you can right justify in PowerPoint is what I’m saying. So Microsoft has common language, common ways of doing things, common icons, toolbars, and the world—as they are the world-leader in this suite—is very comfortable in using this universal tool. And so, for me to learn, at my age, a new
software tool, it is a struggle for me, because I had to unlearn some of those Microsoft ways of doing things. (Interview F, December 22, 2005)

Team members also began to think about their next steps, and one member got quite excited thinking about the possibilities of further e-learning development.

Well I'm thinking of virtual ventilator program, the simulation. So either, it would be nice if I could actually find or develop our own software as you assist other health professionals understanding mechanical ventilation and the technology, and what happens when you change patient conditions and how it affects the machine visually so that people can understand what’s going on and what happens when you change the settings, visually—because they all have graphics built into them. (Interview E, December 22, 2005)

It was important to keep the e-Curriculum Team moving forward throughout the wait for the vendor to finish the minor modifications to the software. The team had a meeting at the end of November to discuss their plans for moving the project forward. They put forward ideas for curricula that they were interested in working on, and a list was developed. Even though the pilot launch was on hold pending the anticipated software changes, the group displayed a great deal of energy and enthusiasm about round two of e-curriculum development. After that meeting, I noted that the journey to that point was a long one.

It’s interesting in looking back at where we started last January and how the dates have slid. Originally we were looking at piloting in the spring, and that slid into September, which then slid into October, and here we are in November, 2 weeks after I sincerely thought we were going to launch. November now doesn’t look
very promising for a launch, which is very frustrating for all of us. (Research journal, November 24, 2005)

Despite the technological barriers, the group felt a sense of accomplishment as they waited for the pilot launch date to be confirmed.

Tuckman's (2001) Stage Three, called "norming," is characterized by expression of opinions and a willingness to listen to others on the team. Task accomplishment, while more important than in previous stages, was still overshadowed by emotion. Certainly, this was evident in team process as the group struggled to keep its emotions in check, and yet get the work done.

The e-Curriculum Team entered stage three of the Ellis and Phelps (2000) model during this phase of the project. The curricula they developed were tested, revised, retested, and were waiting for implementation. At their meeting in November, it was apparent that the group was ready to move forward with new challenges, greater complexity, and a renewed sense of purpose. They identified curricula to be developed in consultation with others outside of their own team and had done much reflection on their progress and learning to date.

Stage Four of Group Development—"Performing"

Finally, on December 12, 2005, the e-learning pilot became a reality. The pilot curricula were assigned to learners, automatic email messages (generated by the learning management system) let learners know the system was ready to be accessed, and the team breathed a collective sigh of relief. Even though the software was not yet completely what the Project Team hoped it would be, it was apparent that waiting much longer
would mean that the project launch would need to be put on hold until after the Christmas break, as many learners would be on vacation.

At this point, the e-Curriculum Team took a well-deserved break over the Christmas holidays. This was an opportunity for team members to reflect, gain some perspective, gauge learner reaction to both the e-learning software and the curricula, and begin to look forward to further e-learning opportunities in the upcoming year. The team could not yet be considered a high-performing team solidly in Stage Four of Tuckman’s (2001) model, but with the launch of the pilot, there was recognition that a lot had been accomplished in a relatively short period of time.

The e-Curriculum Team did not reach the final stage of the Ellis and Phelps (2000) model during the case study. This final stage of the model has a very distinct mentorship focus, and although the team was planning to spread their wings and share their learning with others, they had not actively done so to this point. Their confidence level in both themselves and the technology had dramatically increased, and it was only a matter of time until the team’s energy and motivation impacted other educators in CP&E.

Summary of Chapter

The journey to e-learning implementation was a short journey in time spent, but a much longer journey in terms of learning and accomplishment. This chapter outlined the story of that journey, from the identification of team selection criteria to the beginning of the learning management system software pilot. Along the way, the team experienced a development cycle that closely paralleled Tuckman’s (2001) Stages of Team Development, and Ellis and Phelps’s (2000) Model for Online Staff Development. Both
models were helpful in understanding what the team accomplished and what work remains to be done.

Throughout the “forming” stage, the team strengthened existing relationships amongst its members, welcomed new members, and set out on a course that they hoped would make a significant contribution to the education of staff in their workplace. The “storming” stage was highlighted by the difficulties the team as a whole encountered and the amount of learning that they needed to do in order to create a stimulating and engaging product. By the time the “norming” stage was reached, the team had followed a difficult road and was beginning to understand its role within the organization. The “performing” stage of team development was on the horizon as the software pilot began and the team was about to hit its stride, with much more to deliver.

Awareness and motivation were key to the launch of the e-Curriculum Team at the start of the project. The team explored various organizational pressures, identified criteria for e-curriculum development, and began to engage their coworkers. In the second stage of online staff development, the team received formal technical training on the software, informal training on instructional design principles through trial and error, and tested its new curricula. By the time the pilot curricula were launched, the team had identified new curricula to be developed, exciting new avenues to pursue, and a renewed sense of purpose. The fourth stage of the Ellis and Phelps (2000) model is yet to be reached, but the future holds much promise for the team, as the software pilot has generated much interest and enthusiasm in its peer group.
CHAPTER FIVE: ANSWERING THE RESEARCH QUESTIONS

The following discussion examines the research questions that framed the selection and analysis of the case. In order to learn about the e-learning environment, the new e-learning software, and how to teach utilizing e-learning, the e-Curriculum Team needed to do a great deal of learning about the change they were planning to implement with their peer group. There was no doubt that the team encountered a change such as they had never encountered before, and this made them question many of their previously held assumptions about teaching and learning. In fact, some of them questioned their own educational practice.

Research Questions

The study was based on the following four research questions:

• How did educators who joined the research project perceive their use of computer technology in their own practice before joining the research project, and how much did they perceive working on the project affected their use of computer technology?

• How did the organization benefit from educators’ learning about their own practice through their participation in the research project?

• How did organizational issues affect the implementation of an e-learning system within an academic health sciences centre?

• How can Schein’s (1999) Framework for Creating Psychological Safety be used to analyze the process of developing e-curriculum as part of the larger implementation project?

The discussion that follows is in response to these questions.
Question One: Using Computer Technology

The first question asked how much educators had used computer technology prior to their involvement in the project and how their involvement changed their use of computer technology. Team members chosen for the project were considered (by the leadership team of CP&E) to be “voyageurs” in their use of computer technology (Saye, 1998).

All participants indicated that they felt very comfortable with computer technology before they became involved with the project and talked about their ability to integrate computers into their educational practice. One educator discussed how she always looked for ways to improve the delivery of computerized educational content before her involvement with the project. As well as being passionate about the use of computer technology, she recognized that there was much more than just showing pictures and words and expecting staff to learn from a simple PowerPoint presentation. She observed:

I found that when I looked at presentations or I looked at the delivery of presentation content, I felt that there was something missing in some of the presentations that I had to take part in. For me, I wanted to make the presentations that I had to do really friendly for the person that was viewing them. It always bothered me if I sat through a presentation and there were spelling errors, or the fonts were all different, so I’m very focused on having that stuff, very uniform through my presentation, and I certainly always make sure that spelling is absolutely correct. (Interview B, December 15, 2005)
Several members on the team commented that they were on a quest to improve their use of educational technology and that this project was part of that voyage. They recognized that working in the healthcare environment, particularly in critical care areas, required more technological literacy than other areas of the hospital, as these areas are largely technology focused. Intravenous pumps, respirators, simulation mannequins, and monitoring equipment all required comfort with technology and the ability to problem-solve when things were not working properly. All the educators interviewed, except for the educator working in the rehabilitation setting, worked with these advanced healthcare technologies on a daily basis. In addition, every educator on the team, as part of his or her role expectations in the larger CP&E service, was required to manage email and use basic Microsoft products such as Word, Excel, and Outlook.

During the interview phase each educator was also asked whether working on the project had influenced their use of computer technology. Educator A’s summation typified the views of all team members. She noted,

So no more is it the traditional teaching in front of a classroom, now I’m starting to think how can I change my curriculum or redevelop my curriculum to include pieces of that technology...do they actually need to be in my classroom to learn how to use an application? (Interview A, December 5, 2005)

A common theme in the interviews was that using the new software and approaching e-curriculum in a new way forced the team members to think about what they were saying and how they were saying it. As well, several team members commented on how much they had underestimated the work that went into developing effective e-learning. This is consistent with the literature (Easton, 2003; Palloff & Pratt,
After being involved with the project, team members expressed that they were more conscious of what information needed to be conveyed to the learner and how it was conveyed. As Educator F put it, an effective e-learning developer required having some sort of empathy or some sort of complete understanding that your learner is not there—you cannot hear them, you cannot see them, you cannot observe them, you could only anticipate how they will interpret what it is you’re presenting. That was my next challenge—a situation I’ve never had to face in my career. (Interview F, December 22, 2006)

Team members also saw the possibilities of e-learning for improving their practice and workload if mastered effectively. Previous studies confirm this, noting that with time and effort, educators will be able to improve their practice (Matuga, 2001; Ruth, 1997).

