



# Université d'Ottawa - University of Ottawa

## PERMISSION DE REPRODUIRE ET DE DISTRIBUER LA THÈSE

## PERMISSION TO REPRODUCE AND DISTRIBUTE THE THESIS

<b>NOM DE L'AUTEUR / NAME OF AUTHOR:</b>	THOMPSON, Terrie Lynn
<b>ADRESSE POSTALE / MAILING ADDRESS:</b>	136 HUNTERS GLEN CRESCENT OTTAWA ON K1T3R2
<b>GRADE / DEGREE:</b>	<b>ANNÉE D'OBTENTION / YEAR GRANTED</b>
M.A. (Education)	2003
<b>TITRE DE LA THÈSE / TITLE OF THESIS:</b> EVEN A VIRTUAL SYNCHRONOUS CLASSROOM HAS WALLS: THERE'S MORE TO COLLECTIVE MEANING MAKING THAN THE TECHNOLOGY	

L'auteur permet, par la présente, la consultation et le prêt de cette thèse en conformité avec les règlements établis par le bibliothécaire en chef de l'Université d'Ottawa. L'auteur autorise aussi l'Université d'Ottawa, ses successeurs et cessionnaires, à reproduire cet exemplaire par photographie ou photocopie pour fins de prêt ou de vente au prix coûtant aux bibliothèques ou aux chercheurs qui en feront la demande.

The author hereby permits the consultation and the lending of this thesis pursuant to the regulations established by the Chief Librarian of the University of Ottawa. The author also authorizes the University of Ottawa, its successors and assignees, to make reproductions of this copy by photographic means or by photocopying and to lend or sell such reproductions at cost to libraries and to scholars requesting them.

Les droits de publication par tout autre moyen et pour vente au public demeureront la propriété de l'auteur de la thèse sous réserve des règlements de l'Université d'Ottawa en matière de publication de thèses.

The right to publish the thesis by other means and to sell it to the public is reserved to the author, subject to the regulations of the University of Ottawa governing the publication of theses.

N.B. LE MASCULIN COMPREND ÉGALEMENT LE FÉMININ

May 02/03

DATE

Terrie Lynn Thompson

(AUTEUR)

SIGNATURE

(AUTHOR)



Université d'Ottawa • University of Ottawa



# Université d'Ottawa • University of Ottawa

FACULTÉ DES ÉTUDES SUPÉRIEURES ET  
POSTDOCTORALES

FACULTY OF GRADUATE AND  
POSTDOCTORAL STUDIES

THOMPSON, Terrie Lynn

AUTEUR DE LA THÈSE - AUTHOR OF THESIS

M.A. (Education - conc.: Psychopedagogy)

GRADE - DEGREE

Faculty of Education

FACULTÉ, ÉCOLE, DÉPARTEMENT - FACULTY, SCHOOL, DEPARTMENT

TITRE DE LA THÈSE - TITLE OF THE THESIS

Even a Virtual Synchronous Classroom Has Walls:  
There's More to Collective Meaning Making Than the Technology

Colla Jean MacDonald

DIRECTEUR DE LA THÈSE - THESIS SUPERVISOR

EXAMINATEURS DE LA THÈSE - THESIS EXAMINERS

J. Ahola-Sidaway

M. Taylor

J.-M. De Koninck, Ph.D.

LE DOYEN DE LA FACULTÉ DES ÉTUDES  
SUPÉRIEURES ET POSTDOCTORALES

SIGNATURE

DEAN OF THE FACULTY OF GRADUATE  
AND POSTDOCTORAL STUDIES



Even a Virtual Synchronous Classroom Has Walls:  
There's More to Collective Meaning Making  
Than The Technology

by

Terrie Lynn Thompson

Submitted to the Faculty of Graduate and Postdoctoral Studies  
at the University of Ottawa  
in partial fulfillment of the requirements for the degree of  
Masters of Arts in Education

© Terrie Lynn Thompson, Ottawa, Ontario, Canada, 2003



National Library  
of Canada

Acquisitions and  
Bibliographic Services

395 Wellington Street  
Ottawa ON K1A 0N4  
Canada

Bibliothèque nationale  
du Canada

Acquisitions et  
services bibliographiques

395, rue Wellington  
Ottawa ON K1A 0N4  
Canada

*Your file Votre référence*

*Our file Notre référence*

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-79376-1

Canada

## Acknowledgements

Just as I explored communities of practice in my research inquiry, creating this thesis reflects the collective support and vital threads of connectivity provided by the many communities to which I realize I belong.

I feel especially fortunate Dr. Colla Jean MacDonald was my mentor. Her confidence in me, Maritime candor, anticipation of roadblocks, great sense of humor, and unerring focus on the end product guided me along the way. The opportunities to work with her as an RA and TA enriched this research inquiry and created possibilities to explore the e-learning field from different perspectives.

My committee pushed me to question and reflect. Their feedback, provocative questions, and unflagging attention to detail strengthened my work. I am honored to have worked with Dr. Janice Ahola-Sidaway and Dr. Maurice Taylor. Each brought unique and valuable perspectives and through our conversations I learned about being a researcher.

Even as they kept asking when I would be finished, my family and friends understood what this challenge meant to me. They encouraged, empathized, and helped me keep it in perspective. Knowing I was not alone in this adventure was very important. Special thanks to my brother Trent who became my 24-hour tech support and made sure I was well equipped to research leading edge e-learning technologies even with a “butter knife” computer. I am also very lucky to have two wonderful “triad members”, legacies of a qualitative research class: Christine Pinsent-Johnson and Claire Smith. Over coffee (or wine), they listened to my evolving ideas, commiserated over set backs, and cheered me on.

I am grateful to the participants in this study for letting me be part of their world. They took time out of busy workdays to share their insights and challenges. Their ideas, stories, and questions were generous gifts that brought this thesis to life.

My husband Ian – the winds beneath my wings – made this incredible opportunity to be a student possible by so unselfishly creating the space and place for me to pursue this work. I loved celebrating each milestone along the way with you. Thank you.

## **Abstract**

The parade of new technologies is relentless. Are newer learning paradigms, such as sociocultural perspectives, reflected in the design and delivery of e-learning experiences? Studying the triad of stakeholders involved in a workplace e-learning experience - learners, adult educators, and software developers – I explored how technology, workplace context, and assumptions about learning influence collective meaning making. The setting for this qualitative case study was a multi-national organization using a sophisticated web-based technology.

Multiple data collection methods helped construct a multifaceted understanding of teaching and learning in the virtual synchronous classroom (VSC). The findings point to the gap between contemporary learning research and the use of e-learning technologies, highlighting that the human and contextual dimensions ultimately define the nature of the learning. Through communities of practice, sociocultural perspectives allow us to envision how the VSC could shape more dynamic learning that extends beyond the walls of a classroom – physical or virtual.

# Table of Contents

<b>Chapter 1: Introduction</b>	1
Purpose Statement	2
Conceptual Context	3
About This Thesis	5
<b>Chapter 2: Literature Review</b>	7
Sociocultural Learning Theory	10
E-Learning	15
Contextual Factors	23
Critique	27
Research Questions	29
<b>Chapter 3: Inquiry Strategies</b>	31
Overall Approach and Rationale	31
Site and Participant Selection	32
Data Collection	38
Data Management and Analysis	43
Voice and Representation	47
Situating Myself as Researcher	50
Limitations of the Study	52
Soundness of the Findings	54
<b>Chapter 4: The Characters, Context and Event</b>	56
Profiles	56
The Organizational Context – Consulting Company (CC)	65
The Virtual Setting – WebClass (WC)	69
Delivery Training (DT)	73
The Event	76

<b>Chapter 5: Themes</b>	97
Evolution not Revolution	97
Tensions and Trade-offs	102
Adjustment	106
Online Presence	110
The Virtual and Physical Converge	114
<b>Chapter 6: Discussion</b>	117
Q1: How do the key stakeholders in a VSC describe their experience?	118
Q2: What are the key stakeholders' impressions and attitudes about learning in the VSC?	124
Q3: How do factors such as assumptions about teaching and learning, workplace context, and the technology influence collective meaning making in the VSC?	127
Research Questions: What happens in a VSC? How is a sociocultural perspective reflected in what takes place in a VSC?	134
<b>Chapter 7: Conclusion</b>	142
This Study's Contributions	142
Recommendations for Research	145
Recommendations for Practice	146
Recommendations for Organizations	147
Beyond the Walls of a VSC	148
Endnotes	151
References	153
Appendix A: Recruitment e-mail	167
Appendix B: Consent Letters	168
Appendix C: Background Questionnaire	174
Appendix D: Interview Guides	177
Appendix E: Document Inventory	185
Appendix F: More about the VSC Technology	187
Appendix G: Delivery Training Course Outline	189

## Chapter 1 Introduction

With advances in software and more robust networks, the parade of technologies used to create new learning opportunities seems to be continuous. Are newer learning paradigms reflected in the design and delivery of these e-learning experiences? Despite assertions that the Web necessitates new learning models, my experiences in various online learning events as a learner, facilitator, and curriculum designer lead me to question whether our design of e-learning is actually keeping pace.

Sfard (1998) states that the learning field is in a state of perturbation. Calls for new learning paradigms come not only with the rise of e-learning. Changes in the workplace and transformation of learning itself also create new challenges. In light of demands for agile organizations comprised of innovative knowledge workers (Duderstadt, 1999; Goldman, Nagel, & Preiss, 1995) traditional teaching and learning models seem to be inadequate. The pervasiveness of the transmission model and its limitations are well documented, especially in the adult education literature (Brookfield, 1986; Brown & Duguid, 1991; Bruner, 1996; Dewey 1938/1970; Duderstadt; Horton & Freire, 1990; Knowles, 1980; Lindeman 1926/1961; Rogers, 1969; Wells, 2000). Fortunately, the literature also intimates that sociocultural perspectives are creating new visions of learning better suited to our changing world (Davydov, 1995; O'Connor, 1998; Trilling & Hood, 1999; Wells).

Epistemological shifts in the past decade have resulted in one of the most revolutionary changes in learning theory (Jonassen & Land, 2000) accompanied by innovative learning environments (Land & Hannafin, 2000). However, Trilling and Hood (1999) argue that current practice, which often does not match contemporary theory, reflects a large gap between what technologies can do and what they are doing. Annand (1997) argues that given the paucity of descriptive studies that explore the relationship of learning

theory and actual e-learning practice, the influence of educational philosophy on online instructional practice needs to be studied.

Recent studies have explored this gap. Rodrigues (2000) questioned the assumption that educational research and, in particular, constructivist views of learning actually influence online course design. Nicaise (1998) studied how social constructivist research and theory could be used to design a multimedia, interactive e-learning experience. Both researchers encountered significant challenges and strong prevailing misconceptions. Nicaise predicts substantial improvements when technological advances are better combined with learning research and theory.

Harasim (1990) states that in many cases, e-learning has been approached as either an “extension of distance education or as a variant of classroom activity ....neither is entirely adequate or accurate” (p. 42). Critical of recent e-learning products, Romiszowski and Chang (2001) caution that the development of e-learning environments is overly focused on replicating the conventional classroom and its well rehearsed strategies. Regrettably, the true innovation of redefining learning will be missed if we use these media only to convey information more efficiently rather than to explore more effective avenues for learning (Dede, 1996; Duderstadt, 1999).

#### *Purpose Statement*

In my role as an e-learning strategist and learning consultant I explore, evaluate and use a number of e-learning technologies, including the virtual synchronous classroom (VSC). Over the past two years I have engaged actively as a learner, facilitator, and instructional designer in this medium and have wrestled with questions of if and how the VSC, coupled with a sociocultural approach, could be used in corporate learning initiatives.

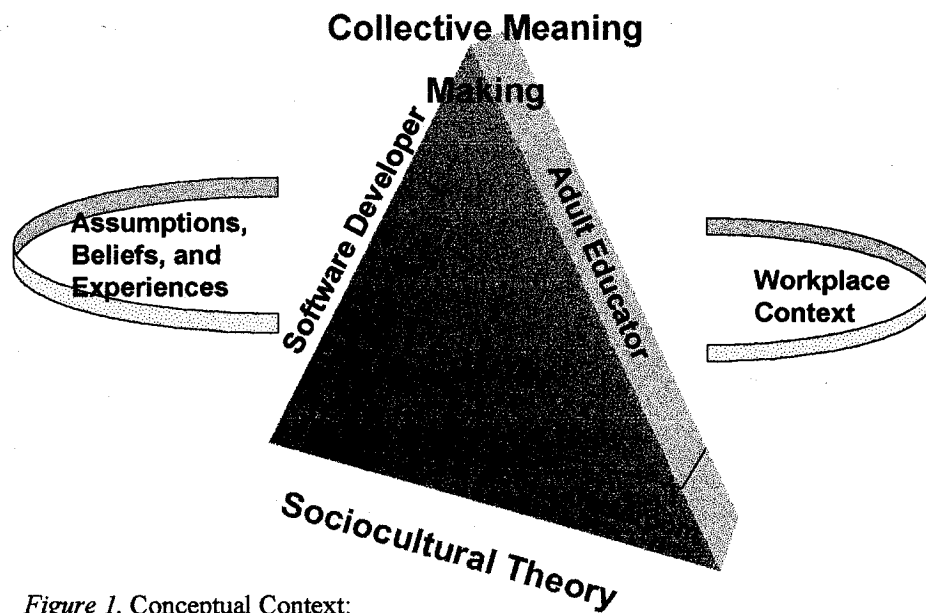
I am dismayed by the pervasiveness of “data dumps” – instructor-centered, one-way presentations of information to passive audiences – in both face-to-face (F2F) and online milieus. To me, learning should be a much more dynamic and fluid process. Although I have been involved in VSC events based on a sociocultural approach, in my experience, this is not the norm. My passionate belief that workplace learning has not yet reached its potential and can be more effective and meaningful is the force driving my interest in this area of research.

Wenger (1998) states that it is our “*conception* of learning that needs urgent attention” (p. 9). A central tenet of newer sociocultural learning paradigms is collective meaning making. When people participate in the creation of shared meaning they learn to think together and surface fundamental assumptions (Isaacs, 1993). As a result, the individual, as well as practice and the situation itself, can be transformed (Wells, 2000). Exploring the collective meaning making that unfolds in an e-learning experience may provide insight into what influence contemporary sociocultural thinking and research on teaching, learning, and knowing has on the design and use of e-learning technologies. Therefore, the purpose of this study is to explore what happens in one workplace VSC event and examine factors that influence collective meaning making from the perspective of key stakeholders: the learner, the adult educator, and the software developer.

### *Conceptual Context*

A conceptual context (Figure 1) built on a sociocultural view of learning and knowing guides this study and integrates three intellectual conversations: sociocultural theory, collective meaning making online, and the influence of assumptions and workplace context on learning. Consistent with a sociocultural perspective the apex of the model is represented by collective meaning making. Because meanings emerge through interactions

(Pea, 1993), collective meaning making is characterized by an “ethos of collaborative inquiry” (Wells, 2000, p. 65) supported by a sufficient “network of conversations” (Ford, 1999, p. 487). The learning environment in which this was explored was the VSC, which according to Masie (2003) is the fastest growing segment of the e-learning market. Described as the most technically sophisticated web-based training software, learners can hear each other in the VSC and see the same images on their computer screens, affording “collaborative learning in a real-time environment” (Driscoll, 1998, p. 52).



*Figure 1.* Conceptual Context:  
Collective Meaning Making in the VSC

Technology alone does not drive the success of online learning; human and social factors must also be considered (Brown, 1997a; Kaye, 1992, Salmon, 2000). The learner, adult educator, and software developer form the triad involved in an online learning experience and as such were the key participants in this inquiry. The literature suggests that an adult educator may guide the learning process from many vantage points including administrator, manager, program planner, or teacher (Buckley & Caple, 1990; Jarvis, 1995;

Kidd, 1973; Selman, Selman, Cooke, & Dampier, 1998). Therefore, the adult educators in this study include instructors as well as a business leader. The researcher is portrayed as a *passionate participant*, interested in the active construction and cocreation of intersubjective knowledge with this triad (Lincoln & Guba, 2000).

When investigating learning phenomena, Jonassen and Land (2000) point to the importance of attending to the setting as well as the tools learners use to make meaning. Taking into consideration that the learning process doesn't happen in a vacuum, this study probed the critical influences of the workplace as well as the eclectic array of beliefs about teaching, learning, and knowing that the triad carries with them to their online experience. Despite assertions that the Web finally enables a learner-centered approach (Duderstadt, 1999; Kearsley, 2000; Passerini & Granger, 2000; Perkins, 1991; Van Gorp, 1998), assumptions held by both the learner and educator may help uphold the transmission model, in spite of new media.

#### *About This Thesis*

This case study unfolds in seven sections. Chapter One has introduced and situated this study as well as described its purpose and the conceptual context that guided its development. In Chapter Two the research questions emerge from a comprehensive review and critique of the literature. The inquiry strategies used for data collection and analysis are then explained in Chapter Three. Issues such as voice and representation, critical in a post-modern constructivist study, are also explored. In Chapter Four, the participants, their context, and the VSC learning event are introduced and described. Chapter Five reveals five themes that highlight teaching and learning in this workplace VSC event. These themes are then synthesized with other scholarly work in Chapter Six to explore how the findings of the

present study extend, support, and question current literature. Finally, the contributions of this research study and its implications for future research endeavors and learning practitioners are outlined in Chapter Seven.

I would like to clarify three details for the reader. First, in this study, I use the phrases *e-learning*, *online learning*, and *web-based learning* interchangeably. Adapting Khan's (1997) definition of web-based instruction to reflect a sociocultural emphasis on learning, these terms refer to instructional experiences that utilize the Web to create a meaningful environment where learning is fostered and supported. These phrases may apply to synchronous or asynchronous learning experiences. *Synchronous* learning technologies enable same-time collaboration; events and interactions take place in real time (Driscoll, 1998; Kearsley, 2000; Marjanovic, 1999). In contrast, *asynchronous* technologies enable any-time, any-place collaboration; learners and facilitators are not necessarily online and interacting at the same time.

Second, acronyms are used to simplify a number of long phrases used extensively throughout this document. In some cases acronyms are used to help reflect the voices of the participants or to be consistent with conventional usage of similar terms elsewhere in the literature. Please refer to the Endnotes for a legend to these abbreviations.<sup>1</sup> Lastly, I use the words *event*, *session*, and *course* interchangeably to refer to a particular activity such as Delivery Training.

## Chapter 2 Literature Review

Guided by the conceptual context, the areas of research explored in this section are sociocultural theory, online collective meaning making, and the influence of assumptions and the workplace on learning. Three themes capture key points in the scholarly dialogue on e-learning in the workplace. As each of these ideas contributes to the formulation of the overall research questions, they will be explored briefly before moving into a more in-depth examination.

The first theme, *a new paradigm*, explores the notion that new technologies necessarily result in the realization of new learning paradigms. *A step forward*, the second theme, attempts to move the debate beyond the asynchronous vs. synchronous duality. In the third theme, *shaping by the triad*, discussion and exploration of e-learning transcends the technology suggesting that other considerations, especially the human dimension, must be taken into account.

**A New Paradigm:** A predominant theme is how emerging technologies offer new ways to conceptualize learning, creating a paradigm shift that will revolutionize how we work, think, and build knowledge (Canada, 2000; Gooler, 1990; Harasim, 1999; Hill & Hannafin, 1997; MacDonald, Stodel, Farres, Breithaupt, & Gabriel, 2001; Marjanovic, 1999; Passerini & Granger, 2000; Poole, 2000; M. Russell, 1999; Salmon, 2000). There is a strong sense that educational processes must “change dramatically, if for no other reason than to keep up with a rapidly emerging information-based society” (Firdiyewek, 1999, p. 34). Ostensibly this new generation of e-learning technologies provides richer learning environments (Daniel, 1996; Dede, 1999) that now allow interactive knowledge construction (Harasim; Van Gorp, 1998).

However, Dede (1996) warns that promising technologies can falter when confronted with the challenges of everyday practice. Land and Hannafin (2000) caution that few designers have “successfully negotiated the hurdles associated with transforming a highly traditional community of educational practice” (p. 16). In their comparative analysis of three different virtual asynchronous classroom (VAC) products, Villalba and Romiszowski (2001) found that although each had similar features to present content, there was divergence around features that enable online interaction and application of knowledge. Analyzing several courses that used these media they noted a lack of interactive learning activities, which they attribute to shortfalls in the media and lack of course design expertise. Investigating how a sociocultural perspective may be realized online could lead to valuable insights on our progress.

A Step Forward: Duderstadt (1999) suggests we are seeing a shift from *just-in-case* to *just-in-time* to *just-for you* education, paralleled by a shift from synchronous classroom-based instruction to asynchronous network-based learning to *ubiquitous* learning opportunities. Duderstadt uses ubiquitous learning to refer to a culture of learning in which people are “continually surrounded by, immersed in, and absorbed in learning experiences” (p. 25). He argues that this is a necessity in a world driven by an expanding knowledge base and need for continuous learning. Given this view, online synchronous learning could be regarded as a step backward - movement away from the ultimate goal of ubiquitous learning. Possibly it negates the anywhere-anytime freedom that the Web presumably provides. However, the significant difference seems to lie in process - *how* the online medium is used - not the medium per se (T. Russell, 1999).

Both asynchronous and synchronous modes have advantages and disadvantages and neither can address all learning needs (Burge, 1999; Harasim, 1990; Ingram, Hathorn, &

Evans, 2000). On the one hand, online synchronicity allows (a) context to be more easily built and maintained (Ahern & El-Hindi, 2000), (b) more dynamic and natural conversation (Hammond, 2000; Ingram et al.), and (c) less cumbersome learning (Shotsberger, 2000). On the other hand, Berge (1999) suggests that dense content is best managed asynchronously allowing the learner to mine it from different angles at different times as learning needs change.

The debate is moving beyond the duality of asynchronous vs. synchronous. For example, Driscoll's (2001) web-based learning matrix now includes individual and group learning modalities. Yet another level of complexity in this discussion is reflected in Firdyiwek's (1999) argument that it is the context in which the technology is used that determines the importance of any particular strength or weakness of a learning media.

Shaping by the Triad: Evolving to a new paradigm isn't just about using new media. Berge (1999) comments that synchrony forces a continued reliance and focus on the instructor. Perhaps it is not the synchronous learning technology that forces an instructor-centered approach. Assumptions held by both the learner and educator may help uphold the transmission model, in spite of new media. Although learners bring their own views of what constitutes legitimate teaching (Candy, 1991), Alavi, Wheeler, and Valacich (1995) state that the newness of interacting through an emerging technology may increase learners' engagement. Even though many asynchronous studies report that both instructors and learners adopt more learner-centered models (Ahern & El-Hindi, 2000; Harasim, 1999; Poole, 2000) these results could be due to the novelty of e-learning. Because a VSC is closely modeled on a F2F session, it may be all too easy to transplant existing practices into this new medium, perpetuating the much maligned transmission model.

MacDonald et al. (2001) caution that “technology is a valuable tool but to conceive of it as more than that gives it too much power in the learning process” (p. 13). Therefore Dede’s (1996) statement is apt: “the most significant influence on the evolution of distance education will not be the technical development of more powerful devices, but rather the professional development of wise designers, educators, and learners” (p. 34). Much has been written about the importance of reflecting on our assumptions in order to be an effective practitioner (Brookfield, 1986; Draper, 1993; Hunt, 1987; Mezirow, 1996). Learners, as well, need to work hard to identify tacit beliefs, values, and contextual factors that shape their understanding (Marsick & Neaman, 1996). Our stock of assumptions, prior learning, and experience coheres into an idiosyncratic filter through which new experiences are viewed (Vogel, 2000).

The literature review begins by exploring sociocultural learning theory – the conceptual foundation for this study. Emphasizing the importance of context and how we build understanding through practice, relationships with others, and activities, both social constructivism and situated learning bring contemporary epistemologies to this exploration of e-learning in the workplace. In the second section collective meaning making in an online context, particularly in the VSC, is examined. Key issues related to online collaborative learning are shared. Third, I delve into two influential factors in a learning experience: (a) assumptions we hold about teaching, learning, and knowing and (b) the workplace context. The insights gleaned from these three sections are then brought together in a final critique.

### *Sociocultural Learning Theory*

Within a constructivist perspective, individuals do not absorb knowledge, they construct it (Phillips, 1995). Although the process of individual meaning making is a central

tenet (Billett, 1998; Fenwick, 2000; Jonassen, 1991; Kauchuk & Eggen, 1998; Mezirow, 1996; Wenger, 1998), Barab and Duffy (2000) suggest that perspectives vary among constructivists. Increasing attention is now being paid to the ways in which understanding is socially and culturally constituted, the setting in which activities are embedded, and the balance between the collective and the individual (Kirshner & Whitson, 1997; Lave, 1997; O'Connor, 1998; Phillips). Various writers propose that a sociocultural perspective is useful in understanding adult learning (Fenwick; Knowles, Holton, & Swanson, 1998; Yakimovicz & Murphy, 1995).

Creating a simple typology, O'Connor (1998) identifies three clusters of social constructivist perspectives that address the social nature of learning. The first cluster explores the sociology of knowledge with an emphasis on the actual creation of what "passes for knowledge" (p. 27). In the second cluster the emphasis is on the learning process within a Piagetian framework, in which the focus is on the individual and the "collective is relatively backgrounded as part of the learning environment" (p. 37). The third cluster is based on Vygotsky's work that emphasizes the dynamic interaction between the collective and the individual. O'Connor includes situated learning in this cluster, stating that Lave and Wenger's (1991) work deepens the theorization of the social by placing learning outside the individual into a participation framework and by drawing attention to the dance between the newcomer and old-timer.

Others have also found the social constructivism and situated learning perspectives compatible (Billett, 1998; Brown & Duguid, 1991; Resnick, 1991; Salomon & Perkins, 1998; Wells, 2000). Barab and Duffy (2000) suggest that although situativity and constructivism have specialized languages, both are evolving concepts that share many similarities and a belief that knowledge is situated through experience.

Writing about situated learning, Lave (1993) argues that knowledge and learning are distributed throughout the “structure of persons-acting-in-setting” and cannot be pinned down to one person’s head, tasks, tools, or the setting. Instead, it is found in the “*relations among them*” (p. 9). Therefore, “knowing does not exist apart from the community, tools, and activity of a particular situation” (Fenwick, 2000, p. 267). The metaphor for knowledge creation becomes *participation* rather than *acquisition* (Salomon & Perkins, 1998; Sfard, 1998). In the course of learning, our ability to participate, belong, and negotiate meaning in practice and community is changed (Wenger, 1998).

Lindeman’s writings (1926/1961) on adult education over 75 years ago stressed similar premises about the importance of context and the interdependence of the individual and collective. These sociocultural themes are also found elsewhere. Schön (1987) states that rarely do we learn a practice on our own; we learn from the accumulated experience of others. Senge, Kleiner, Roberts, Ross, and Smith (1994) emphasize the need for collaborative inquiry on the job, believing that “until people can make their ‘work space’ a learning space, learning will always be a ‘nice idea’ – peripheral, not central” (p. 35). More recently, Thomas Brailsford, knowledge leadership manager at Hallmark Cards comments: “knowledge exists at the intersection of people, work, problems to be solved and work that needs to be done” (InformationWeek, 1999, ¶ 11).

Embracing communities of practice appears to be essential for the worker-learner. As Dede (1996) states, “individual attempts to make sense of complex data can easily fail unless the learner is encouraged by some larger group that is constructing shared knowledge” (p. 21). Created over time, a community of practice is a collection of individuals who share a repertoire of beliefs, tools, and discourse and are mutually engaged in the pursuit of a negotiated enterprise (Wenger, 1998). Trentin (2001) views communities of practice as

“self-managing virtual learning groups in which professional growth is based on ... experience-sharing, the identification of best practices, and reciprocal support for tackling day-to-day problems in the workplace” (p. 5).

Lave and Wenger (1991) refer to *legitimate peripheral participation* to characterize how newcomers become part of a community of practice. As the newcomer becomes more adept at participating meaningfully in particular practices, they move to legitimate roles within the community and join others in their situated activities (Fenwick, 2000; Lemke, 1997). Barab and Duffy (2000) suggest that participants are not simply learning what to do. Rather, they develop a sense of self in their work and learn what performance means, an understanding critical to becoming a full member. The goal is to *become* a practitioner and learn to function in a community, not learn *about* practice (Brown & Duguid, 1991).