Question Two: Organizational Benefits

The second research question was designed to determine what the organizational benefits were from the educators’ learning about their own practice through their participation in the research project. This was not an easy question to answer because the case, as reported here, ended as the pilot project with learners began. However, in their final interviews the members speculated on how the e-learning system could change their practice. All of them could see the possibilities of using technology to deliver regulated and mandatory learning—the types of curricula that took time to teach, were relatively stable in content from year to year, and learning that every staff member needed to review on an annual basis. The possibility of moving mandatory learning onto the e-learning platform would leave more time for healthcare educators to concentrate on the content and learning that they were most familiar with—the learning supporting patient
care activities. All members of the e-Curriculum Team agreed that mandatory learning content would provide the primary focus of the learning package pilot. Most felt that the choice of mandatory learning would draw other educators into using the software in their own practice and that it would “sell” the product to those educators. As Educator B remarked,

What are the benefits for me as an educator? For me...it will eliminate some of that mundane walking around trying to educate 180 nurses on east and 100 nurses on west about smaller pieces of things that we really don’t think are education focused. (Interview B, December 15, 2006)

Based on how the team was affected by the implementation of the e-learning system, one can anticipate that for most educators, the introduction of e-learning will challenge their existing philosophy of teaching. It is hoped that the increased use of e-learning for teaching will be cause for reflection and review of current teaching practices throughout the health sciences centre. Moving some of the mandatory learning to the e-learning system will allow healthcare educators to concentrate more on their areas of expertise and competence. This will not only refocus educator time but will allow them to establish solid relationships with the learners they advocate for.

In addition to benefits for the healthcare educators, the learning management system will increase the health sciences centre’s record-keeping capabilities and will allow learners easier access to their personal learning records. The emphasis will most likely shift to learners as co-ordinators of their own learning. Learners will be given increased responsibility for managing their learning and ensuring that they have met the mandatory standards set by the organization. The slow shift away from formal classroom
training will also free up resources, such as classrooms and some teaching supplies, within the organization.

Most of the team also remarked that using e-learning would not necessarily be a cost-saving measure for the organization because staff would be challenged to do the learning while at work. Educator B had obviously given this a lot of thought and put herself in the staff person’s shoes when she noted,

So you’re right in your patient’s room who might be on several infusions, and you’re trying to learn. It may be difficult... I think that’s going to be a concern.

(Interview B, December 15, 2005)

She suggested that perhaps staff should be relieved from their duties (known as “backfilling”) by another staff person for a fixed period of time in order to go to a quiet place to complete the assigned e-learning. This was common practice at the health sciences centre for classroom-based training, and she believed that staff would still need time away from the clinical area in order to learn effectively. For example, (a) staff would still require compensation for their learning time, (b) computer equipment will still need to be available, and (c) educator support in terms of scheduling learners, arranging for backfilling, and answering questions about the e-learning packages would be required.

The team also discussed how much control would be given to other people outside of the CP&E service who were interested in using the e-learning software. For the most part, the team wanted to retain control within the group because they had come to appreciate how difficult it was to design, develop, and deliver effective e-learning. Educator D realized this, stating,
It’s not as simple, and you know this has come up in our meetings, several times, where we said it’s not about taking a PowerPoint presentation and plopping it into an e-learning format and calling that e-learning, that’s not as I see it—it doesn’t speak for itself. (Interview D, December 19, 2005)

Through both their training and experience, team members came to realize that e-learning system development requires a great deal of training and expertise. Educator A commented,

We went through all the pain and suffering in the last 6 months to put out a pilot for goodness sakes, surely we have learned so much. I know I have learned so much from that. (Interview A, December 5, 2005)

The team members were concerned that e-learning would be viewed as a panacea, a quick fix for performance issues, and the end result would be an e-learning system that did not help anyone learn. Members expressed a desire for a slow and steady implementation so that educational principles could be maintained and quality would remain high. They also wanted to retain control of the process. Educator B felt strongly about this and remarked,

If we have pockets of people throughout the corporation building e-learning projects, we could end up with such a huge mess. I don’t know if you’ve ever looked at some of the policies and procedures online, and those are being built by people all throughout the corporation, and some of them are absolutely a mess. (Interview B, December 15, 2005)
In order to retain this control, team members felt that they should become consultants so they could work with others in the organization who had content ready for the e-learning software. Educator D saw this as her role, noting,

If I'm working with someone who really wants to build something and they can tell me what kind of curriculum they want developed, I should be able to help them create it and put it into an e-learning format, knowing nothing about the content. (Interview D, December 19, 2005)

She felt that she could bring both pedagogical and technical expertise to the development process, ensuring a high-quality product. All the educators expressed similar concerns and were worried about diffusion of control. They saw the possibilities for their own educational practice, but this was tempered by the realization that they would need to mentor others in both the use of the technology and the development of the pedagogy.

Question Three: The Influence of Organizational Issues

The third research question focused on how organizational issues affected the implementation of the e-learning system. Issues outside the team were perceptible throughout the course of the case. As the e-Curriculum Team was preparing to begin the pilot phase of the software implementation, it was apparent that the forward movement of the team was impacted by the launch of a different organizational change. This change, the introduction of an organization-wide process to standardize corporate initiatives, affected the allocation of both power and resources across the organization. The learning management implementation, which this e-curriculum development project was a part of, did not make the new list of corporate priorities. If the organization had picked a different time to introduce such a significant organizational change, the outcome for the
e-curriculum project may have been different. It was apparent that the team felt devalued when their project was not recognized in the new list of priorities. I had the opportunity to discuss this with my vice-president before the organizational change was introduced and observed,

I can’t help but think that the e-learning project needs a corporate profile in order to keep the momentum going. After this conversation, I had the distinct impression that we will not have this project included on the list, which is unfortunate. (Research journal, August 29, 2005)

The argument the vice-president presented was sound in its reasoning, as the impact of the project was localized to the CP&E team, but this was still a critical blow to the team. They had “bought into” the vision for the project and had managed to carve out time from their busy schedules in order to work on the required e-curriculum. They wanted recognition, both for themselves and for the project, as they worked hard to make the project a successful one. Upsetting the delicate organizational balance meant that the e-Curriculum Team was affected by decisions they had no control over and no power to influence. In the end, they persevered with the project, despite their reservations and despite their feelings of helplessness.

This incident demonstrated that leaders in the organization were not yet ready to support an e-learning environment by giving the project a corporate profile. An interdisciplinary team to support the technology would also be in place, and this team would make recommendations to senior management regarding the use of technology for learning. In this case, the e-Curriculum Team was an interdisciplinary group able to advocate for technology-based learning, as identified by Berge (2001) as necessary for
organizational acceptance of e-learning. Unfortunately, the senior team was not yet receptive to the team’s recommendations.

Question Four: Using Schein’s (1999) Framework

The first three research questions did not allow the whole story to be told. If the analysis had ended at this point, too much would be left unsaid, and the findings, although worthwhile, would be incomplete. Reframing these results, using a deeper analysis and Schein’s (1999) framework, has led to more insight and richer meaning. The development and introduction of the learning management system was an organizational change that caused a fundamental shift in how the educators involved in e-curriculum development examined their own practice and assumptions about teaching. Introducing organizational change at any level is not easy, and the e-Curriculum Team had a difficult time adjusting to a new way of doing things. Without an analysis of this adjustment to change, it would be complicated to explain why the case was so difficult for both the group and me to experience.

Schein (1999) asserts that change is discomforting for those experiencing it. This discomfort often leads to both learning and survival anxiety that must be reduced by creating psychological safety for those undergoing the change. His *Eight Steps for Creating Psychological Safety* (Appendix B) provided a way to reduce anxiety for the team and support them through the transformational change. As change agents, the e-Curriculum Team required extensive support in order to accept the change in practice and the challenge to their beliefs. They were expected to develop and implement the e-learning software and become role models and mentors within the CP&E service.
According to Fitzgerald (1995), “the learning process is often inhibited by our own experience and subsequent beliefs about how to succeed, or at best avoid failure” (p. 52). He further notes that the fear of incompetence can be very strong, particularly when organizational learning is taking place and there is a possibility that those involved will become paralyzed with fear. This fear of incompetence or “subjective reframing” (Mezirow, 2000, p. 23) causes individuals to critically self-reflect on their own assumptions about teaching. This was evident in the team’s anxiety about learning new ways to teach using unfamiliar software and concepts. It appeared after the first day of training, when one member reacted to the training by leaving a voicemail message indicating his frustration with the day of training. This was learning anxiety, where unlearning the established and familiar behaviours is difficult and there is a feeling of incompetence as the learner struggles with the change in behaviour. Schein (1999) sees learning anxiety as a combination of several fears, many of which were present in the e-Curriculum Team during the first two phases of Tuckman’s (2001) model. The goal, according to Schein, is to decrease this overwhelming learning anxiety. His eight-step framework is applied to this case; each step is discussed in turn.