#### *A New Teaching, Learning, and Knowing Paradigm*

Our institutions assume that “learning is an individual process, has a beginning and an end, is best separated from the rest of our activities, and is the result of teaching” (Wenger, 1998, p. 3). Based on positivism and behaviorism (Berge, 1998), the transmission model depicts learning as a process of internalizing knowledge; the *banking* concept of education (Freire, 1971). As Rising and Watson (1998) report, a common model of formal workplace learning is instructor-led classroom training in which “knowledge is imparted in the fashion of a download: instructors present information and learners are expected to absorb it” (p. 137). Merrill (1991) agrees that most of our instruction is this type of stand-up presentation that “everyone acknowledges as inadequate, irrelevant, incomplete” (p. 51).

What would a new paradigm encompass? Bruner (1996) argues that learning is best when it is “participatory, proactive, communal, collaborative, and given to constructing

meanings rather than receiving them” (p. 84). Knowledge as an entity is replaced with knowing as an action (Sfard, 1998). In meaning making the interdependencies between people, activities, artifacts, and context become critical (Lave & Wenger, 1991; Lemke, 1997; Wenger, 1998). Learning is no longer constrained by artificial limitations such as classrooms and curricula (Kearsley & Marquardt, 2001).

These sociocultural conceptions of learning build on substantially different ontological and epistemological foundations (Jonassen & Land, 2000). As Bruner (1996) illustrates in *The Culture of Education*, each model brings different assumptions about the learner and the learning process, positioning of the instructor, education goals, desired teaching practices, how competence is defined, and lastly, what knowledge is and how it is achieved. Jonassen and Land argue that adopting a sociocultural paradigm entails three fundamental shifts in thinking: (a) learning is a process of meaning making, not knowledge transmission; (b) learning is a dialogue; and (c) the locus of meaning is found in communities of practice, not the head of an individual.

In their exploration of situativity theories, Barab and Duffy (2000) distinguish between *practice fields* and communities of practice. Both support collaborative work with contextualized problems and opportunities to negotiate meanings through practice. Advocated by Senge et al. (1994) as a new corporate learning process, Barab and Duffy (2000) explain that in a practice field the learner is engaged in authentic tasks. In contrast, a community of practice offers participants a “sustainable community with a significant history in which to become enculturated” as they move from peripheral participant to core member (p. 40). They caution that although there have been many efforts to introduce the concept of community, they are not convinced that most capture the essence of

“development of self through participation in a community” but instead appear to be examples of practice fields (p. 35).

### *E-Learning*

This section begins with an exploration of collective meaning making. It then offers more in-depth insights on how this unfolds in a synchronous e-learning experience.

#### *Collective Meaning Making*

Jonassen and Land (2000) describe the process of meaning making as resolving the dissonance between what we know and what we want or need to know. Transformed from a personal to social activity, meaning making occurs through interactions with others as we share meanings (Kanuka & Anderson, 1998). Vygotsky's (1978) zone of proximal development is applicable to collective meaning making. Based on their abilities and network of resources, participants help each other learn and in the process achieve more than they would on their own (Bruner, 1996; Davydov, 1995; Wells, 2000). By clarifying and altering their beliefs, people attempt to make sense with, and for others, and in the process make sense for themselves (Bruner; Wells). Mediated by social interaction and language, “learning is facilitated through purposeful dialogue, verbalization of thought processes, ... and negotiation of meaning” (McLoughlin & Oliver, 1998, p. 129). Knowledge is therefore “constructed not by individuals but by an interactive dialogic community” (Longino, 1993, p. 112).

Collaboration is one collective meaning making process. It is a purposive relationship entailing shared creation: individuals interact to “create a shared understanding that none had previously possessed or could have come to on their own” (Schrage, 1995, p. 33). Studies on asynchronous learning validate the assertion that the Internet enables a

collaborative learner-centered approach. Ahern and El-Hindi's (2000) exploratory case study of a teacher education class used IdeaWeb software to support asynchronous collaborative discourse. Quantitative and qualitative data revealed a peer-oriented discourse; the 23 learners socially constructed their ideas. In extensive Virtual-U field trials over a three-year period, Harasim (1999) discovered a change in instructor roles noting they moved from information provider to more of a participant. She adds that in F2F sessions, instructors typically speak 80% of the time whereas in her study, it was the online learners who sent about 85% of the messages.

The way we collaborate continues to evolve (Chin & Carroll, 2000; Schrage, 1995). Schrage states that new collaboration technologies, a hybrid of text, video, sound, image, and computation, will move us beyond mere communication links. However, Marjanovic (1999) argues that the majority of these tools just enable communication not collaboration. In other words, we use technology to "*share an experience, rather than create a shared experience*" (Schrage, p. 23).

Chin and Carroll (2000) argue that collaboration is not simply a matter of providing the right tools. The cultural and social contexts within which the online interactions will occur must also be considered (Davies, 1995; O'Malley, 1995). Schrage (1995) suggests that it takes shared space to create shared understandings; space that is highly malleable, interactive, and creates a feeling of co-presence.

Several researchers talk about presence. Chin and Carroll (2000) describe it as how well learners experience the environment of their remote co-learners: "The richer the medium, the greater the sense of presence" (p. 238). Steuer (1992) refers to *telepresence* as "the extent to which one feels present in the mediated environment rather than the immediate physical environment" (p. 76). Conducting a quantitative study, Gunawardena (1995)

surveyed 160 graduate students participating in a ListServ-based distance education conference. Her analysis of the 17 bipolar scale questions led her to believe that the kind of interactions between participants and the sense of community created by the instructors impacted perceptions of the technology as a “social” medium. Defining social presence as the degree to which a person is perceived as *real*, she found that it can be cultured among participants and was not just an attribute of the medium.

### *Online Synchronous Learning*

Synchronous e-learning plays a unique role in providing just-in-time learning (Shotsberger, 2000) as well as extending or replacing F2F sessions, especially for geographically dispersed learners (Ingram et al., 2000). Driscoll (2001) suggests that a major benefit of the VSC is the ability to discuss complex issues, provide immediate feedback in real time, and build on the synergy of group interaction. Because it is the most technically complex e-learning media, and learning practitioners have had few opportunities to gain first hand experience with it, it is also the least understood (Driscoll). Seeing little value in bringing people together to work as individuals, Driscoll cautions that individual-oriented learning programs or “programs that employ passive instructional strategies do not work well in the VSC” (p. 178).

It is readily evident that studies on online asynchronous learning are more plentiful than online synchronous studies. This could be due to two factors: the hegemony of asynchronous e-learning and the fact that until recently, synchronous learning technologies were unsophisticated largely due to limitations in the technological infrastructure. However, the validity of online synchronous learning is illustrated in a quasi-experimental study with 120 MBA students using synchronous desktop video conferencing technology. Alavi et al. (1995) found that in terms of knowledge acquisition and satisfaction with the learning, the

distant, local, and F2F collaborative learning environments were equally effective. However, the distant group demonstrated higher critical-thinking skills and more commitment to their group. Taking into account the possibility of the novelty effect, Alavi et al. still conclude that the interactivity, immediacy, and higher integration of communication capabilities of this technology (video, voice, and data) created an effective collaborative learning environment.

A recent review of e-learning practitioner publications highlights the growing interest in the VSC. Salopek (2002) comments that its potential as a powerful bridge between old and new ways of learning is only now being recognized. Acknowledging that bandwidth issues present some barriers, she adds that a proactive approach by the technology provider, instructor, and learner can lead to a rich experience.

Technical issues frequently impact the online learning experience. Veerman, Andreissen, and Kanselaar (2000) used a quasi-experimental design to examine whether the use of a synchronous text-based learning tool (NetMeeting) could facilitate collaborative knowledge building. They found that learners who were preoccupied with how to handle the task in the online environment didn't engage in in-depth exploration of concepts. Veerman et al. attribute this in part to the nature of the technology and conclude that building transparent and user-friendly systems seems to be a necessary first step.

In addition to the emerging nature of VSC usage and research, two issues highlighted in the online synchronous learning literature warrant discussion: (a) intentionality and design, and (b) the influence of stakeholders on teaching and learning outcomes.

#### *Intentionality and design.*

As Hacker and Niederhauser (2000) state, learning does not necessarily happen just because an instructor uses listservs, interactive video, or information-sharing software. It is

becoming clear that the cornerstone of quality e-learning lies in the design of the experience (Jung, 2000; Willis, 2000). Because it determines how learners interact, the design of the interface is also critical (Brown, Milner, Ford, & Golden, 2001). Therefore, the design of both the interface and the learning experience is paramount. However, Dick (1996) expresses concern that attention to design is getting lost in the “effort to simply get something up and running on the computer” (p. 59).

Carr and Carr (2000) suggest that online course design and delivery is more often driven by the technology than proven instructional principles. Firiyewek (1999) echoes this concern, commenting that features developed by software designers need to be “more carefully selected and better integrated so as not to end up confusing and alienating users, or worse, implicitly encouraging pedagogically suspect practices” (p. 34).

McLoughlin’s (1999) study highlights the importance of intentionality and design to achieve learning outcomes. Using an action research approach that incorporated discourse analysis and observation of five teachers over one year, she found that audiographic conferencing (VSC) fostered higher-order thinking in a distributed classroom of secondary school children. These results are attributed to intentionality. The teachers needed to have a clear intention to facilitate collaborative knowledge building and plan for it.

Dede’s (1999) case study draws attention to designing e-learning experiences that incorporate a mix of asynchronous and synchronous media. As an action-researcher, his intention was to give participants hands-on experiences with seven interactive media in one graduate-level course. The results indicate that the 31 learning professionals in the course found their voice in at least one medium. He reports that not only did the learners have different preferences, they found it difficult to predict in which medium they would feel empowered; some even preferred the virtual space to the F2F classroom.

Arguing that it is the interactions and connections made in the course that learners find critical to learning, Palloff and Pratt (2001) assert that pedagogy and a purposeful design, not technology, are critical to the success of an online course. They advocate it is through the learning community that learning occurs online and therefore attention needs to be paid to the developing this sense of community; something we cannot assume will happen on its own (1999). Several studies demonstrate the viability of using technology to create virtual communities and heighten participants' perceptions of e-learning as a social experience (for example, Gunawardena, 1995; Herrmann, 1998; Poole, 2000; M. Russell, 1999; Selinger, 1998; Solloway & Harris, 1999). However, building this community can be a challenge. In their multi-method study of an online three-week text-based forum for 25 managers of workplace learning centers, Kanuka and Anderson (1998) found a perceived lack of community, which they attributed to low social presence.

There are varying opinions in the literature on how influential learning research and theory is on the actual development of e-learning environments. On the one hand, several researchers (Ahern & El-Hindi, 2000; Nicaise, 1998) have demonstrated that a theoretical framework can improve the instructional soundness of e-learning. On the other hand, Burge (1999) argues that technical specialists have designed most software and educators are forced to adjust to the design. Driscoll (2002) argues that not only do e-learning technologies dictate what practitioners can do, they are not "value-free blank sheets of paper" but software built on many assumptions about learning (p. 2).

Squires (1999) offers another perspective, suggesting that perhaps we overestimate the software developer's influence, given that "design will always be contextually re-interpreted to some extent" (p. 50). Although we assume the developer's intentions determine how an e-learning tool is used, instructors and learners re-interpret design

intentions to suit their particular needs, creating “contextually tuned situated learning environments” (p. 48). Squires recommends volatile design – design that enables the learners to configure a learning environment that resonates with their needs.

*The triad.*

There may be a number of potential stakeholders in an e-learning experience. Three key participants include: the learner, the educator, and the software developer. Each influences and is impacted in different ways in an online learning experience.

Some learners still prefer F2F learning (Alavi et al., 1995; Dede, 1996; Kearsley, 2000; Marjanovic, 1999). Harasim, Hiltz, Teles, and Turoff (1995) state that “every media that is added is a potential barrier ... and another set of techniques or skills that students must master before they can concentrate on the substantive material being delivered via the medium” (p. 144). Kearsley suggests that learners who prefer classroom courses may perform more poorly if required to take an online course. However, learners often make trade-offs, exchanging the convenience of e-learning for less than optimal quality instruction, perceiving that the advantages outweigh the disadvantages (Dede; Meyen, Tangen, & Lian, 1999).

As instructors venture into online media, Duderstadt (1999) suggests that their role changes from teacher to “designer of learning experiences, processes and environments” (p. 7). Palloff and Pratt (1999) urge instructors to look more closely at the e-learning environment and what it demands in order to create a successful learning outcome. Salopek (2002) attributes a great deal of responsibility for the effectiveness of a VSC session to the instructor’s skills. This raises concerns about online instructional competency. Romiszowski and Chang (2001) comment that teaching requires fluency with the system and suggest there is a need to train and support instructors as they go about their online work.

In a qualitative study of six experienced online instructors in two graduate-level programs, Annand (1997) found an array of practices and perspectives; each instructor's experiences seemed to be related to personal views of learning. Concluding that some instructors are more energetic, experienced, and possess more appropriate skills for teaching online, Annand also points out that the amount of time required to become proficient on a particular e-learning technology may deter some instructors from developing their skill set as extensively as others.

At the same time, an interdependent relationship between the instructor and the technical developer must be nurtured (Van Gorp, 1998), representing a new model for many educators (Meyen et al., 1999). Firdyiwek (1999) argues that although online developers should be more involved in the discussion of pedagogical issues, most see their role as technology providers rather than partners. A comment from a software designer in Rodrigues' (2000) study highlights this challenge: "I don't pretend to know how it is children learn. In my role as a software designer I really consider this the responsibility of the client" (p. 11).

Working with software developers to create a chemistry CD-ROM for high school students, Rodrigues (2000) draws attention to the impact the developer has on the computer-assisted learning experience. She found current interface designs limited in their ability to accommodate constructivist learning experiences. It was difficult to incorporate appropriate scaffolds, create *minds-on* rather than *hands-on* interactions, and to translate research into practice. In another case study, Nicaise (1998) explored how social-constructivist theory could be used to design and produce an interactive e-learning experience for preservice teachers. Four design pillars framed her prototype: exploratory learning, authentic tasks, student-centered/non-linear and playful learning, and discourse. Nicaise was more

successful than Rodrigues. While both focused on developing a self-paced asynchronous online product, Nicaise also designed opportunities for dialogue by adding bulletin boards and message systems. Perhaps her success can be attributed to creating a design not limited to just one medium.

Even though there may be some dispute over the impact software developers have on the outcomes of an e-learning event, it is clear that they, along with instructional designers, play an important role in the overall learning experience.

### *Contextual Factors*

Implicit or explicit, assumptions and beliefs about teaching, learning, and knowing, along with the workplace context seem to influence the adoption of new learning paradigms.

### *Learning Assumptions*

Most learners have been socialized into regarding education as an expert authority transmitting information (Brookfield, 1986; Candy, 1991; Horton & Freire, 1990; Knowles et al., 1998). Dewey (1938/1970) argues that in a learning situation a person learns more than just the content. They develop proclivities toward learning (Gooler, 1990) and patterns of participation that contribute to their identities as learners (Greeno, 1997). These personal learning myths impact the educational encounter. For example, Land and Hannafin (2000) contend that learner compliance works at cross-purposes with a constructivist learning environment and without appropriate strategies learners may fail to tap into the opportunities provided in a learner-centered environment.

Studies reveal the shaping effect of educational experiences (Nicaise, 1998; Silverman, 1995; Stansfield, 1997). Using questionnaires to gather both quantitative and qualitative data, Stansfield studied 90 adult learners in a Manager Development program and

discovered that being locked in traditional models resulted in a high degree of learner dependence and undue concern with what the instructors want.

A number of researchers note the influence of underlying assumptions on the design and instruction of a learning event. Educators encode their explicit and tacit beliefs into their learning designs (Goldman et al., 1995; Wenger, 1998). Their values and perspectives (Banks, 1988), derived from personal philosophies or the institutional ethos (Brookfield, 1986; Vogel, 2000), influence the learning encounter. As Bruner (1996) states, “pedagogy is never innocent; it is a medium that carries its own message” (p. 63). Guy (1999) suggests that practitioners must examine “their assumptions about learning or impose their prejudices and biases on learners” (p. 97). Without reflecting on our assumptions about the nature of learning we risk that our “conceptions will have misguided ramifications” (Wenger, p. 9).

Annand (1997) found that instructors’ learning philosophies shaped how they used the technology. Differences in their perceptions of online teaching experiences arose from differences in the learning theory that informed their instructional practices. Van Gorp (1998) warns that philosophical underpinnings are one obstacle that won’t be fixed by technological advances.

### *Workplace Context*

Knowledge workers are characterized as people who continually use knowledge to create new knowledge that offers a competitive advantage to their organization (Romiszowski, 1997). They are expected to self-manage their own learning and development to remain employable (CONFINTEA, 1997; Romiszowski & Chang, 2001; Stansfield, 1997). Critical skills for knowledge workers now include an ability to: (a) collaborate on teams characterized by greater complexity, diversity, and remoteness; (b) handle vast amounts of information and knowledge (rather than know everything); (c)

connect with others through cross-cultural understanding; (d) use a variety of technologies (knowledge tools) to advantage; and (e) to become creative and critical thinkers and doers (Salmon, 1999; Trilling & Hood, 1999). Trilling and Hood warn that despite efforts to cultivate these skills, most are still not a priority.

Defoe (1997) argues that learning solutions must fit their setting as well as the participants. Therefore, she adds, educators must understand the social and political contexts within the workspace and how they interact. Learning does not exist independently of the organizational milieu. The workplace determines the required skills and also creates conditions that foster or constrain learning (Hart, 1993). Political decisions, philosophical concerns, and contextual variables interact at different levels to influence program design and delivery (Brookfield, 1986; Draper, 1993; MacKeracher, 1996; Tanner & Tanner, 1995).

The influence of the organizational context is exemplified in a recent study. Examining a collaborative learning session that blended F2F and e-learning in a workplace setting, Ferraris, Manca, Persico, and Sarti (2000) found that a major difficulty for learners (22 training professionals) was lack of time. They acknowledge the course may have had design faults such as hosting F2F and e-learning activities in the same week, which decreased learners' motivation to participate in the online activities. However, their findings highlight the challenges of introducing e-learning into a workplace. They conclude that although time and space constraints are apparently loosened with e-learning, "there is no single time or place *reserved* for learning and this makes it difficult to fit it into the work day" (p. 90).

Creating an e-learning strategy that can accommodate these time-space constraints and work habits emerges as an important yet challenging feat. Ferraris et al. (2000) suggest that learners and their managers seem to still be tuned to F2F training and need a new model.

Land and Hannafin (2000) suggest that we continue to rely on familiar pedagogical approaches because they are perceived to be more compatible with traditional expectations and better supported by the current infrastructure. Ferraris et al. conclude that to create the necessary changes in an organization to integrate a new learning model that includes e-learning requires action at all levels: employees, trainers, and leadership.

Workplace training tends to be focused on problem-centered learning and helping learners rapidly fill skill and knowledge gaps (Driscoll, 2001). Brown (1997b) adds that cost-effective methods as well as extensive access and higher quality results are familiar imperatives for learning professionals. Illustrated in their Demand-Driven Learning Model, MacDonald et al. (2001) maintain that high quality e-learning programs that meet the demands of both employers and employees are possible. By focusing on key learning outcomes such as learner satisfaction and application of new skills and knowledge on the job, MacDonald et al. stress that an e-learning program can add value to the organization.

However, other researchers have noted obstacles. Acknowledging the contextual nature of learning, Land and Hannafin (2000) caution that not all contexts support knowledge application equally well. This is compounded by economic realities that may limit e-learning effectiveness despite resolution of technological barriers (Annand, 1997). Driscoll (2001) states that learning professionals make trade-offs as they select technologies that work within their system specifications and price range. There is also a sense of uneasiness that e-learning decisions are driven by technological imperatives and political pressure without grounding in educational values or due consideration of learner preferences (Driscoll, 1998; Villalba & Romiszowski, 2001).

There are various ways that learning happens in the workplace (Collis & Winnips, 2002). Formal learning is the structured system of learning carried out by or sponsored by

corporate training groups (CONFINTEA, 1997). As a clearly defined educational plan with a beginning and an end, it might be a course or scaffolding for the learner that includes “tutors, learning material, or the presence of experts” (Trentin, 2001, p. 5).

In contrast, informal learning is described as learning from experience and environmental “educative influences and resources” (CONFINTEA, 1997, p. 6) outside formal training activities (Watkins & Marsick, 1992). It is usually intentional but not highly structured and takes place wherever people have the “need, motivation, and opportunity for learning” (Marsick & Watkins, 2001, p. 28). Commenting that it is in this sphere where we gain our most significant learnings, Schugurensky (2000) observes that informal learning can complement or contradict what we learn in our formal learning experiences.

### *Critique*

Although the studies discussed in this chapter provide valuable insight into issues that shape e-learning, there are limitations related to the technologies studied, the research methodologies used, and application of a sociocultural perspective. E-learning represents a myriad of options ranging from the more mundane text-based media to the more exotic multimedia experiences (Ahern & El-Hindi, 2000; Driscoll, 2001) such as the VSC. Unlike the present study, most of the literature explores the VAC in university courses with university students, a markedly dissimilar technology and group of learners. The experiences of the adult worker in a corporate learning session are not well reflected. Even though there are similarities between the VAC and VSC, there are important distinctions. For example, synchronicity shapes collective meaning making in a distinct way. In addition, communication in the VSC is primarily oral, not text, establishing a different learning environment.

Second, findings reflect an abundance of quantitative data. Even within qualitative studies, surveys and transcripts of electronic discussions were the primary data collection methods. With a few exceptions, interviews were not used to capture the individual's perspective of their e-learning experience, creating a sense of distance between the researcher and the researched. Most studies had at least 20 participants, which may explain why interviews were not used more extensively or detailed narratives of the learners constructed. By giving participants a more active voice, deeper understandings of how their experiences in a VSC are given meaning can be produced.

Third, what is also missing in many of these studies is a holistic picture of a person's experience in a virtual classroom; meaning making viewed as part of an experience that encompasses learning, knowing, and working. Although technology adds a new dimension to learning, what unfolds in a virtual classroom extends far beyond the software and the event. The worker-learner participates and negotiates meaning in practice – inside and outside a formal learning event. We increase our potential for understanding the complexity of an e-learning event by exploring the rich interplay between work and learning and better investigating and integrating contextual factors.

My interest in better understanding how an e-learning event influences, and is influenced by, the workplace and the individuals in it is consistent with a sociocultural lens. Even though constructivist perspectives are increasingly common in the research literature, the sociocultural perspective is not yet evident in many e-learning studies. Even researchers who have adopted a social constructivist stance (for example, Kanuka & Anderson, 1998; McLoughlin, 1999; Nicaise, 1998) did not seem to venture out of the virtual classroom.

Also emerging from the literature is a sense of misalignment between theory and practice. Land and Hannafin (2000) state that the problem of using constructivist teaching

strategies without a clear link to an underlying foundation is magnified in technology-rich environments and results in trendy activities rather than grounded practice. Despite the extensive discussion on sociocultural learning, there is not yet a large body of evidence demonstrating how these perspectives have been implemented in e-learning environments and documentation of lessons learned. It may be that the lens itself requires some clarity. Cole (1995) warns that sociocultural perspectives are not yet developed enough to be regarded as a “mature scientific paradigm with ... a well-delineated set of prescriptions for relating theory to practice” (p. 187).

### *Research Questions*

The present study, which uses qualitative inquiry strategies to focus on a VSC learning event in the workplace and factors that influence collective meaning making, has the potential to address some of the limitations outlined in the critique above. As a result of the gaps pointed out in my review of the literature, I saw a need to address these overarching research questions: What happens in a VSC? How is a sociocultural perspective reflected in what takes place in a VSC? To help explore the overarching research questions, three specific research questions were posed:

- How do the key stakeholders in a VSC describe their experience?
- What are the key stakeholders’ impressions and attitudes about learning in the VSC?
- How do factors such as assumptions about teaching and learning, workplace context, and the technology influence collective meaning making in a VSC?

A case study design was used to explore these research questions. The unit of analysis was a VSC event within a workplace. Within this e-learning event, learners, adult educators, and software developers comprised three key stakeholder groups. Multiple data collection

methods, such as interviews, observation, document analysis, and reflective journaling allowed analysis of different perspectives of the collective meaning making that unfolded during a VSC experience. In-depth explorations of the inquiry strategies and challenges inherent in this type of study will be presented in the next chapter.

### Chapter 3 Inquiry Strategies

This section begins with an explanation of the site and participant selection process. I then describe how I collected and worked with the data to construct a multivoice representation of the case. As I situate myself in this inquiry, issues of voice and representation are explored. Lastly, limitations of the study and soundness of the findings are discussed.

#### *Overall Approach and Rationale*

Marshall and Rossman (1999) suggest that qualitative methods are suited for research that emphasizes the importance of context, setting, the participants' frames of reference, and a deeper understanding of the participants' experiences with the phenomena. In the present study the intention was for meaning to be constructed in the dialogue between myself and the participants, an epistemological relationship which Guba and Lincoln (1994) describe as transactional and subjectivist. Interpretations were therefore constructed against a "backdrop of shared understandings, practices, and language (Schwandt, 2000, p. 197). By presenting my voice alongside the participants, as suggested by Hertz (1997), readers may assess my perspectives and axiological stance.

Merriam (2001) comments that the case study is useful for studying learning innovations. Creswell (1998) defines a case study as an exploration of a "bounded system ... through detailed, in-depth data collection involving multiple sources of information, rich in context" (p. 61). The researcher's goal is to understand the complexities of the case (Stake, 2000). In choosing this approach there were three compelling factors: the clear boundaries of a VSC event, an interest in understanding the context of this e-learning experience, and the need to tap into multiple sources to present a holistic in-depth picture.

A pilot study enabled me to interview four participants involved as both learners and facilitators in a workplace VSC event (Thompson, 2001). By exploring a similar research question in a comparable organization, the pilot study was a harbinger of the challenges inherent in delivering and researching this type of workplace learning event. The findings in the pilot study suggest that teaching and learning in the VSC is influenced not only by technology but also by social and contextual factors. Technological connectivity was only the first step in creating a collaborative learning event. When the technology faltered, the sense of community between participants became their lifeline. Given that interviews were the primary data collection method, the pilot study helped shape and streamline the interview approach used in the present study.

#### *Site and Participant Selection*

Merriam (2001) explains that in case study research two levels of sampling are necessary: the selection of the case and sampling within the case. The decisive factor, according to Stake (1995), is to maximize what can be learned. To ensure an information-rich sample I observed a few VSC events and chose one that presented, as Marshall and Rossman (1999) recommend, a mix of the processes, people, and interactions of interest. Brief descriptions of the organization, technology, and e-learning event are included here and will be developed more fully in Chapter 4.

#### *The Site*

Finding a site was more complicated than anticipated. Although I had a site selected early on, cutbacks and downsizing forced a re-evaluation. Through contacts, several VSC

events were identified as possibilities. A change-oriented, competitive, and market-driven workplace, Consulting Company (CC) had a number of VSC events on their schedule. An organization that defines people as knowledge assets, it is dependent on innovative, geographically dispersed knowledge workers. Employees require a high degree of interpersonal and collaboration skills, technology literacy, and ability to acquire new knowledge and skills as *just-in-time* requirements dictate.

The number of participants, session length, richness, instructor comfort and competence with the technology, and feasibility of entry were initial considerations. Not looking for an exceptional case, my criteria became better defined in the selection process: an interactive design, understandable course content, dynamic workplace context, recordability, feasible technical requirements, and a realistic possibility that an event would run within my data collection timeframe.

VSC events vary widely in duration. I was looking for a longer event and preferably a blended learning solution, hoping this would increase the likelihood of encountering collective meaning making. Blended learning solutions have two distinct features. First, they are characterized by a series of short asynchronous and/or synchronous events. Second, they incorporate a number of different delivery modes such as the VSC, F2F, self-paced online programs, or print. I was interested in a blended solution in which learners might get together in the VSC more than once, even if each encounter was relatively short. I also wanted to study an event that used WebClass (WC), the most full-featured VSC technology available. WC has been ranked “Best in Class” for live e-learning in recent industry reports (Centra, 2001) and includes tools that Driscoll (2001) identifies as part of an effective VSC: whiteboards, shared applications, video and audio conferencing, and chat rooms.