**Step One: A Compelling Vision**

The first step is the establishment of a compelling positive vision that engages the targets of change and convinces them that they will be better off as a result of the change. In assessing whether this was done effectively in this case, there are a number of things to consider. The first consideration is the actual selection process for the team. Educators who were using computer technology or who were receptive to computer technology in their own educational practice were selected for inclusion using Saye’s (1998)
Technology in the Classroom Continuum. This was done to select team members who were already convinced of the benefits of computer technology and who it was believed would share the vision of the leadership team of CP&E. Even though team members were convinced of the value of computer technology, they still needed to be convinced of the power of the vision. Kanter (1999) asserts that “successful change leaders bring passion, conviction, and confidence in others” (p. 18), which inspires voluntary behaviour in their followers.

The project champion of the e-curriculum development project had the vision and was heavily invested in the success of the project, but was this vision successful in inspiring the e-Curriculum Team? All team members selected for the original project elected to stay on board with the project once the software reached the pilot implementation phase, which could be an indicator of success. Whether or not the educators engaged in the vision for the learning management system is more difficult to assess, as not all members of the team produced e-curriculum for the beginning of the pilot. At the time of writing, all are still engaged in the project and working towards preparing e-curriculum for the launch of the software in the fall of 2006. Some reasons why e-curriculum was not ready include: (a) team members experienced a steep learning curve (for both the technology and the concept of teaching in a different way), (b) workload (organizational pressures were an issue throughout the latter half of the case), and (c) their chosen e-curriculum to develop was not selected for the initial pilot phase.

Are team members using computer technology in their educational practice more than they did before the project? Again, this is fairly difficult to assess, as the learning management system is not widely available to all learners in the organization and its
impact is not yet felt at the level of a typical educator’s practice and workload. How will the vision impact educator practice in the health sciences centre? Because the educator staff participated in the pilot as learners themselves, they had the opportunity to interact with the software and to see the functionality it delivered. In addition, they completed mandatory learning objectives using e-learning, which allowed them to see that they will spend less time delivering mandatory education for both Fire Safety and WHMIS. Even though the software was not yet fully implemented, there was a great deal of excitement in both the e-Curriculum Team and the CP&E service at the time this research was completed.

*Step Two: Formal Training*

Formal training was provided at two points as software training by the vendor. Was it successful? The answer here is yes and no. Yes, because the team members learned how to use the software, and no, because the first session of formal training seemed to be the trigger for the team to engage in conflict, or what Tuckman (2001) refers to as “storming” in his team development model. The conflict was an indicator of team anxiety, both over the use of new and different computer software and because the educators now needed to learn about teaching in a very different way, something the formal training did not address. This was a barrier to overcome for the team, as the members could not advance the use of educational technology in the organization without understanding how they would need to teach differently.

The team began to realize that by learning how to use the software, they were only learning about the “middle ware” (Garrison & Anderson, 2003) and they needed to learn much more about the educational process itself. By the time the second formal
training session was held, the educators had overcome some of their initial anxiety over the proposed change in educational practice and were open to learning more about the software and how it could be used to its maximum potential in order to advance their educational practice.

*Step Three: Involvement of the Learner*

Schein recommends involving the learner (1999) in the change process. This can occur by involving learners in planning the experience both in the classroom and in less formal settings, thus enabling them to design their optimal learning experience, and thus creating buy-in and acceptance. Were the learners involved in the planning of learning opportunities? Again the answer is both yes and no. In terms of planning the first formal training agenda, the members were not heavily involved. In retrospect, this was a mistake, as the vendor and I did all the initial planning. The vendor had a prescribed training agenda and was reluctant to address any additional issues or changes to the agenda. After much negotiation, there were slight changes to the training agenda to allow for more hands-on experiential learning, but they were not enough to quell the rising anxiety of the team. After the first day of the first formal training session, I tried to change the agenda, but the vendor’s training representative was uncomfortable about working without the safety net of his training “script”. Would the anxiety level have been lower if the agenda had been generated by team members? We can speculate that there would have been a decreased level of anxiety regarding the use of the software, but it is doubtful that the team realized at this point that there was parallel learning they needed to do related to the whole process of teaching electronically.
On a more positive note, the anxiety level helped the team develop an awareness of the pitfalls of the learning management system and their lack of understanding of how it would impact their teaching practice. They began to focus on their informal learning throughout the summer months and identified a number of issues they wanted to learn more about. By the time the second formal training session was scheduled, the members knew exactly what to focus on and were able to confidently set the learning agenda for the session.

Could the team have engaged in more formal training? The answer here is definitely yes, as there were concepts they needed to understand about teaching and learning in an e-learning environment. Certainly it would have been an excellent opportunity for the group to learn more about the power of words. There is a wealth of information about e-learning that needs to be understood and internalized by e-learning instructors, but as Anderson (2004) reminds us:

An excellent e-teacher is an excellent teacher. They like dealing with learners; they have sufficient knowledge of their subject domain; they can convey enthusiasm both for the subject and for their task as a learning motivator; and they are equipped with a pedagogical (or andragogical) understanding of the learning process, and have a set of learning activities at their disposal by which to orchestrate, motivate, and assess effective learning. (p. 290)

This gentle reminder is a critical one. The e-Curriculum Team did possess these skills in abundance; the task at hand was to remind them that their knowledge, motivation and skills would be transferable to the electronic environment.
Step Four: Informal Training

The fourth step is the informal training of other groups and teams that interact with the team implementing the change. Schein (1999) asserts that this is meant to help develop new cultural norms and assumptions across the organization in relation to the change being introduced. Schein (2004) defines organizational culture as:

a pattern of shared basic assumptions that was learned by a group as it solved its problem of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 17)

Schein argues that culture provides a way to integrate individuals and create a consistent pattern of action. Bridges (1991) refers to this as explaining the purpose, plan, and parts that people affected by the change will be playing as a result of the change.

In this case study, the event that helped to create this consistency was an educational session offered to all CP&E staff facilitated by a local e-learning author. This session was a quick primer on what worked and did not work in terms of developing e-learning, and it provided the group with examples to apply to their own potential e-curriculum. This was a very successful session, due in large part to its timing—it occurred just as the team was working on developing its own e-learning skills and knowledge. The presenter was extremely engaging and very knowledgeable about both e-learning and the healthcare environment, and this gave him a lot of credibility with those in attendance. The excitement generated in the group was tempered by the fact that there were two groups—the larger CP&E group and the smaller e-Curriculum Team. Some educators within the larger group were disappointed that they were not a part of the smaller team
but were reminded that the software would eventually be available to all educators in the health sciences centre in order to advance educational practice.

Schein (2004) notes that criteria for inclusion in a group "are usually set by the leader, founder, or convenor, but as the group members interact, those criteria are tested and a group consensus arises around the criteria that survive the test" (p. 116). In this case, the team felt that their membership was a good representation of the larger group and that any new members would need an extensive orientation, which would not be a good use of the team's time while they were still learning themselves. They felt that the inclusion of the larger CP&E group in the pilot as learners themselves was an excellent opportunity to continue to build awareness, create excitement, and establish cultural norms across the larger group. Caplan (2004) agrees with this level of involvement, noting that "one way for faculty to become familiar with the skills and resources needed to be successful online teachers is to become online learners" (p. 182).

*Step Five: Practice Fields, Coaches, and Feedback*

For Schein (1999) developing "practice fields, coaches, and feedback" means giving those affected by the change time, resources, coaching, and feedback regarding performance. Was this successful with regards to the e-Curriculum Team in this case? Once again, this case study provides a mixed message. In terms of time, the only member of the team who was given dedicated time to work on the implementation project was me as project leader. As part of my organizational role, I was assigned projects to work on, and this project was assigned as part of that organizational workload. So, while my time was assigned to the project, in reality it was another project, no more important
than any other assigned project. I had mixed feelings about this and noted them in my research journal.

I don’t want to know too much about the technology because I have enough things I need to focus on. I always worry that one day, because of my concentration on computer technology, I will end up in a technology “ghetto” and will have to eventually give up F2F classroom teaching. I never want to do this, as I really love teaching, despite the performance anxiety! (Research Journal, May 11, 2005)

Bridges (1991) asserts that a change manager is necessary for any change introduced at the organizational level, someone who is relieved “from conflicting duties. Or it can be someone who is taken out of his or her regular job completely and made the change manager for the duration of the changes” (p. 112). I noted this tug-of-war between the project and the regular workload when I wrote,

Leading this project is taking a huge amount of energy, and I feel like I am drowning sometimes, not so much in the technology but in everything that needs to be done plus my own job. I am so far behind in my own work that I feel as if I’m struggling to stay afloat. I am not doing a good job in anything that I am doing right now, even this project. I could do so much better with some dedicated time! (Research Journal, September 16, 2006)

This was a luxury that the organization could not afford, so it was critical that the e-Curriculum Team shared the vision and the excitement of the project champion so that members were able to make their own time for project work when necessary.
What worked well for the team was regular meeting time to discuss issues, compare learning, and ask questions of each other. Dedicated meeting time was spent reviewing e-curriculum and sharing feedback, which was very helpful for developing a comprehensive finished product but also for allowing all team members to learn. Although not all team members saw equal benefit in this review of content, the educators responsible for the pilot e-curriculum were reassured by this thorough review and testing. E-curriculum in development was tested and retested, first by team members and then by selected staff in the larger organization, before moving it into the pilot group. Schein (1999) refers to this as the creation of “practice fields” (p. 125), and this allows mistakes to be made without penalty and without disrupting the rest of the organization before the change is implemented, which for the e-Curriculum Team was their “sandbox”.

*Step Six: Positive Role Modeling*

Schein (1999) recommends providing positive role models so that the new way of thinking, doing, and acting can be observed and internalized by those affected by the change. This was problematic, because the software purchased by the health sciences centre was widely implemented at only one other hospital, and this hospital was a 4-hour drive away. In order to arrange a site visit, the members needed to rearrange schedules and agree on a common time, which was not an easy thing to do given that agreeing on training dates was the priority for the team. In addition, the members of the team were all learning how to use the software and design effective e-learning together, and most of the team were advancing at the same pace so there was no one internally the members could really look to for role modeling and guidance. The team looked to the literature for models and ideas about how to develop e-curriculum in absence of a live role model.
They directed their attention to Garrison and Anderson’s (2003) model of e-learning (Figure 1), that describes the ideal e-learning system. The educators soon realized that their e-learning system was flawed and could not attain the desired balance between the three domains of social presence, teaching presence, and cognitive presence. Both social presence and teaching presence were compromised to some degree by the fact that the e-learning software did not have a discussion board or other interactive space for learners. The team could not employ most of the strategies recommended by Anderson (2004) to overcome the deficiencies of software that did not allow for either asynchronous or synchronous discussion. Strategies such as video production (with the instructor presenting a short biography) would have extended the development time and consumed additional resources. In addition, the team felt that the e-curriculum they developed would need to be short and concise enough (no more than about 40 minutes in length) to be able to be reviewed during the working hours of a typical front-line healthcare worker. However experience suggested many healthcare workers are also very sceptical of learning situations where the instructor spends time talking about himself or herself—they want to get to the point, which is to learn about the topic, as they have a limited amount of time to spend on learning when on the job.

*Step Seven: Support Groups*

Creation of support groups for those affected by the change (Schein, 1999) would provide a forum where “problems connected with learning are aired and discussed” (p. 125). The e-Curriculum Team itself was a support group for each other, and team minutes indicate that the team discussed a number of thorny issues as they moved forward with e-curriculum development. My research journal was an important outlet for
me since it gave me a chance to ponder about what was working well and what was not. It also gave me a chance to vent without disturbing the equilibrium of the team. I recognized the role of the group as a support mechanism and at one point even brought in the project champion to address the issues that were creeping in from the organizational arena. At that point, towards the end of the case study, members of the team were feeling devalued, as another organizational change was being introduced that they felt the e-learning project should have been a part of. It was a difficult time for the group, as they had gone through so much together and wanted to be recognized by the organization. They learned about the software, shared their concerns about the increased use of computer technologies in their practice, researched strategies for developing effective e-curriculum, shared their frustrations regarding their own learning curves, and discussed the organizational changes that were affecting their ability to allocate more time to the e-learning project.

*Step Eight: Consistent Systems and Structures*

Schein (1999) advocates for the creation and maintenance of consistent systems and structures. The external organizational change introduced near the end of the research period was an example of inconsistent systems and structures. The move to develop a standard list of corporate initiatives across the organization allowed more consistency in managing work practices, but unfortunately created confusion, frustration, and inconsistency for many existing organizational teams, one of which was the e-Curriculum Team. This situation also echoes Berge’s (2001) theory of organizational readiness for e-learning, as the reallocation of resources away from the implementation
project meant that technology-based learning was not a priority for the senior management team of the organization.

With the introduction of a corporate initiative framework, the organization was attempting to affect the political arena by deciding what persons and what project would have organizational power and resources. The reallocation of organizational power and resources meant that the resources allocated to the e-Curriculum Team were redistributed, affecting the technical arena and setting the technical cycle out of balance with the other two cycles. The intent of the technical cycle is to balance resources so that some sort of output can be created or work can be done (Tichy, 1980)—in this case the introduction of the learning management system and the educational practice of the educators involved.

In addition, the cultural cycle was affected (Tichy, 1980), which meant that the vision of the members and the values they held were in question because they were now expected to support the corporate initiative process before supporting their own project, which they had developed a strong attachment to. This had a definite effect on the team, as the consistency it strived for during the project was not able to be realized, and the team members felt a great deal of frustration and confusion regarding the organizational messages they were given. This is consistent with Wheatley's (1999) observation that "as effects materialize, unknown interdependencies become apparent" (p. 28). The members began to see the gains they had made slipping away under the corporate changes introduced in an effort to increase organizational consistency.
Conclusion

Based on the preceding analysis, it is apparent that many things were done effectively in order to create the psychological safety that Schein (1999) and Edmonson (1999) both advocated as key to successful workplace innovation and change. Schein argues that psychological safety promotes cognitive redefinition, which he defines with reference to a new way of thinking and acting as a result of the change. Did we manage to create psychological safety for the team so that they could learn more about e-learning and achieve cognitive redefinition? Baer and Frese (2003) suggest that team psychological safety requires an organizational climate of psychological safety with "formal and informal organizational practice and procedures guiding and supporting open and trustful interactions within the work environment" (p. 50). Probably the biggest barrier to true psychological safety at an organizational level in this case was the introduction of external organizational changes that made the team feel threatened, devalued, and unable to speak openly outside of the group about their feelings until the software was implemented and the pilot was under way. Until that critical point in the case, the team had felt valued and had begun to develop increasing levels of trust, knowledge, and cohesiveness, contributors to psychological safety and eventually cognitive redefinition. Team and individual learning was progressing nicely, in tune with Tuckman's (2001) model of group development. The thorny issue of organizational pressure and politics became a difficult one for the team to overcome, despite their progress to date.
Summary of Chapter

This chapter presented a brief background of the case study and discussed the results of the case study using the four research questions as a basis for further examination of the e-Curriculum Team’s struggle with the LMS implementation. The first two research questions examined what the educators involved in the project learned about their own educational practice. The third research question examined how organizational issues influenced the team and its motivation.

The final research question utilized Schein’s (1999) framework as a way of explaining the implementation of the LMS as an organizational change project. The concept of psychological safety was introduced, and the implementation was examined using Schein’s (1999) Eight Steps for Creating Psychological Safety. Organizational change literature was used to explain and expand upon Schein’s framework.
CHAPTER SIX: SUMMARY, DISCUSSION, AND IMPLICATIONS

This case study investigated how a team of 7 hospital educators collaborated to develop e-curricula units to be piloted as part of a newly acquired learning management system at a large, multisite academic health sciences centre located in southern Ontario. The researcher, who was a team member, acted as a participant-observer to examine how the e-Curriculum Team worked together to develop strategies to better utilize e-learning in their own practice, what e-curriculum they chose to develop, how they determined their priorities for e-curriculum development, and how this affected their practice and their educational philosophy. The challenge of developing e-learning skills, the group dynamics that developed, and the effects of other organizational pressures on the implementation project as a whole, became part of the focus of this research.

This chapter provides a review of relevant literature; background to the problem; the research questions, methodology and research design; key findings and analysis; and recommendations for theory, practice and future research. The researcher's reflections on the process conclude the study.