After CC decided I could use their Delivery Training (DT) event for my research I connected with Sandy, the project manager of the WC curriculum and my contact from that point on. Once I ensured that the two instructors who designed and now deliver this event were willing to participate in the study I sat in on its inaugural run in March 2002. This enabled me to get a sense of the course and how the technology would be used. Two deliveries were offered in April 2002, the second of which was the site for this study.

As I sat in the inaugural run I found it difficult to discern the learning philosophy that guided the design and delivery of this course. Although I did not quite understand why the session unfolded the way it did, I sensed inconsistencies between what the DT team wanted to achieve, their methods, and the outcomes. This piqued my curiosity and encouraged me to think how I might explore this divergence. In addition to confirming the viability of this site for my study, observing this delivery enabled me to become familiar with the content and structure of the course, which later facilitated my dual participant-observer role. This experience also prompted me to create an observation protocol better suited to this research context.

DT evolved as part of an overall WC training curriculum and will be explained in more detail in Chapter 4. The event advertisement states that the purpose of DT is “to provide each participant with the fundamental knowledge and skills necessary to effectively deliver events in WC”. The instructors refer to this course as the “soft skills of e-learning”. Rather than teaching learners how to use WC features, DT focuses on how to deliver interactive VSC events so that learners can use WC in their business units to deliver engaging e-learning events on any number of topics. There are three components: a one hour Orientation session delivered in the VSC, an asynchronous portion which includes self-managed learning (SML) and self-managed practice (SMP), and the 2.5 hour instructor-led

training VSC event. SML entails an hour of reading. Learners are advised to block off 15 minutes to do the SMP in which they record and self-critique their voice.

### *The Participants*

Sandy sent my recruitment e-mail (Appendix A) to learners registered in DT, advising them that a research study was being conducted and directing them to reply to me by e-mail if interested in participating. I experienced the nature of just-in-time learning first hand as I dealt with eleventh hour notices and last minute registrants. The e-mail advertising the DT event itself was sent out only six days in advance. Because the WC curriculum was new, Sandy found it difficult to forecast registration, although she was confident there would be participants. Perhaps they had overestimated the demand. Less than a week before the event there were no participants registered.

Sandy was to send each registrant the recruitment e-mail as they signed up. To my disappointment the deadline to respond to me passed without any replies. A call to Sandy revealed that although there now were four learners, my e-mail had not yet been sent as she was waiting to make an announcement about DT in another WC course. Although DT is advertised on their internal learning portals and an e-mail is sent prior to each delivery, Bruce later told me that they rely heavily on word of mouth and announcements made in other WC courses. The recruitment e-mail was finally sent around noon the day before the Orientation session and responses came within hours.

Consistent with the nature of qualitative research, selecting participants was emergent as opportunities to include rich perspectives were seized. Because there were only four learners registered in the course the day before the first VSC event, I decided to interview them all and set up interviews. Although three additional learners (Spencer,

Daphne, and Lori) joined DT at the last minute, I decided to carry on with my initial plan. I left the option open to interview the others depending on how the first interviews went.

Although the initial group of learners was constructed by default, purposeful sampling supported the decision to interview them. Initial conversations and information from the background questionnaires convinced me that I had a group of articulate practitioners with a variety of viewpoints. This decision was reinforced after observing the event and seeing different levels of engagement. Even though the fourth learner agreed to be in the study she was concerned about her ability to take 60 minutes away from her work for the interview. She did not return the informed consent form and dropped out of the DT event before it was over. Respecting her decision not to participate, the data and final report do not include descriptions of anything she said or did.

Meanwhile I continued to search for a software developer who worked on the VSC technology. I relied on my network of colleagues and was eventually introduced to Matt. He is not a software developer per se but I believe he was a better choice given his significant influence on, and history with, this particular e-learning tool. In addition, I began to realize how much impact Sandy had on how the VSC was being implemented within CC. Involving her added another valuable perspective.

In summary, the site for this research inquiry was a large multinational consulting company. The workplace learning event, DT, was a blended e-learning solution that included two VSC components. Six learners, two instructors and myself were engaged in this event. Figure 2 provides a legend to who's who, relationships between participants, and physical locations. I interviewed seven people. The software developer perspective was gained from interviews with the WC project manager. The other six participants were from CC: three learners, both DT instructors and a business leader. Although only a few

participants, there was some diversity in gender, age, previous e-learning experience, and actions in the VSC session. Detailed participant profiles will be presented in Chapter 4.

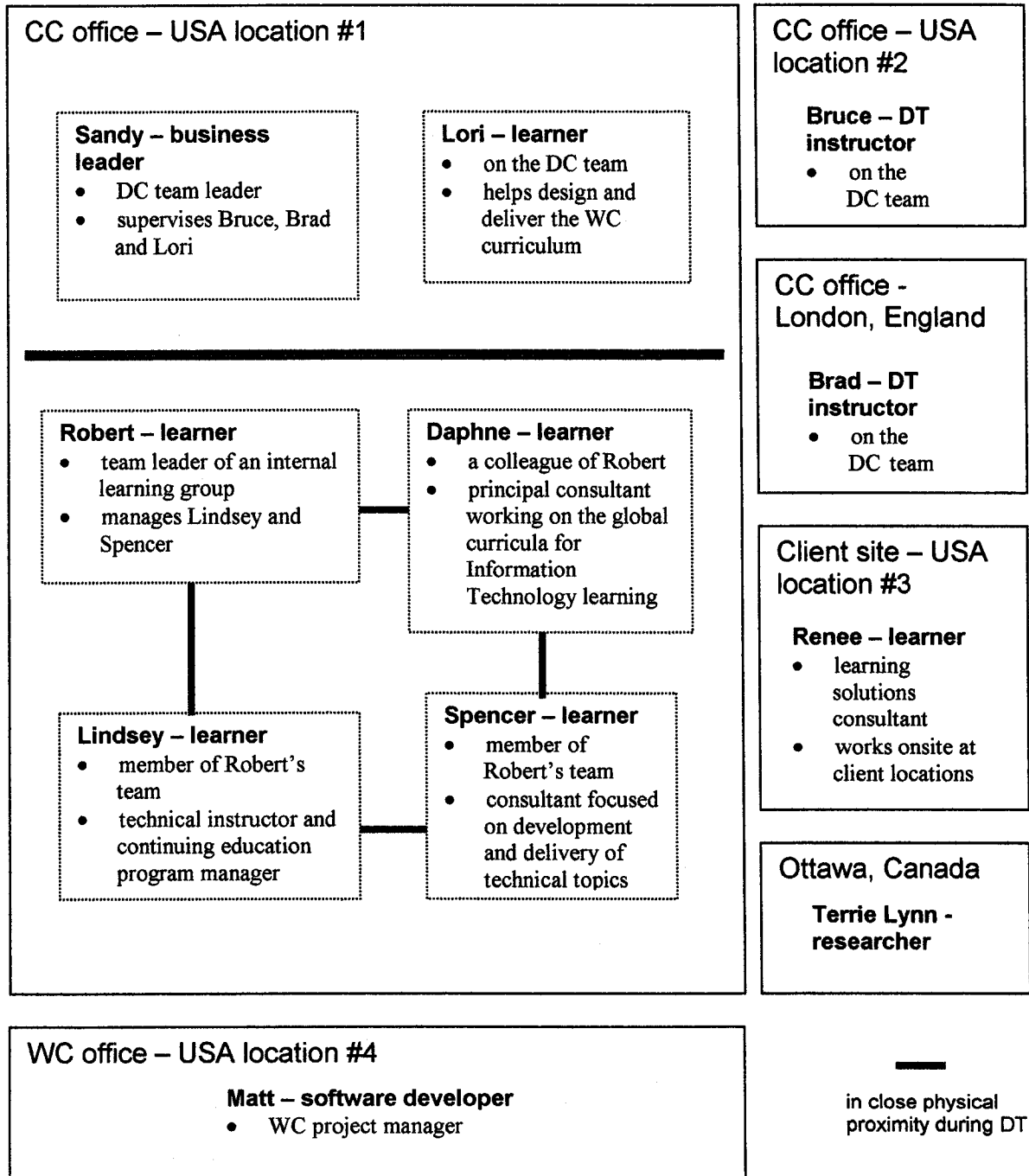


Figure 2. A guide to the participants in this study.

### *Data Collection*

Because each data collection strategy “makes the world visible in a different way” (Denzin & Lincoln, 2000, p. 4), relying on multiple strategies helped construct a multifaceted understanding of this VSC learning event. Observation was positioned at the beginning of the study so that the interviews could be used to establish the meaning behind actions in the VSC. Interviews were done as soon as participants had an opening in their schedule, one to four weeks after the event. I talked with the instructors twice - before and after the session. This dual interview strategy enabled us to build rapport and ensured they were reasonably comfortable with my presence. Both the business leader and software manager were interviewed after the VSC event. Document analysis and reflective journaling continued throughout.

The interviews and VSC sessions were recorded and transcribed. The recording of the VSC is similar to a video recording as it captures both the audio and visual attributes of the event. Through previous experiences with WC I was aware of the temperamental nature of the recording facility. Sandy and I reviewed their protocol and I watched a recording to ensure it would render what I wanted in an accessible format, which it did. However, one impact of a last minute server change on the day of the second VSC event was that the new server used a different recording protocol. As a result, the visual images of the second VSC event were lost although the audio was captured.

After participants had agreed to participate, our first contact was a 20-minute initial contact call. I was glad to have this opportunity to start relationship building. It gave me a chance to introduce the study, find out more about them, answer questions, and most importantly, start to build rapport. I also used these calls to initiate informed consent (Appendix B) and introduce the background questionnaire (Appendix C).

*Interviews*

Kvale (1996) states that the research interview is treated as a professional “*conversational technique* in which knowledge is constructed through the interaction of the interviewer and interviewee” (p. 36). Although observation is used to discover interactions in natural settings, without other sources of information such as interviews, the meaning of what is observed can only be inferred (Marshall & Rossman, 1999). Seidman (1998) elaborates: “At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of that experience” (p. 3).

Semi-structured interviews were used. This approach enabled some standard questioning while giving me considerable flexibility. The interview guides (Appendix D) were emergent and based on each person’s actions in the VSC and previous conversations. Although the interviews were scheduled for 60 minutes, this varied considerably. Several participants asked if we could go longer, in most cases for another 20 or 30 minutes. I did one follow up 45-minute interview with Matt as the analysis of his first interview transcript brought out additional questions. As I analyzed the data I also sent an occasional e-mail to a few participants to clarify points in their transcript.

Because the audience was geographically dispersed, interviews were done by telephone. Telephone interviews do not allow the researcher to observe non-verbal cues, which is a potential limitation of this study. However, participants seemed at ease conversing by phone. We created rapport and I never felt they were less forthcoming because we were talking by phone. I found myself paying extra attention to the nuances and tone of their voices. In my pilot study, telephone interviews generated rich data (Thompson, 2001) and other researchers suggest that participants may actually be more forthcoming in this setting (Farres, 2002). Reflective of their busy workplace most interviews were

interrupted by an urgent e-mail, telephone call, or someone dropping by their cubicle. For this reason, Matt chose to talk with me on his car phone during his commute home.

Although I did not know at the time, some of my interviews (Matt, Sandy, and Robert) could be characterized as elite. My experience fits with Marshall and Rossman's (1999) description: influential and well-informed people in the organization, often challenging to access but providing valuable information because of their position and big picture perspectives. These interviews were demanding. The participants were articulate and accustomed to expressing ideas, opinions, and critical reflections. I was conscious of the quality of questions I asked and my ability to pick up on key threads in their responses.

### *Observation*

According to Marshall and Rossman (1999), "immersion in the setting allows the researcher to hear, see, and begin to experience reality as the participants do" (p. 106). In addition, it provided specific incidents used as reference points in interviews (Merriam, 2001). I used an observation protocol to record both descriptive and reflective notes. Given that I was also participating in this event as a learner I kept the protocol very simple. It included five columns: time, activity (interaction, nonverbal communication, dialogue, WC tool used), participant(s) involved, on-screen visual, and outcomes. I also drafted extensive field notes immediately after the observation that included (a) descriptions of the setting, participants, interactions, and activities; and (b) my reactions to the experience along with insights (Merriam; Patton, 1990).

Denzin and Lincoln (2000) state that the idea of the aloof observer has been discarded. I realized that I would influence the learning event by participating in it. Based on the nature of this VSC event and a sense of what would contribute most to building a

relationship between myself and what was being studied, I committed myself as a participant-observer after discussions with Sandy and the instructors. As a full fledged participant I self-registered in the event just like other learners, did the self-managed practice (voice recording), and participated in learning activities.

I also went through the agony of technology problems. A few hours before the second VSC session I tried to logon only to have an error message pop up telling me I had a hardware problem and was unable to connect. I worked through the troubleshooting guide provided by CC to no avail. A call to Sandy did not resolve the issue and I was directed to WC tech support who fixed the problem 45 minutes later. This first-hand experience was a timely reminder of the challenges and unpredictability of technology and how little influence I had on my learning environment. The synchronous nature of DT created additional pressure and I was relieved I had not started the logon process 15 minutes prior to the event as recommended in the e-mail sent to learners; otherwise I might have missed the session.

While I welcomed the opportunity to be a learner it created some awkwardness. For example, note taking was somewhat restricted, as I was busy being a learner. I had sat in the inaugural run and therefore had a good idea of how the course was structured, which enabled me to take some notes. With the instructor guide in front of me so I could follow along, I was less worried about capturing the content being delivered and more focused on what participants were doing. The virtual setting also gave me freedom to be both a learner and observer. Other than my name on the screen, participants could not see what I was doing, so it seemed I was able to jump back and forth between my two roles without distracting others in the session.

A more delicate issue in taking on the learner role was stepping into the silences. I often venture into those uneasy moments when no one else will go first and many times in

this event I wanted to speak up to help out the instructors. But I held back. I was conscious of playing the “good student”, not sure how other learners would react and if I would somehow become aligned with the instructors. Moreover, as it became evident that this event was distinguishable by its silences, I wanted to try to understand how others reacted, which made me reluctant to fill the silences myself.