Review of Relevant Literature

E-learning is an inclusive term used to describe learning facilitated by computer and communication technologies. It is defined as “a wide set of applications and processes, such as Web-based learning, computer based learning, virtual classrooms, and digital collaboration (ASTD, cited in Allen, 2003, p. 27). It is also defined as “instructional content or learning experiences delivered or enabled by electronic technology . . . [which] includes many ways in which individuals exchange information and gain knowledge” (U.S. Commission on Technology and Adult Learning, 2001, p. 7).
E-learning software can be used to develop pre-programmed, computer-based activities that learners can work through and interact with (Bates, 1995). Software can be designed in such a way that student responses to questions control how they progress through the materials; in this way learning can be tailored to meet individual learning needs (Bates, 1995). By incorporating e-learning, instruction can be distributed through time and space in a manner that can remove boundaries and increase flexibility for both the learner and instructor (Oblinger, Barone & Hawkins, 2001; Berge, 2001; Haughey & Anderson, 1998). As well, because e-learning typically occurs over a computer network that requires identifiers, unique learning needs can be identified and learning can be tailored to meet those needs (Haughey & Anderson, 1998). Additionally, as e-learning becomes more sophisticated, increasing emphasis can be placed on the development of higher order thinking skills (Kaufman, cited in Bates, 1995).

E-learning can benefit organizations by providing just-in-time learning (Berge, 2001). Software to support such learning is often referred to as a learning management system (LMS). It provides "the platform for the enterprise’s online learning environment by enabling the management, delivery and tracking of blended learning (ie. Online and traditional classroom)" (Hall, 2003). To be of most value, LMS should possess interoperability, the process of "ensuring that the systems, procedures and culture of an organization are managed in such a way as to maximize opportunities for exchange and re-use of information" (Miller, 2000, ¶7).

Educators who create and/or teach using e-learning must attain a personal level of computer literacy (Palloff & Pratt, 1999). They must also support and assist students in their efforts to do the same (Merriam & Caffarella, 1999). Furthermore, educators must
establish their presence as teachers even though they are physically located elsewhere.

Garrison and Anderson (2003) identify three categories of presence that developers and instructors must strive to establish: social, cognitive, and teaching. They suggest that social presence is set by establishing tone through greetings, personal vignettes, and paralinguistic emphasis. They also suggest, along with Mann (2003), that cognitive presence is established through such methods as asynchronous discussion and interactive forums that allow learners to reflect deeply on content, and construct knowledge in ways that relate to their lived experience. Course design and content, as well as the process of mentoring and guiding learners through the content also serve to establish cognitive presence. Teaching presence requires an expertise in teaching and learning. Reflecting this, Garrison and Anderson (2003) note that educators must “identify the ideas and concepts worthy of study, provide the conceptual order, organize the learning activities, guide the discourse and offer additional sources of information, and diagnose misconceptions and interject when required” (p. 71).

Educators using e-learning must be computer literate. Saye’s (1998) conceptual model identifies educators who are most successful as “voyageurs,” who feel comfortable in flexible, less predictable environments, and who are willing to experiment and take risks. These educators are more student-centred, and focus their teaching on the development of high-order skills. This is not unlike Lane’s (1996) conceptual model that identifies the most successful healthcare educators as those who think critically and creatively, and who work collaboratively to solve problems and develop new programs.

Research suggests that e-learning is time consuming for those who teach with it (Barker, 2003; Bentley et al., 2003; Clay, 1999; Lazarus, 2003; McKenzie, Mims,
Bennett, & Waugh, 2000; Palloff & Pratt, 1999; Wilson, 1998). It also suggests that faculty who engage in the process often receive little recognition or support (Bentley et al., 2003; McKenzie et al., 2000).

A growing body of research is focused on faculty development for e-learning. Findings suggest that a collaborative approach to planning and development is valuable (Kennedy et al., 2002), that when learning groups are small and support is high barriers to utilizing technology are reduced (Bennett et al., 1999), and that faculty begin to own the technology after they mentor others (Clay, 1999; Ellis & Phelps, 2000; Anderson & Shannon, 1988; McNaught & Kennedy, 2000). Models of online staff development move participants from motivation, to technical and pedagogical support, to increased technical sophistication, and finally to the consolidation of learning and the mentoring of others (Ellis & Phelps, 2000; Clay, 1999). The process is iterative, and the use of mentorship is key. Organizational learning occurs through both explicit and tacit information sharing (Nonaka, 1991).

The importance of collaboration and support for moving educators toward e-learning suggests a need to understand how groups work together to achieve their goals. After examining 50 studies, Tuckman (2001; originally published in 1965) identified four distinct stages of team development that reflect both task and team perspectives; a fifth stage was added following a review of studies published after 1965 (Tuckman & Jensen, 1977). *Forming* is characterized by an orientation to the task, and to testing group behavioural norms; *storming* is characterized by conflict both with group members and with the task; *norming* is characterized by cohesion, as members begin to function as a unit and show support for each other; *performing* is characterized by unity, a
concentration on task, and the emergence of a stable team structure; *adjourning* occurs after the task is completed and time is spent disengaging and evaluating both the product and the team relationship.

Morgan, Salas, and Glickman’s (2001) nine stages of team development, known as TEAM (Team Evolution and Maturation) separates task completion from interpersonal team functions, and Morgan et al. (2001) advocate for training and development that focuses not only on task achievement, but also on teamwork skill development. Caple (1978) notes, “failure to develop the necessary skills, relationships, and structure within any one stage will either prevent passage to the next stage or affect seriously its subsequent development” (p. 476). Those attempting to create psychologically safe spaces for team members to work in can be informed by Schein’s (1999) eight steps intended to be implemented simultaneously: establish a compelling vision; create consistent support structures and systems; involve learners in training design; offer opportunities for informal training; provide coaching and feedback; model new behaviours; form support groups, and offer formal training.

**Background**

In late 2002, a large, multi-site academic health sciences centre in southern Ontario contracted a software firm to develop its internet and intranet presence. After the intranet presence was successfully launched in 2003, a number of departmentally based project management teams were established to better utilize the technology. The Clinical Practice and Education service (CP&E), the department primarily responsible for the education and training of staff, was approached by the Communications and Technology Department (ICT) to purchase a learning management system (LMS) that could integrate
with the newly launched software. The team prepared a business case that was presented to the centre’s senior management team in September 2004. The case was approved in October 2004, and the LMS purchased December 2004. According to the case, the LMS would help to: refocus clinical educator time away from non-clinical education to value-added patient-safety focused activities; help develop common standards for online educational materials; increase the availability of learning opportunities for staff that worked shifts; improve learner tracking and reporting; enhance the ability to reach large groups of staff with “just-in-time” education, and decrease costs for staff travel to classroom-based educational events.

Two project management teams were formed by the CP&E service to develop the new LMS. The mandate of the first team, the Project Team, was to focus on software issues, develop implementation timelines, and ultimately execute the project plan. This team handled the “nuts and bolts” of the implementation and was responsible for issues such as end-user identification, passwords, building reports, uploading personnel data, and solving software issues for the educator group. The mandate of the second team, the e-Curriculum Team, was to develop e-curricula units that would be piloted to selected learners. The researcher was a member of both teams, however the second team, known as the e-Curriculum Team, was the focus of this research.

The e-Curriculum team was comprised of seven health educators who were selected from a pool of 45 educators from CP&E service. The selection criteria were informed by two related conceptual frameworks: Saye’s (1998) Technology Use in the Classroom Continuum, and Lane’s (1996) Conceptual Model for the Development of
Healthcare Educators. Criteria include: teaching experience, degree of technological literacy, and the degree to which groups across the organization would be represented.

Purpose, Methodology, and Research Design

The purpose of this case study was to examine the process of e-curriculum development in a large, multi-site academic health sciences centre\(^3\) that had recently purchased a LMS and wished to engage the staff in using the software. The study began in mid-April 2005 when the e-Curriculum team formed to develop e-curriculum to pilot. The study ended in mid-December 2005 after three curriculum units were ready to be piloted on the LMS. Learners’ evaluation of the curricula developed was not part of this study, which was bounded by time.

Four questions guided the research:

1. How did educators who joined the research project perceive their use of computer technology in their own practice before joining the research project, and how much did they perceive working on the project affected their use of computer technology?

2. How did the organization benefit from educators’ learning about their own practice through their participation in the research project?

3. How did organizational issues affect the implementation of an e-learning system within an academic health sciences centre?

4. Can Schein’s (1999) Framework for Creating Psychological Safety be used to analyze the process of developing e-curriculum?

\(^3\) The health sciences centre consisted of four major in-patient hospitals along with at least three other smaller sites focusing on out-patients and administrative functions.
As the research progressed, the researcher focused attention on how the team constructed and worked through its task, the issues and challenges it faced, the perceived benefits of the project, and the organizational and peer support that allowed the team to develop e-curriculum modules to pilot. The researcher observed and participated in the process of e-curriculum development.

Case studies are used to present detailed information (Denscombe, 2003; Creswell, 1997) about real-life situations over which the researcher has no control (Yin, 2003). The focus is not necessarily on end results, but on the how and why of the situation under study (Soy, 1996; Tellis, 1997). Lincoln and Guba, as cited in Creswell (1993) assert that a case study outlines a problem or issue, provides descriptive context in which the problem is set, and ends with “lessons learned.” Denscombe (2003) notes that a case study has a focus on relationships and processes and occurs in a natural setting. In other words, the research project does not alter what naturally happens in a setting, and the situation would occur normally as a part of practice. The results of this case study will serve as a learning example for the organization that was studied as well as other healthcare institutions as project management, with regards to software implementations at the organization studied, was not well documented.

This case study methodology used three sources of data: bi-weekly team meeting minutes (members took turns taking minutes, however the researcher did not take a turn); semi-structured participant interviews with e-Curriculum team members –conducted after the e-curriculum modules were completed for pilot in December, 2005; and participant
observation by the researcher who kept a reflective journal that totalled 200 pages. The interviews were transcribed and returned to participants for their review.

All data sources were coded and themed. Themes were arranged in chronological order, and Tuckman’s (2001) framework for stages of group development was chosen to organize the data. This allowed the researcher to better see the team development process. Reoccurring themes were counted to determine their relative importance. Schein’s (1999) framework was used to classify group activities and comments.

Key Findings

Once the team was formed, it met on a regular basis to determine priorities for curriculum development; select curriculum to adapt, and learn about effective e-learning practices; develop organizational standards for e-learning; learn how to use the software; and develop e-curriculum units. During this time, members grappled with learning new software, challenged their own preconceived ideas about e-learning, and balanced the task of e-curriculum development with an already full workload. Still, they persevered, and over the 8 months, completed three units to pilot. As members of the e-Curriculum team, they supported each other and kept each other focused on the task.

The Importance of Relationships

Until the e-Curriculum project, most of the team members had not worked together on a project of this magnitude. As one participant reflected:

I’m not a nurse, so I don’t always have a chance to work closely with the other educators, with the team to develop things. It was a really good experience in that sense because I …connected to the group in a way that we each had something different to bring to the table and that was a very valuable experience for me
personally...to have an opportunity even just interact with other educators is a great plus. (Interview D, Dec. 19, 2005)

It became apparent that the project was more about establishing relationships than about developing computer technology. Tuckman's (2001) framework provided insights into team development, and helped the researcher anticipate the team development issues that arose.

The Need for Support and Protection

Schein's (1999) model was useful for directing attention on the support systems that needed to be put into place for the e-Curriculum team to succeed. According to Schein, if team members are to work together effectively, they must be feel psychologically safe. This notion contributed to the conceptualization of the "sandbox" metaphor to illustrate the need for a safe space to read, experiment, discuss, and learn. His model proved invaluable in identifying what could be done while the team was struggling with learning about both the computer technology and the new pedagogy, and how they could support each other.

Using Schein's (1999) framework also provided insights into the larger organizational issues that influenced both team development and workload. Schein advocates for consistent organizational systems and structures in order to support the implementation of a change. When the e-Curriculum project (and the larger LMS implementation project) was not listed as a larger corporate-wide initiative, it was demotivating for the team. This can, in part, be related to a lack of consistency across the larger organization.

Workload Issues
Workload became a large issue for team members. Despite the consideration to workload issues when selecting e-Curriculum Team members, it soon became apparent that workload was to be a continuing topic of concern. One member summed it up by noting,

I think when you work right in the environment that you are responsible for, which is a great thing, your time is never your own. You can shut the door if you want, but they’re still going to knock on the door, and you’re still going to get pulled out into the unit. Even when I tried to give myself a 4-hour block of time where I was focused on that, the interruptions just took your mind away from it and made it difficult. (Interview B, December 15, 2005)

While recognizing that the project would add to an already heavy workload, there was little that could be done to remove or redistribute existing workload for the educators involved in the project.

*Modifying Existing Practice*

The project challenged the educational philosophies of e-Curriculum Team members and this was the most difficult issue for team members to address. Although receptive to new ways of doing things, team members recognized that they would need to spend time unlearning past practice. One team member summed this up well by saying,

It’s not as simple, and you know this has come up in our meetings, several times, where we said it’s not about taking a PowerPoint presentation and plopping it into an e-learning format and calling that e-learning, that’s not as I see it—it doesn’t speak for itself. (Interview D, December 19, 2005)
In addition to readjusting their educational practice, e-Curriculum Team members were faced with learning new software. While all team members were technologically literate, they still struggled with using a piece of software they had never used before. It did not help that the software was not intuitive and did not use basic software conventions that could be found in common programs such as Microsoft Word or PowerPoint.

These findings are not completely unexpected as they represent the complexity of implementing organizational change, learning new computer software, and changing educational practice in a large organization with competing priorities. It is important to recognize that with careful pre-planning, some of these issues can be minimized, but the reality of the healthcare environment and the organization being studied is difficult to overcome.

Implications for Theory

Various frameworks guided this research at different points. The initial selection of the e-Curriculum team, whose work was the focus of the study, was guided by both Saye’s (1998) and Lane’s (1996) conceptual models. In so far as the team stayed together, and achieved its primary goal, this research suggests the models, when combined, are useful for identifying individuals likely to succeed in developing e-Curriculum units. Pre-disposing factors as identified by Saye included: a high tolerance for uncertainty and experimentation, a student-centred focus, and disposition toward the creation of classroom climates that are open, flexible and experimental. Teaching characteristics, as identified by Lane included: flexible, adaptable, highly abstract and
conceptual, and analytical. This research, then, suggests a combination of these two frameworks may be useful for selecting participants for e-learning development projects.

As the research progressed, it became apparent that Tuckman's (2001) stages of group development helped the researcher focus more specifically on group dynamics, and anticipate and explain some of the frustrations and accomplishments of the group. For example, the storming that occurred during the first scheduled days of software training was eventually replaced by norming and performing, as the group developed the technical skills required to complete their tasks. This supports the work of scholars like Morgan, Salas, and Glickman (2001), and Caple (1978) who direct attention on the importance of interpersonal team functions, and advocate for a focus on teamwork skill development.

One question this research explicitly sought to address was the extent to which Schein's (1999) eight steps for creating psychological safety would inform the research. This framework helped the researcher to understand the discomfort team members experienced, and focus attention on the need for the following: establish a compelling vision; create consistent support structures and systems; involve learners in training design; offer opportunities for informal training; provide coaching and feedback; model new behaviours; form support groups, and offer formal training.

Finally, the theoretical framework that evolved out of this research combines ideas from literature with research findings (see Figure 3). It directs attention around three areas: initial planning for implementation, establishing selection criteria for team members, and creating a sandbox to play in. Planning for implementation focuses attention on: assessing organizational readiness for e-learning; creating a vision for the
project; securing resources including time, space, computer technology, and money; developing a project structure that includes a sponsor and project leader, and two teams: one for project tasks and one for e-curriculum development; using project management methodology and setting manageable timelines, assigning tasks, and allocating project resources.

As noted above, the combination of Saye’s (1998) and Lane’s (2001) frameworks provided selection criteria for team members. The creation of a sandbox is needed to ensure the team has a safe space to read, experiment, discuss, and learn. While in the sandbox, team members can develop both technical and team skills. In Figure 3, arrows are used to note the relationship between the various components of the framework. The arrows attempt to override the barriers (lines) between the layers of the model, just as relationships do in real life. Planning for success should be addressed before the project is under-way, as it lays the foundation for implementation. Selecting the team, creating the “sandbox,” and implementing the software can be worked on simultaneously once the project plan is in place, which is why they are placed them within a separate circle. At all times the project must be supported and protected from external environment pressures.

Implications for Practice

This research suggests the following implications for practice.

- Assess the organizational readiness for e-learning and begin to plan as soon as possible. It will require time, physical space, computer software, and people dedicated to making it happen.
Figure 3. Wingfield's (2006) proposed framework for the organizational implementation of e-learning.
• Do not underestimate the pain of unlearning current educational practice. E-learning will challenge educators to think differently about how they plan, develop, and deliver education. Be prepared to spend time discussing and testing assumptions about current and future practice. Give them time to experiment and discuss their pain, fear, and theories about the change in practice.

• Give educators involved in the change an opportunity to test and retest their abilities and their preconceived notions about e-learning before implementation. Provide them with a sandbox to play in and a group for support and discussion. Put aside time to read about e-learning, experiment, play with the software, test assumptions, and redo work.