### *Documents*

Merriam (2001) contends that documents can provide descriptive information and help the researcher discover insights. They provide the contextual richness and grounding in real-world issues that is the hallmark of qualitative research (Guba & Lincoln, 1981).

Documents available for analysis included information on the VSC, course communication e-mails, facilitator and learner materials, course evaluations, and the background questionnaire completed by the learners. Appendix E provides a complete listing.

Documents were used primarily to help construct more in-depth understandings of the technology, event, and corporate context. As another data source, in some instances they provided more detailed data than that collected in interviews or observation. The WC curriculum map helped me finally understand how the DC team had positioned DT in the larger curriculum. The WC product documents provided detailed explanations about the features of this VSC and how WC envisions them being used. I found all the documents especially useful when constructing the descriptive segments in Chapter 4. I also picked up the “lingo” by reading the documents, which helped me build rapport with the participants.

Many documents provided a frame of reference and way of triangulating what I was seeing or hearing. For example, the course evaluation results were consistent with comments I heard from the learners in the interviews. However, what surfaced after

analyzing the event advertisement e-mails and the SML Participant Guide was the ambiguity surrounding the Orientation session (the first VSC event) as part of this blended solution. In some cases, it was what was missing that was noteworthy. The DT Facilitation Guide does not tell instructors what to do if a learner doesn't agree to contract for a safe learning environment; Brad and Bruce did not foresee this scenario arising. As you will see in Chapter 4, it did happen and Brad was left to improvise a strategy.

### *Reflective Journal*

As a home for the insights and feelings that emerged throughout the study, my journal was vital. I played with emerging ideas. I explained and explored how I arrived at my interpretations, acknowledged the influence of my personal positions, and commented on my experiences with the case. Lincoln and Guba (2000) describe reflexivity as the “process of reflecting critically on the self as researcher” (p. 183). Hertz (1997) states that:

Reflexivity implies a shift in our understanding of data and its collection – something that is accomplished through detachment, internal dialogue, and constant (and intensive) scrutiny of “what I know” and “how I know it”. To be reflective is to have an ongoing conversation about experience while simultaneously living in the moment (pp. vii-viii).

By sharing this reflexive knowledge, I give readers the opportunity to evaluate me as an “active participant in the process of meaning creation” (Hertz, p. viii). My journal contained, as recommended by Lincoln and Guba (1985), a schedule and study logistics, a personal diary for reflection, and a methodological log.

### *Data Management and Analysis*

Merriam (2001) describes data analysis as the process of meaning making. The corpus of data for this study includes: 280 pages of interview transcripts, 66 pages of

transcripts and field notes from the DT event (Orientation, SMP/SML, and second VSC session), two file folders of documents (approximately 390 pages), and two journal books (about 250 pages). As a means of bringing order to the data, Marshall and Rossman (1999) emphasize that it is messy, ambiguous, time-consuming, creative and does not proceed in a neat linear fashion. Flexible and reflexive, Coffey and Atkinson (1996) suggest that it should also be methodical and intellectually rigorous. I used Wolcott's (1994) framework of description, analysis, and interpretation as a guide.

In this type of study, data collection and analysis typically go hand-in-hand (Coffey & Atkinson, 1996; Marshall & Rossman, 1999; Merriam, 2001; Tesch, 1990). Data analysis began with the first interview. Immediately after each interview I captured provocative ideas and impressions in my journal. The first reading of each transcript was intensive, marked by a sense of discovery and guided by the question, "What is the data saying?". I tried to understand the participant's perspective. As Coffey and Atkinson recommend, I paid close attention to words and expressions and the way they were used. Merriam comments that category construction begins with the first transcript as notations are made by potentially relevant bits of data. I jotted down questions, tentative interpretations, and possible connections.

The first grouping of the data was created as I re-read the transcript. Merriam (2001) states that after working through the transcript, "like" comments and notes are grouped together. Drawing from the transcripts I created a *container* document for each participant that captured these emerging patterns. This also facilitated data reduction. After creating individual container documents I then pulled together larger container documents for the learner and instructor groups to reveal overlaps, common meanings, and divergent views.

Stressing that writing cannot begin early enough, Wolcott (1990) advises starting with a straightforward description of the setting and events prior to the intensive analysis. I began with descriptions of the organizational setting, event, and technology. Participant profiles were constructed. I then experimented with different ways to portray what happened in the 2.5 hour DT VSC event given the multiplicity of views, activities, and undercurrents. Writing the narrative had begun.

The data had now been percolating for awhile and I continued to identify possible themes in my journal. The participants in the study seemed to be my constant companions. It was time to synthesize this jumble of ideas. I created a list of initial themes that portrayed recurring patterns in the data. Because there were three learners and two instructors, each of these two groups had a theme list. Taylor and Bogdan (1998) advise that researchers gradually make sense of what they are studying by “combining insight and intuition with an intimate familiarity with the data” (p. 142). I was seeing my data in new ways. Coffey and Atkinson (1996) suggest that the “more we examine our data from different viewpoints, the more we may reveal – or indeed construct – their complexity” (p. 14). I tried to find commonalities and concepts that would unite multiple, and in many cases, divergent perspectives. Five themes eventually emerged with a number of elements under each.

I now needed to do some initial coding of the data to substantiate and round out the themes. Coding was a two-step process and the first step was done using Word. Coding enabled me to make my interpretive themes “more robust by searching through the data for more and better units of relevant information” (Merriam, 2001, p. 185). After writing the first draft of my themes and studying the literature I returned to the coding process, this time using NVIVO. I had evaluated this software and decided that for initial coding a manual system was appropriate and sufficient. However, I wanted to take advantage of NVIVO’s

powerful data management and retrieval capabilities given the constant challenge of managing the data. Transcripts were therefore coded in NVIVO according to the coding guide that emerged from earlier coding and writing efforts. This enabled a more robust parsing of themes and elements and was a useful quality check.

The data did not slot neatly into categories; there were overlaps, gaps, and uneven levels of abstraction. I also tried not to ignore the data that initially did not seem to fit anywhere. Marshall and Rossman (1999) state that categories should be “internally consistent but distinct from one another” (p. 154). Merriam (2001) adds that they must reflect the purpose of the research, be sensitizing, and conceptually congruent. Taylor and Bogdan’s (1998) statement that at this juncture some themes will be specific and developed while others will be tentative, was reassuring. The themes were fluid and evolved as I saw different connections. Writing helped with the integration and fusion of the data.

Given the range of sources and amount of data in a case study, Merriam (2001) asserts that attention to data management is very important. I found that at each stage I needed my data in a different format to facilitate retrieval and display. When writing the descriptive segments I needed to access chunks of data from interviews, field notes, and documents. Writing about the themes, coding reports became necessary. As I drafted the discussion I compiled the numerous notes made on the transcripts and integrated my journaling. Although time consuming, this constant manipulation of the data was enlightening. As Coffey and Atkinson (1996) stress, it is “essential to find ways of using the data to think with” (p. 2). Marshall and Rossman (1999) caution that the researcher should guard against getting caught up in data management at the risk of losing the serendipitous finding. I had several “aha” moments. While some happened sitting at my desk I also

remember seeing interactivity in a new light as I sat in a Chamber Music Festival performance.

Wolcott (1994) writes that theory provides a way to link our case studies with larger issues. After I had developed an initial understanding of the themes, I turned to the literature to help illuminate and expand my interpretations. As Marshall and Rossman (1999) suggest, I also searched for alternative explanations. For example, rather than just accept that traditional learning paradigms account for the prevalence of “information-push” sessions, I searched for other reasons. This push to find an alternative explanation led to the development of my *take-out learning* metaphor, which will be introduced in Chapter 6.

### *Voice and Representation*

#### *Member Checks*

I intended to write in-depth narratives of each person’s experience. However, I soon realized this approach might not reveal the complex and intricate exchanges that took place in and around DT and the VSC. In Chapter 4, the DT VSC event is presented like the center of an onion, revealed as the contextual layers in which it is nestled are peeled back. Each layer includes perspectives from all participants and as a result is richly marked by both harmony and divergence.

This impacted the member checking process. Because I wanted to encourage co-construction of the text, I planned to ask people to review their narrative rather than the transcript. Hoping this narrative would be a springboard for further exploration, I wanted to talk with them about their reaction to my interpretations. Harrison, MacGibbon, & Morton (2001) suggest that by asking participants to examine early analyses, researchers can give something back. But not only had I moved away from the long individual narratives, I was

also more aware of relationships between participants. Some were team members, co-located, or in a reporting relationship with another participant in the study. Aware that pseudonyms would not be an adequate cloak, I sent each participant their profile - an introduction of them. Because it was not the in-depth narrative as originally planned, I also sent their interview transcript to ensure they had an opportunity to reflect on our conversation and feel comfortable with what they said. Participants were invited to verify, clarify, revise, and suggest alternative interpretations.

For the most part, the participants did not use the transcript review as a springboard to extend our discussions. However, other than minor changes, participants indicated they were comfortable with their text. Although dismayed by the informal nature of her spoken words, Sandy commented that she appreciated seeing this tangible record of our discussion as the new ideas she had explored in our interview were now words on paper.

### *Textualization*

What emerges is a detailed description of the case, an analysis of themes, and an interpretation written with an intent to maximize the reader's encounter with the complexity of the case (Stake, 1995). Highly descriptive and characterized by vividness and detail, case studies include extensive narrative to help give the reader a vicarious experience (Creswell, 1998; Marshall & Rossman, 1999; Merriam, 2001).

Drawing on a postmodern perspective, Nilges (2001) explains the pivotal role writing plays: "meaning is not captured in the field and then innocently transcribed but rather created, in part, by the textual strategies used by the writer" (p. 235). Relativism is a hallmark of constructivism. It is not a matter of getting it right in the sense that there is one version to be discovered. Schwandt (2000) comments that "there is never a finally correct

interpretation” (p. 195). These powerful postmodern arguments were on my mind as I faced the challenge of how to represent multiple realities in my case study write-up.

Charmaz and Mitchell (1997) argue for audible authorship, stating that voice “clarifies the researcher’s place in, and experience of, that action” (p. 208). It describes what is found and the experience in finding it, bringing “fragments of fieldwork time, context, and mood together” (p. 212). Postmodernism also stresses authorial disclosure, polyphonic voice, and encouragement to readers to be reflexive rather than rely on the interpretive omnipotence of the writer (Nilges, 2001).

### *Reciprocity*

Harrison et al. (2001) wrestle with how much the researcher should participate in interviews, suggesting that by remaining silent it increases the researcher’s “othering”. Wanting to lessen this distance resulted in the conversational interview design of this study. The best examples of active construction of meaning in the interviews were when we engaged in a dialogue. It was fascinating to see how Brad’s ideas evolved during our second interview. He asked me direct questions, expecting a response from my perspective as a learner in the session or as a researcher. He took notes. He thanked me as he gained new insights. Twice he said that he didn’t know who was getting more out of our conversation, him or me.

Harrison et al. (2001) comment that reciprocity entails addressing power in the researcher-researched relationship. They emphasize that we need to be clear about our obligations, what we hope to give, and what we take. I was struck by people’s willingness to share ideas. I appreciated their efforts as they struggled to answer a question. In some cases they admitted it was the first time they had put together a particular idea. They asked

questions and were curious about current research findings. Participating in this case study gave people an opportunity to reflect on personal philosophies about learning and teaching. I sensed this was valuable to these busy people with demanding jobs and not much time for philosophical conversations with a receptive listener.

### *Situating Myself as Researcher*

Not surprising, given the sociocultural lens I used to understand teaching and learning in the online milieu, a postmodern constructivist stance best describes my orientation. Lincoln and Guba (2000) state that methodology is interwoven with and emerges from the nature of a particular perspective. Let me explain my ontological, epistemological, and axiological perspectives.

Ontologically, in a constructivist research paradigm, the nature of reality is described by relativism (Lincoln & Guba, 2000). Schwandt (2000) comments that the purpose of qualitative research is to acquire an “inside understanding – the actors’ definitions of the situation” (p. 192). As the researcher I was forced to hold disparate views side-by-side and to portray these multiple realities of an e-learning event. My role became “facilitator of multivoice reconstruction” (Lincoln and Guba, p. 171). I was conscious of how my positioning within the case changed during the inquiry.

Epistemologically, I regarded myself as what Lincoln and Guba (2000) call a *passionate participant*, interested in the active construction of knowledge with the participants. Schwandt (2000) states that a researcher must come to terms with how to occupy the ethical space where researcher and researched relate to one another, asking, “How should I *be* toward these people I’m studying?” (p. 203). Reinharz (1997) comments that we both *bring* the self to the field and *create* the self in the field. The created self is a

product of “the ways in which the research subjects interact with the selves the researcher brings to the field” (p. 3).

Annand (1997) suggests that unstated beliefs about learning theory influence the way an e-learning event is experienced, described, and investigated. From an axiological perspective, disclosure helps the reader situate me. Schwandt (2000) cautions that reaching an understanding is not a matter of tracking one’s biases, but rather requires the engagement of those biases. Reflective journaling helped me explore the continued influence of my personal positions and interests as the inquiry unfolded.

### *Personal Biography*

Denzin and Lincoln (2000) state that research is an interactive process shaped by the researcher’s “personal history, biography, gender, social class, race, and ethnicity, and by those of the people in the setting” (p. 6). Hertz (1997) suggests that to help make sense of the data we can draw on the richness of our own experience. As I shared in Chapter 1, my experiences with e-learning technologies such as the VSC and keen interest in dynamic and creative learning experiences shaped the focus of this study. In addition to my role as an e-learning strategist, which has enabled me to engage actively as a learner, facilitator, and instructional designer in the VSC, as a telecommuter I have been on several virtual teams and am very comfortable with distance collaboration.

I have worked in a variety of corporate contexts, including one similar to CC. While this made me familiar with the jargon and culture, I tried to adopt what Neuman (2000) calls an *attitude of strangeness* by questioning and noticing ordinary details. On more than one occasion I was forced to re-examine my beliefs. For example, after participants commented that they did not expect to create community in a VSC event such as DT, I was puzzled.

Having read literature extolling the benefits of building online community and believing this to be important for my personal learning, their comments forced me to question how I had arrived at my belief that despite individual learning goals, building a sense of community was important to the learning process.