• Try to maintain a balance between moving forward on the implementation and the organizational issues that will distract from this. Protect your time and that of your colleagues as much as possible from these organizational pressures. Build and maintain solid working relationships with your project sponsor in order to safeguard the project and protect it as much as possible from external organizational issues.

• Recognize the limitations of the software you have purchased. Work with the vendor to change what is essential to support learners and create sound education practice; do not worry about things that will not significantly affect the end-users. Learn from other organizations that use the same software. Keep in mind that everything you change will impact something else and this will add time to the project.
These lessons, while seemingly self-evident, were lessons that were reinforced throughout the case study because the e-Curriculum Team struggled with all of them. A change to pedagogical practice is easier to describe, write about, and even read about, than it is to live through, and these lessons reflect the common truths the team was faced with.

Implications for Research

This case study had a definite beginning and end. It would now be interesting to study the implementation of the e-curriculum and assess learner reaction to the newly implemented e-curriculum units. Questions could include: Do learners perceive that they have more control of their learning? Do they appreciate the increased flexibility? How effective do they find the e-curriculum units? What other units, if any, would they like to see developed? To what extent does the e-curriculum provide social, cognitive and teaching presence? What suggestions for improvement do learners have? These would be excellent questions to study in the context of the learning management system implementation, as there is very little information in the literature regarding successful e-learning implementation in a large hospital setting.

In addition, the continuation of this research would make an excellent longitudinal study that could focus on how the educational practice of the educators evolved over the first few years of the LMS software implementation. Questions of interest could include: Did healthcare educators embrace the LMS? How did it change their educational practice and their basic assumptions about teaching and learning? Did it shift their workload from teaching and managing mandatory learning to teaching the things they were experts in, such as nursing practice and patient safety? What e-learning modules
were developed over time to support the transition to an e-learning environment? Such research could inform policy and practice in health science centres.

Further research could also be undertaken to determine how an e-learning module is deployed to learners in a hospital setting, from the choice of content through the actual development process, to testing and implementation. What hospital-based content should be delivered in an e-learning format? How should it be chosen? What are the steps in the development process? What type of learners should the e-learning module be tested with before full deployment? What is the ideal length of an e-learning module in a hospital environment? These are all questions that the e-Curriculum Team struggled with in this case study.

Researcher’s Reflections

This has been an incredible period of personal growth. Leadership is difficult in the best of circumstances, and to lead a team responsible for developing a new pedagogical approach provided an interesting professional challenge. The interplay of team dynamics, personal development, professional learning, and organizational change provided a fascinating learning opportunity.

I was fortunate to combine this research with my professional responsibilities at the academic health sciences centre. Initially I thought it would be easiest to structure my research project around my work in order to provide balance for me, my work, and my family. Although it was a good choice, in some ways my research consumed my every waking hour—I lived it at home and at work. I was enveloped by the need to examine everything in the context of my research, and at times I drove myself crazy with my constant search for meaning in everything that happened during the course of the case
study. However, because of my involvement in this search, my capacity for reflection and self-examination has been strengthened. I ask more questions. I no longer worry about the answers, as I am more comfortable living with the ambiguity of the present, as I know most of the answers to my questions will eventually arrive, often in places and at times I cannot possibly anticipate.

Being able to study e-learning in depth has allowed me to focus on the parts of my educational practice I know I need to develop further. I have always enjoyed using computer technology but now realize that I need to become much more technologically literate in order to become involved in projects such as this one. My desire to learn more about the theory of e-learning must also be grounded in the reality of practice, and I struggle with this daily. I assess articles for their relevance to my practice and seek out further learning that will stretch my knowledge of computer technology and allow me to better understand how it can influence educational practice.

My research skills have been strengthened, and my confidence in my own research abilities has increased. As I developed my research strategy for this work, I used the time to explore many research strategies and even tested some of them with smaller projects I was working on at the time. I can now discuss various aspects of research with my colleagues, many of whom are accomplished researchers, and not feel intimidated or frivolous. I read constantly, seeking to know more about my own educational practice using the perspective of others' experiences. I read every call for conference abstracts that crosses my desk and encourage colleagues and coworkers to consider submitting a proposal for the work they are doing. I have become an advocate for research within my own profession and my own organization.
I have worked with and developed relationships with some amazingly brilliant people throughout my Master’s coursework and my research project. They have pushed me to greater heights, and without them I would not have reached this point in my professional development. They have made me realize that I can do this and not feel overwhelmed by knowledge or out of place in a world of continuous learning. I am grateful to them, as they helped me learn more about myself and my abilities as a learner. The members of the e-Curriculum Team must be included in this list of brilliant people, as they were exceptional team members to work with on this project. At several points during the case study, I wrote in my research journal about the relationships with the people I was working with and commented on the fact that it wasn’t all about computer technology, but it was all about relationships. I still strongly believe this and know that these relationships will support me throughout the rest of my professional career.

Final Thoughts

Several times during the course of this study, I concluded that it is all about building relationships. Whether the relationships are with others on the team or with those outside it, the important thing is that you need to connect in a meaningful way with others. The computer technology that can be used to do this is no different from using your voice or drawing a picture, as you just need to be aware of the shortcomings and strengths of the tools you are using. Whether you are a learner or a facilitator of learning, you develop a relationship with at least one other person, even if the method of learning restricts you in some way.

I am on a journey where relationships are essential. They have accelerated my learning, given me new lenses with which to see things differently, and have caused me
to question my own assumptions. Without these relationships, I would have never had this unique opportunity to lead such a dynamic project, and I am thankful that I was invited to be a part of this team.
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Appendix A

Theories Used to Guide the Selection of e-Curriculum Team Members

*Technology use in the classroom continuum:* From Saye (1998, p. 225), this continuum describes teacher receptiveness and acceptance to the use of technology as a teaching tool in the classroom.

<table>
<thead>
<tr>
<th>Accidental Tourist</th>
<th>Voyageur</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Desire for predictability, control, structure</td>
<td></td>
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<tr>
<td>• Lesson focus: teacher-centred, lower-order thought, coverage-oriented, discrete facts</td>
<td></td>
</tr>
<tr>
<td>• Climate: structured, orderly, predictable, quiet</td>
<td></td>
</tr>
<tr>
<td>• High tolerance for uncertainty, experimentation</td>
<td></td>
</tr>
<tr>
<td>• Lesson focus: student-centred, higher-order thought, process-oriented, integrated knowledge</td>
<td></td>
</tr>
<tr>
<td>• Climate: open, flexible, experimental, playful</td>
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</table>

*Lane's conceptual model for development of healthcare educators:* From Lane (1996, p. 253), this model shows the characteristics of healthcare educators as they develop expertise in their role.
Appendix B

Schein’s (1999) Steps for Creating Psychological Safety

- This graphic shows the relationship between all eight steps. Schein believes that all eight steps must be implemented at the same time in order to increase psychological safety, decrease learning anxiety, remove disconfirmation, and allow change agents to move forward with the introduction of organizational change.
1. Create a compelling vision that is articulated and widely held by the senior decision-making team.

2. Provide formal training that helps targets of change "learn new ways of thinking, new attitudes and new skills" (p. 125).

3. Involve the learners in designing the formal learning training so that it appeals to all learning styles.

4. Informal training and practice "must be provided to whole groups so that new norms and new assumptions can be built jointly" (p. 125).

5. Provide learners an opportunity to practice by giving them "the time, the resources, coaching, and valid feedback" on their progress (p. 125).

6. Model the new way of thinking and behaviour so that others can see it and imagine themselves doing it.

7. Form support groups so that problems "connected with learning are aired and discussed" (p. 125).

8. Create consistent systems and structures so that the message regarding the change is consistent and widely held.
## Appendix C

### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAI</td>
<td>Computer-aided instruction, which is an approach where computer-based instruction (e-learning) is used</td>
</tr>
<tr>
<td>CAL</td>
<td>Computer-aided learning, see CAI</td>
</tr>
<tr>
<td>CBL</td>
<td>Computer-based learning, see CAI</td>
</tr>
<tr>
<td>CBT</td>
<td>Computer-based training, see CAI</td>
</tr>
<tr>
<td>CD</td>
<td>Compact disc, a medium used to store compressed computer data</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>Compact disc with read-only memory, a medium used to store compressed computer data that cannot be changed or altered</td>
</tr>
<tr>
<td>CMI</td>
<td>Computer-mediated instruction, see CAI</td>
</tr>
<tr>
<td>CML</td>
<td>Computer-mediated learning, see CAI</td>
</tr>
<tr>
<td>CP&amp;E</td>
<td>Clinical Practice and Education, the service responsible for staff education at the academic health sciences centre</td>
</tr>
<tr>
<td>CP&amp;E Leadership Team</td>
<td>Clinical Practice and Education Leadership Team, the management team for the education service. Comprised of one director and three education coordinators, each responsible for a functional area of the education service.</td>
</tr>
<tr>
<td>F2F</td>
<td>Face-to-face, representing the classroom environment or person-to-person dialogue without the use of a computer</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technologies, the services responsible for computer and communication technology at the academic health sciences</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>---------</td>
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<tr>
<td>centre</td>
<td></td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network, a network of computer-based devices linked together for the purpose of communication, usually within an organization and in close physical proximity to each other</td>
</tr>
<tr>
<td>LMS</td>
<td>Learning Management System, computer software designed to organize, manage, and track learning encounters</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse, a health professional who is a licensed nurse and who adheres to a code of professional conduct</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network, a network of computer-based devices linked together for the purpose of communication, usually not in close physical proximity to each other</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System, a classification system for hazardous materials used in the workplace</td>
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</tbody>
</table>
Appendix D

LMS Implementation, E-curriculum Development Project

e-Curriculum Team Member Role Description

The e-Curriculum Team will meet as negotiated over the course of the pilot phase of the LMS implementation. This will be approximately 6 months. The team will use an action research methodology, which can be shown by the following cycle adapted from Susman (1983):


The person in this role would be:

- A member of Clinical Practice and Education,
- An experienced healthcare educator,
- Technologically literate, and
- A representative of a larger constituency of the organization.
  - Type of learner taught
  - Type of clinical specialty
The person in this role would collaborate with other healthcare educators on the e-Curriculum Team to:

- Meet, either once a week or once every other week, as negotiated with the other members of the e-Curriculum Team;
- Recommend a project pilot area for e-learning and pilot e-curriculum;
- Work with the LMS project team to develop e-curriculum for the project pilot;
- Develop and implement a procedure and process for the development of priority e-learning e-curriculum;
- Identify prioritized e-curriculum to be developed after the pilot phase is completed;
- Develop and implement an ongoing evaluation strategy for e-learning offerings, and;
- Mentor other healthcare educators in order to develop their practice with respect to the use of e-learning.

References

On Action Research Methodology

http://www.scu.edu.au/schools/gcm/ar/arm/op000.html

http://www.web.net/~robrien/papers/arfmal.html

http://physicsed.buffalostate.edu/danowner/actionrsch.html
http://www.nald.ca/clr/action/contents.htm

On Learning Management Systems

http://www.clomedia.com/content/templates/clo_feature.asp?articleid=91&zoneid=29

http://www.elearn.space.org/Articles/lms.htm


On Technological Literacy:

http://www.sasked.gov.sk.ca/docs/policy/cels/e15.html

Appendix E

Interview Schedule for e-Curriculum Team Participants

1. Before you started working on this project, how did you use technology in your own educational practice? Any examples?

2. Has working on this project influenced the way you use computer technology? How?

3. Can you describe the process that the e-curriculum development team used to identify and develop e-curriculum for the pilot?

4. Why did you choose to develop the specific piece of e-curriculum that you worked on?

5. How difficult was it to develop that e-curriculum? Why?

6. How do you feel the learners will like the e-curriculum chosen for the pilot?

7. What would you change about the way the team worked during the last six months?

8. How are you planning to work with other educators who are not currently using the technology in the practice? How will you influence them to use it?

9. Overall, how do you feel about the e-learning project and the work the e-curriculum development team accomplished?

10. What do you feel are the next steps for this project?
Appendix F

Learning Management Software Implementation Project:

Journey of The e-Curriculum Team

Learning Management Software Implementation Project - Journey of the Educator Team

- Learning Management Software purchased
- Implementation strategy identified
- Educator Team selection criteria identified
- Educator Team members identified by Ad-hoc planning team based on criteria
- Ad hoc planning team meets with vendor

- Pre-Forming Pre-Tuckman Stage One
- Educator Team membership confirmed

- Forming Tuckman Stage One
- Visioning session for project held; prospective Educator Team members invited

- Educator Team role description developed
- Prospective Educator Team members approached for their involvement

- January 2005
- February 2005
- March 2005
April 2005

**Forming Tuckman Stage One, Continued**

1. **Educator Team role description** sent to all confirmed team members

2. **Educator Team role description and first meeting date** sent to all team members

3. **First meeting of Educator Team** and review of team expectations

May 2005

1. **Educator Team** explores various curricula and suitable pilot groups

2. **Development day** on e-learning for all CP&E staff

June 2005

1. **Storming Tuckman Stage Two**

2. **Software training Session #1 and #2** for **Educator Team**

3. **Educator Team** provides feedback to vendor regarding training session

4. **Project Team manager** from ICT department assigned

5. **Project Team** formed; 3 members of Educator Team plus project manager

6. **Project Team** works on development of project plan

July - August 2005

1. **Educator Team** reviews work done to date by all team members

2. **Project Team** continues to refine project plan
Storming Tuckman Stage Two, continued

September 2005
Norming Tuckman Stage Three

October 2005

Educator Team continues to review work done by team members
Parallel Project Process
Project Team works to prepare web page access for learners
Project Team enters learner data in system
Project Team works to configure system and prepare for pilot
Project Team requests 3 minor changes from vendor
Project Team is ready to pilot; software not ready from vendor's end

Educator Team decides on pilot curricula and pilot groups

November 2005

Educator Team confirms curricula

December 2005

Performing Tuckman Stage Four

Educator Team meets with project champion to discuss organizational issues

Educator Team tests software with endusers and incorporates relevant feedback

Educator Team works on Pilot Phase 2 curricula

Project Team decides to move forward with pilot despite issues with software

Pilot content is assigned to approximately 70 learners in CP&E

Educator Team decides on next curricula to be developed

Software training session #3 for Educator Team

Project Team enters learner data in system

Project Team requests 3 minor changes from vendor

Project Team is ready to pilot; software not ready from vendor's end
## Appendix G

### Timeline for Data Gathering and Analysis Activities

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>How Data Are Gathered/Analyzed</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2005</td>
<td>N/A</td>
<td>Approvals granted by both Brock University and multisite academic health sciences centre Research Ethics Boards.</td>
</tr>
<tr>
<td>Late April 2005</td>
<td>Meeting minutes, Researcher’s journal</td>
<td>Initial meeting of e-Curriculum Team, at which time they negotiated that their meetings were two-hour bi-weekly meetings for the duration of the pilot phase of the software implementation. The researcher was a member of this team.</td>
</tr>
<tr>
<td>Late April 2005 to October 2006</td>
<td>Meeting minutes, frequency determined by the collaborative e-Curriculum Team, Researcher’s journal</td>
<td>Pilot phase of e-curriculum prioritization and development by the e-Curriculum Team. The team was responsible for developing a protocol for prioritization of e-curriculum development, identifying priority e-curriculum to be developed, preparing e-curriculum for at least three pilot areas. Participants were approached for their informed consent once the appropriate Research Ethics Boards reviewed and approved the applications for this project.</td>
</tr>
<tr>
<td>Timeframe</td>
<td>How Data Are Gathered/Analyzed</td>
<td>Activity</td>
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<tr>
<td>---------------------------</td>
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<td>--------------------------------------------------------------------------</td>
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<tr>
<td>Late April 2005 to December 2006</td>
<td>Researcher’s journal</td>
<td>Pilot phase of software implementation project. The project team were responsible for developing a project plan for all infrastructure related to the software (installing the hardware, configuring the software, developing user profiles, passwords, etc.). The project team also carried out the project plan for the pilot phase of the implementation. The researcher was a member of this team.</td>
</tr>
<tr>
<td>December 2005 to March 2006</td>
<td>Meeting minutes, Researcher’s journal</td>
<td>Pilot of learning management system and e-learning software in three areas negotiated between the Project Team and the e-Curriculum Team.</td>
</tr>
<tr>
<td>December 2005</td>
<td>Researcher’s journal, Interviews</td>
<td>45 minute interviews with consenting members of e-Curriculum Team. Participants were approached for their informed consent once the pilot phase of the e-learning system was finalized.</td>
</tr>
<tr>
<td>January to April 2006</td>
<td>Data analysis</td>
<td>Review of data sources, organization, and analysis of data.</td>
</tr>
<tr>
<td>April 2006 to December 2006</td>
<td>Report preparation</td>
<td>Initial draft presented to thesis advisor, August 2006, made available to internal examiners in</td>
</tr>
<tr>
<td>Timeframe</td>
<td>How Data Are Gathered/Analyzed</td>
<td>Activity</td>
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<tr>
<td></td>
<td></td>
<td>December 2006</td>
</tr>
<tr>
<td>April 2007</td>
<td>Presentation of report</td>
<td>Presentation to thesis committee.</td>
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</table>