### *Limitations of the Study*

A limitation of this study rests on its focus. A number of factors can potentially influence the collective meaning making in a workplace VSC learning event. In this study I paid particular attention to three factors: assumptions about teaching and learning, workplace context, and the technology. Even though this enabled me to delve into each in detail, there are other dynamics in a workplace e-learning event still to be explored.

Other limitations relate to the inquiry strategies. One concerns the nature of learning in the workplace. Although there were two VSC sessions, they were not long in duration so I was not engaged in data collection as a participant-observer for a long period of time. Building relationships and trust coincided with data collection, which may have limited the participants' openness. To counter this I created opportunities to build rapport, such as the initial calls and follow up e-mails.

A second methodological limitation has to do with case study research. As Wolcott (1990) points out, I studied a particular group of people in a unique setting. Nevertheless, the findings of this case study are not irrelevant. Merriam (2001) advises that by providing detail, practitioners can determine themselves "whether the research setting sufficiently resembles their own situation to warrant adopting the same practices" (p. 222). The reader is invited and given responsibility to be reflexive.

I am unsure whether the virtual nature of this study is a limitation. The setting was a VSC. The interviews were done by telephone. Logistical arrangements were made by e-mail. I never met any of the participants in person. I learned about them through telephone conversations, e-mails, and exchanges in cyberspace. And yet they are very real to me. We worked to understand teaching and learning in the virtual classroom (VC). We laughed together. For a period of time we were part of each other's lives. Not surprising in a multi-national company, people become skilled in distance communication.

In order to connect with my participants and build trust, I made a concerted effort to be more than a name on the screen or a voice on the phone. In this setting, worrying about whether or not to take notes in front of your participants is clearly not an issue. But without non-verbal cues the researcher has limited information to work with. As a result, I relied more heavily on interpreting the nuances in both people's voices and their choice of words and then asking them to comment on my interpretations.

Instructors, learners, and organizations are still figuring out how to make the VSC work. And just as these groups continue to explore the virtual nature of learning, researchers continue to discover and better understand the dimensions involved in a virtual research context such as this. Is this study diminished because of the virtual nature of what was being studied and the methodology used? Regardless of the context, qualitative researchers strive to create a connection with their participants and to understand another person's perspective. I feel I transcended the *virtual void*.

Patton (1990) comments, "There are no perfect research designs. There are always trade-offs" (p. 162). Short modular events and distance collaboration tools often characterize learning in the workplace. Although this presented challenges, this study was a great opportunity to explore a genuine learning experience in a realistic context.

*Soundness of the Findings*

Many qualitative researchers reject the traditional definitions of validity and reliability that are based on positivist and postpositivist notions of an objective reality. Instead, new criteria are sought that emphasize the study's believability and accuracy (Creswell, 1998) and take into account the interpretive nature of the work. Lincoln and Guba (2000) recommend asking, "Are these findings sufficiently authentic ... that I may trust myself in acting on their implications?" (p. 178). The literature suggests a number of strategies to increase the trustworthiness of a study. Specifically addressing case studies, Stake (1995) urges triangulation and member checks.

I used a number of strategies to enhance the credibility of this study. First, four data sources (interviews, observation, documents, and journaling) were used not to arrive at one version of what happened, but instead to help construct a complex picture of this workplace VSC learning event openly characterized by contradictions. Second, participants were encouraged to clarify, revise, and elaborate on their profiles and interview transcripts. This led to some follow up e-mails and telephone conversations, which helped increase the authenticity of the data and some of the early interpretations. Third, this report includes in-depth descriptions in which the participants' voices are prominent. By equipping the readers with rich descriptions I invite them to make their own interpretations and reflect on the usefulness of the findings to their particular situation. Lastly, by outlining the theoretical parameters of this study and surfacing my views and involvement, readers should be able to situate me.

Readers should now have an understanding of the research inquiry methods used in this study and how the data was collected and used to construct an understanding of this

VSC event. Consistent with postmodernist views, I have situated myself in this research project as an active participant.

## Chapter 4 – The Characters, Context and Event

In this section the complexities of the DT VSC event are revealed as the contextual layers in which it is nestled are peeled back. Wolcott (1994) states that in description, the researcher answers the question “What is going on here?” This rich narrative sets the stage for the analysis and interpretation in subsequent chapters.

Denzin and Lincoln (2000) write that texts based on a montage metaphor reflect that many different voices, perspectives, and angles of vision are present at the same time. To present the multiple realities of this VSC event, I used Wolcott’s (1994) technique called the *Rashomon Effect*. Named after a Japanese film, an event is related through the eyes of different participants. This descriptive narrative also moves in and out like a zoom lens, shifting between context and the particulars of the case (Wolcott).

### *Profiles*

To appreciate the experiences of these participants in their VSC learning event, it is important to have some sense of who they are, their association with the technology (WC) and DT, previous e-learning experience, and thoughts on teaching and learning.

#### *The Learners*

##### *Renee.*

Renee is a 28-year old learning solutions consultant who creates learning strategies for clients. She is on a “100% travel” arrangement, which means working onsite at the client’s premises. As one project wraps up she begins the next one for another client in a new location. When I interviewed her it was one of the rare occasions in the past four years when she had not been immediately assigned to a new project and so she talked to me from

her home office. Doing training on client time and space is tricky so Renee does most of this sort of work at her hotel in the evenings: “You pretty much have two jobs. One during the day and one at night.”

Over the past two years Renee has been both a VSC learner and facilitator. She is also well versed in other e-learning media. Her masters degree was on distance technologies in end-of-life care in the home. Renee took DT because she needed the certification to create and deliver her own e-learning events. It was also a client downtime, which gave her more flexibility with her time.

Renee enjoys learning. An influential role model in university changed her perspective on learning: “I am much more excited now to do classes and learn new things than I would have been otherwise.” She articulates strategies she developed to help her learn more effectively in the VSC: minimize distractions, take notes, and create a visual picture of the concept being discussed. She adds, “When I first started doing WC it was really hard to stay focused. These tactics help.”

Although she was able to adjust to learning in the VSC, Renee acknowledges that being brought up in a traditional classroom environment makes it more difficult for her to adapt to the self-paced asynchronous nature of computer-based training (cbt). Compared to cbts, which comprise the other e-learning mode heavily deployed at CC, Renee prefers the VSC, commenting that she finds it more satisfying and effective because she can interact with people. She also values informal learning:

Informal learning is where you learn the most. ... I think the best learning I get is from my day-to-day work with clients. Many times a client asks for something. You think you can do it but you're not sure so you learn in an informal way to do it. ... People have learning opportunities all the time in our organization because of the nature of the business we do.

*Lindsey.*

This is Lindsey's first job after graduating with a Business Administration degree. Twenty-four years old, she has been with CC for 2.5 years and now works as a technical instructor and continuing education program manager in an internal learning group. When we first spoke, Lindsey was planning to leave CC and pursue a Ph.D. in Information Systems in the fall. On Monday morning (the day of the second VSC event), she gave Robert (her manager) notice that she was leaving CC. She had just found out that she was missing pre-requisites for her Ph.D. When I interviewed her she had left the firm and begun her coursework at a local university.

She spent her last two weeks at CC immersed in VSC training and designing VSC sessions for her curriculum and was relieved to return to university and the F2F classroom. It was a stark contrast to her VSC experiences: "I'm so happy there is a person standing there speaking to me and actively writing on the board. There's this dialogue between the professor and student. It's easy to raise your hand to ask a question." Her e-learning experience is not extensive. As a VSC learner she is easily distracted by events going on around her and struggles to get over the lack of facial expressions and body language.

Lindsey describes how it felt to be a new VSC instructor:

Learning to click on the right buttons and trying not to let it affect your actual delivery was a challenge. ... I felt like I was talking to a wall. During the practice ... I'd be talking and thinking this is really weird. "Do you guys have any feedback for me? I can't see your faces and I don't know if I'm rambling." So it is very difficult to gauge the audience in the VC.

It is important to Lindsey that her time spent on learning is well spent. She is impatient with learning activities that are more time consuming than useful. Anticipating that she wouldn't like learning in the VSC, her first experience was surprisingly positive, "I thought WOW! This is very cool. What a great way to do all of this." But subsequent

technical problems and unengaging content left a sour taste in her mouth. She was taking DT because she needed the certification.

*Robert.*

Robert, 48, is a principal consultant in an internal learning group and manages the technical training of CC's new hires. He has been with the firm for 13 years. His background is in Management Information Systems and prior to joining CC as a technical instructor he worked as a programmer in the high-tech sector. He has exposure to a number of different e-learning media. Although this was not his first time in a VSC, most of Robert's VSC learning experiences are fairly recent. He comments, "Everyone is trying to get up to speed on WC" and his team is no exception as they put together a series of courses that blend self-paced learning with virtual collaboration and simulations.

Robert's ideal learning experience has considerable interaction, rich content, and skilled delivery. Confident in his ability to learn in the DT event, he still considers F2F encounters ideal. Robert likes the instructor and materials to be visible, pushing information to him. He gets more out of a session if engaged and likes the interchange with the instructor. An outgoing person, Robert looks for opportunities to jump in and engages when the course is personally relevant or touches him philosophically.

Robert describes learning in the VSC as very different, restrictive, and not immediately attractive. He believes that many of his learning assets, such as the ability to contribute freely, are not available online. But he is in a transitional process: "As I get more comfortable participating in these sessions, which are happening almost on a weekly basis now, it's getting easier." Robert took DT along with his team members because it was mandatory for certification.

Sensing there is a “revolution afoot” Robert jumped in and almost overnight his views on teaching shifted:

We have for a long time felt as though standing up and having one person lecture to students is not the most effective technique. ... I’m transitioning from this idea that learners receive this information from me in the way that I’m most comfortable in delivering it ... to now providing this information in a way they’re most comfortable receiving it.

*The Software Developer - Matt*

Matt has been with WC for 5.5 years, four of these as a product manager for WC. He works extensively with customers and their day-to-day needs and also collaborates with internal groups to prioritize product features. His influence on the product is significant. Matt, 33 years old, has a mechanical engineering and physics background. After doing research work for several multinational companies he taught high school sciences for two years in Africa as part of the Peace Corp. He shares, “I had never taught before ... and discovered it’s not a simple job to find ways to keep people engaged.”

Matt uses this technology daily for meetings and to give technical overview sessions. He appreciates the convenience this medium provides. Because he lives a distance from the office, Matt often works from home especially if the weather is bad: “I can do virtually everything from home using this technology.”

Although he finds some learning theory useful, Matt relies primarily on trade shows, industry magazines, and gurus, as well as other people within WC to help shape his vision of e-learning. As a learner, Matt believes that the majority of learning, especially the learning that will make you successful in life, takes place in an informal way rather than through structured formal learning:

Based on my personal experiences and some of the research I’ve read, 80% of what you know about your job is learned on the job and by interacting with colleagues. ... You sift through, listen, and pick up ways to do things. You ask questions. ...

You're forced to write something and realize how much you know. In my role a lot of conversations start at lunchtime. ... Others bring a different [perspective] and I pick up things that can end up being very helpful in my job.

Matt considers informal learning a key part of how people learn and compared to formal training finds it more fluid and effective:

Formal training is necessary but you can only cover so much ... and a lot of it doesn't stick. It's restrictive [at a time] when companies need to be more dynamic and flexible. People work at home more and travel more. Getting together in ad hoc groups and discussing things is important.

### *The Business Leader - Sandy*

A principal consultant and program manager for the Distance Collaboration (DC) team, Sandy, 42, has a mandate to get distance collaboration working within CC. Describing herself as an operational person, she feels her background makes her ideally suited for her current task. She obtained a Masters of Computer Science degree and extensive training in telecommunications and applications programming in her 10 years with the US Army.

In her eight years with CC Sandy has been a programmer and spent two years as a technical trainer. She had been instructing for five months at CC before she was able to take the train-the-trainer course, by which time she had already figured out much of what she needed to learn about classroom facilitation. This impacted her approach to DT: "We're trying to give people best practices right away ... instead of saying now you've done distance collaboration for six months we're going to train you to facilitate."

She has engaged in different e-learning media and participated in the VSC as both learner and facilitator. Looking back Sandy says that she *had* to facilitate. She needed to learn the tool quickly, her team was small, and they were given few resources to meet their mandate, all of which necessitated a hands-on approach. Sandy believes CC is at the tip of the iceberg when it comes to understanding what collaboration possibilities WC can support.

She strives to understand how to engage people virtually. When she is in a VSC she wants to feel connected to the others: “I want to feel like I’m surrounded by people especially because I’ve only got a computer and it’s inanimate. I want to be part of the classroom ... even though I can’t physically touch or see the others.”

She finds many F2F learning sessions ineffective, commenting, “I personally hated the physical classroom because I had to sit there for eight hours at a stretch and watch someone talk through slides that I could read myself and get just as much out of what they said.” Her experiences reinforce the importance of training the right people at the right time with skills they will actually use. She recognizes the ongoing nature of learning and emphasizes how important it is to learn while you are working.

### *The Instructors*

#### *Bruce.*

Bruce, a 42-year-old consultant, ended up on the DC team as a result of a corporate reorganization. With 1.5 years of experience as a WC instructor, he is considered a subject matter expert in this area. This is not Bruce’s original career path. His background is in Information Systems and he has a M.Sc. degree (organizational management). Prior to that he was a Funeral Director. He describes the thread running through these diverse careers as being in a position to help and guide people.

Bruce works virtually with members of the DC team, including Brad and Sandy, to promote the use of distance collaboration tools throughout the organization. Even without extensive instructional experience, he had to make a transition to online instruction, which he found requires a very different approach. Initially it was daunting because he couldn’t

see faces and the interaction. He discovered that “teaching in a VSC evolves with experience and exposure.”

Others within CC influence his teaching practice and he relies on informal learning for his own development. He likes the direction e-learning is going and is glad to be part of it at CC. Bruce believes his team is at the forefront in how they employ WC and next year they hope to present at the annual WC Users Conference. Bruce loves the VSC but acknowledges it is not the be-all, end-all: “It’s part of the puzzle.” He emphasizes that it has to be used appropriately and not for one-way presentations. He is a pioneer, working to share this message with other learning professionals, many who do not yet take advantage of the technology to create an interactive learning experience.

Bruce and Brad designed DT and co-lead the events. Bruce learns best by doing and this approach permeates his courses. He believes that active learners are best able to pick up skills and use them. He explains his goals:

I don’t want people to sit back and listen to me. I want them to become actively involved. I want them to ask questions. I want to do different activities. I want them to have some hands-on work and think about things.

Technology glitches can lead to poor VSC learning experiences. Bruce is philosophical: “Technology is technology. The car’s not always going to run either when you need it.” He has learned that how the instructor responds during technology breakdowns is important and adds that although he might be sweating bullets and dying inside, in the VSC people can’t see that.

*Brad.*

Brad, 31, engineered his entrée into the world of online facilitation. With a diploma in Business and Finance he started out as a receptionist at CC 12 years ago. He moved into a training venue in London and worked his way up. When Brad heard about WC he found an

internal training course. Despite being told it was full he stood outside the door on the day it was scheduled hoping to get a seat if someone didn't show. He got in and his determination seems to be paying off.

He loves facilitating in the VSC. Although not a planned career Brad has clearly found his niche in the training world. He does not have prior classroom instruction experience but his experience as a weekend radio presenter comes into play in this study. He gravitated to the VSC media because of its likeness to radio presenting, his prior involvement in distance learning, and a fit between this medium and his teaching philosophy. Here was a tool to facilitate "right training, right time", an approach to training in which he firmly believes.

A learner-centered approach is important to Brad. He believes "the learner comes first" and strives to put himself in the learner's shoes: "It's second to none for me, I do it everyday but they're in this environment that is really weird to them. How silly do they feel speaking into their computer? ... How distracted are they? ... Are they boggled?" Connecting with the learners is crucial to Brad and he believes this can happen regardless of technology. Talking about the weather with learners is not just idle chitchat; it is a strategy he uses to help him connect.

Brad relies on verbal exchanges with others in a VSC and to some degree that has helped him compensate for the lack of body language. Because you can't see other people, the VSC doesn't strike Brad as a visual setting and so he emphasizes, "We need to be over the top with our voices." He admits that because you can't see others there can be a sense of disconnection. Laughingly he adds that having a vivid imagination helps, as his approach is to visualize people listening to him.

Brad had a steep learning curve when he joined the DC team. Commenting that he needed to soak up as much as possible in a short time by listening, reading, and constantly asking questions, he adds, “A lot of things have been self-taught.” Brad prides himself on being very self-aware and learning “just in life”:

If something happens to me I will do everything I can to glean some kind of learning from it and make sure that first of all, I don't make that mistake again or if something does work for me, “Well, hold on, what was it? What got me to that point? I must do that again.”

#### *The Organizational Context - What it is Like to be a Learner at CC*

In a knowledge driven industry, CC's biggest asset is its people. Sandy remarks, “What we have to offer is what we know.” There have been considerable changes in their learning culture and it seems to be a very volatile setting for learning. The state of the organization's finances exerts a strong influence on what learning opportunities are available. Furthermore, employees are expected to self-manage their own learning often with little support from the organization. Substantial investments in distance collaboration tools, such as the VSC, signal that this organization is clearly in transition.

#### *A State of Flux*

Robert observes that the “learning revolution” and new technologies challenge the thinking that has traditionally driven their educational programs. He believes that they are in the midst of a paradigm shift and instead of regarding learning as an event they now see it as a “continuous process”. Quoting Elliot Masie, a popular learning guru, Robert refers to this process as an “IV drip of knowledge”. He adds, “It has personally challenged me to not be tied to ways we've done it in the past.” Renee also sees evidence of this paradigm shift:

Within our communities ... there are so many opportunities to learn. For example, we use e-mail now like I have never before seen. I'll send out a request for

information ... “Has anyone ever done this before?” And I’ll get 100 responses and some great information. I think knowledge sharing and learning from other people in the group is a great way to do it.

This shift is also expressed in other ways. Workers within this company must take responsibility for their own learning and according to Robert, draconian measures are in place to enforce that responsibility. Renee comments, “You really have to take a stake in what you want to learn and find the best courses.” To help employees, the organization has made a number of self-study options, such as cbts and VSC sessions, available to everyone.

Robert adds:

You have to take advantage of these and figure out a way to use them to further your career goals. ... The organization no longer has the infrastructure or staffing to do that and has moved from “We’ll take care of you” to “We’ll support you.”

### *The Bottom Line*

In turbulent economic times watching the bottom line is a necessity. There is decreased time for training as consultants increasingly need to spend 100% of their time on billable projects. Renee comments, “You really must pick and choose what you’re going to learn because you don’t have a whole lot of opportunities.” Budget cuts mean that people cannot travel to attend F2F training, which as Robert explains, forces people to take the cbts or attend VSC events. Not everyone is convinced that the increased use of the VSC is because it is more effective. Robert believes it is driven by economic benefits: “If cost was not an issue it would be more effective from a learning perspective to have everybody in the same place.”

Although the training department is also feeling the squeeze, learning initiatives are now better aligned with organizational strategies. Business cases must be built before a new learning project can be pursued, formalizing the process. Bruce sees this in a positive light, commenting that the result is better prioritization of efforts. The current economic climate

has led to an increased interest in blended learning solutions, which are seen to meet financial constraints and learning objectives (for the most part) while conforming to corporate media mix objectives.

### *Self-Managed Learning*

Workers make learning decisions based on their job requirements and career path. Recognition and reward are important criteria in Brad's decisions. He wants his learning efforts to be noticed. The training he does is purposeful, a stepping stone for advancement. US employees must also acquire a number of continuing professional education (CPE) credits annually.<sup>2</sup>

Learning in this organization can be challenging. Time reserved for learning can be pushed aside at the last minute for more urgent priorities. There are often eleventh-hour changes in assignments, resulting in learners being pulled off scheduled training sessions. The consultant who planned to take training during a week "off" between projects can easily be shifted to a new project at a moment's notice. To Sandy, it seems immediate priorities are often a higher priority than personal growth.

Although expected to be self-directed learners, this is done with little support from the organization. Sandy observes that because training time is not chargeable there is little time for it. She believes that although CC supports continuing education, current practice indicates otherwise: "The result is people rush through training sessions or do not get what they should out of them." Renee likens learning in CC to being "lost in a sea of ambiguity". With a plethora of learning portals and training options it can be overwhelming and frustrating, forcing the worker-learner to be flexible and resourceful in how they address their learning needs.

These challenges are compounded when the consultant is working onsite for a client. Brad believes that the VSC will help because now they do not have to leave the client site to attend training. However, he adds, “Leaving to attend a F2F session for one day or finding a quiet location onsite for a two-hour VSC session may end up being almost the same problem.” Renee has found herself whispering in her cubicle while in a VSC event, trying to be discrete about the fact that she is in a learning session.

Given these organizational conditions, it is not surprising that the participants in this study rely heavily on informal learning avenues. Although she struggles to juggle work obligations with time out for informal learning, Sandy feels it is valued. Each participant provided examples of rich informal learning experiences. Dialoging with colleagues seems to be the primary vehicle and a number of communities of practice are emerging to support collaborative knowledge construction between co-workers. Given the power of the organization to sanction learning opportunities, concerted efforts are now made to legitimize participation in these types of forums. All of which helps, Sandy explains, when your manager looks over your shoulder and wonders what you are doing:

If you're on the [CC community of practice] project management web site they're going to go “Wow. That's great.” Instead of if I'm just surfing the web looking at other project management stuff they might say “What are you looking at? .... I need you to do this for me.”

### *Transitioning to the VSC*

Bruce's observation that there is increasing excitement and awareness about the VSC is supported by others. Renee's group has been using this technology extensively for the past two years and she comments, “Without the VSC a lot of us would be lost on a lot of topics.” Out of necessity, weekly lunchtime knowledge-sharing sessions are now being successfully delivered via the VSC within this self-formed learning community.

Sandy explains that attending F2F training was a reward because people got to travel and get away from work. These events are missed and Robert, for one, has fond memories:

In March everybody would jump on a plane and go to California for a week to take these courses. What a great time it was. It had all kinds of advantages and we all really miss it. Because not only did we actually learn some stuff, we networked, drank, and had a good time. Those days are over. Done.

### *The Virtual Setting – WebClass (WC)*

When a learner registers for DT, they are sent an e-mail instructing them to self-enroll at CC's Collaborative Learning Zone web site. First time users must install the WC software, which takes 2 to 10 minutes depending on Internet connection speed. Users are also directed to the system check to ensure their hardware, software, and network connections are adequate. Learners are instructed to begin the login process 15 minutes before the session, close all open applications, and exit virus scans.

### *The Interface*

For more explanation of the features of this technology refer to Appendix F. When learners enter the VSC they see the interface illustrated in Figure 3. The instructor interface is similar albeit with more features. Instructors use the *media window* to display slides and visuals. Participants can also share, create, and revise images in the media window. For example, they can use the annotation tools to highlight text, draw images, or type text. They can also import PowerPoint slides into the media window or share an application they have on their desktop. The *people panel* lists the participants in the event. Matt explains that an intimate people panel where you can see everybody who has logged was designed early on. Participants can see who clicks yes, no, laughs, or raises their hand. Matt elaborates:

Products in early days ... lacked this type of peer-to-peer contact. In WC you can see what other people are thinking, feeling, or saying and you feel a bit more like you're part of a community rather than this remote person.

The primary features are on the top tool bar. Clicking the raised hand icon will raise and lower your hand. Learners are often asked to click on the green ✓ or a red X to respond yes or no to a question. To show approval or congratulate others in the session, participants click on the applause icon. If something is funny, you can click on the smiley face. Both will flash to the left of your name for five seconds. The emoticons are a new feature. In the DT event, Brad encourages their use, "They show you [the instructor] in this non-visual environment that learners are actually engaged and you'll be able to see their body language."

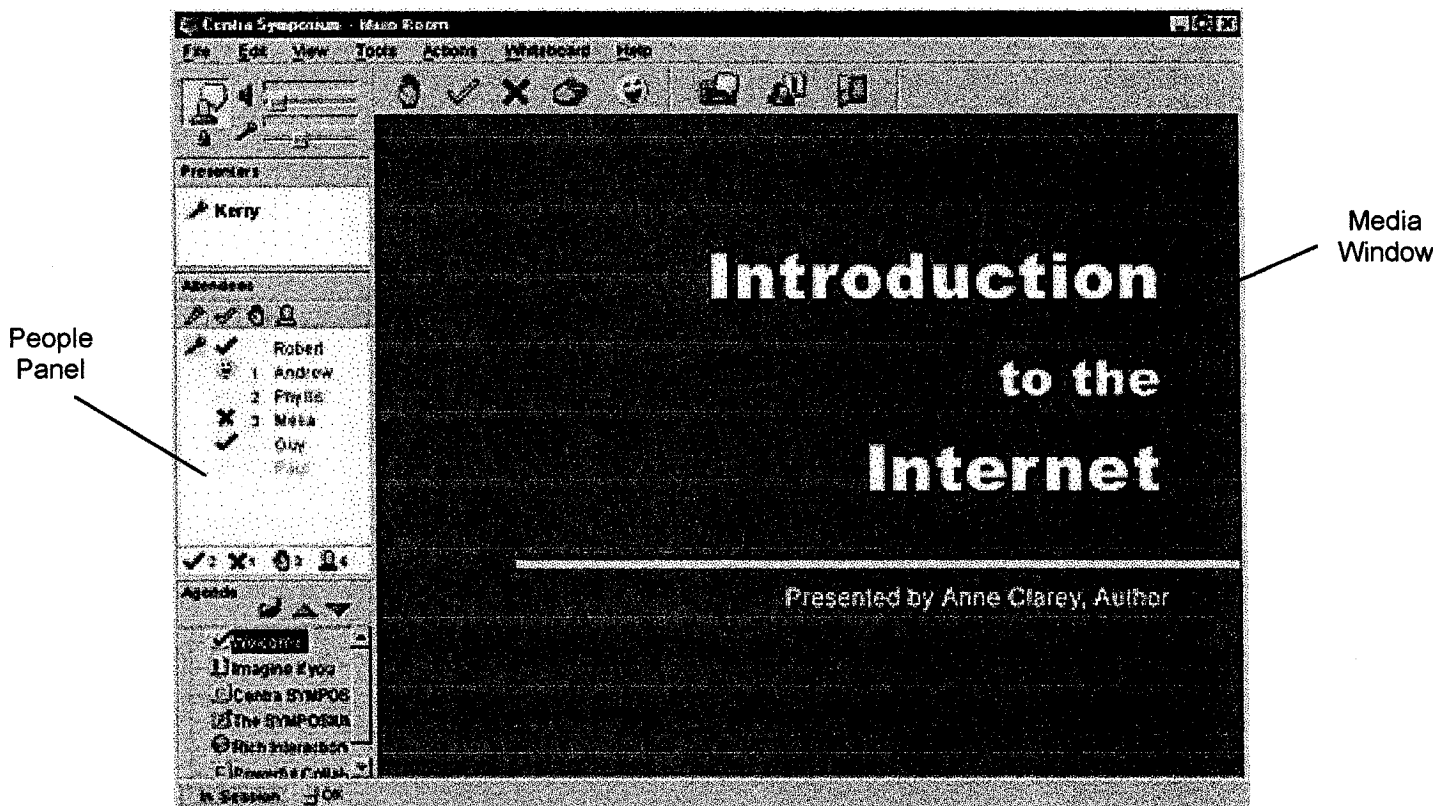


Figure 3. The learner's view of the WebClass (WC) virtual classroom interface.

WC uses voice-over-IP (VoIP) technology. Participants hear and talk to each other via their computers. The presenter grants speaking privileges by giving participants a virtual microphone. A person is able to speak only when they have a microphone icon by their name.

Matt comments that advanced features like breakout rooms make it more engaging, help create a sense of community, and ensure people are learning. But he adds that the product doesn't force the instructor to learn these in order to lead a VSC event. This may explain why the default instructional practice is for instructors to step through PowerPoint slides and rarely incorporate any of the advanced features. These types of presentations go by a few different names, all of which convey a transmission model: knowledge transfer, data dump, or information push.

In the VSC, body language is expressed verbally or through virtual exchanges. Sandy refers to *virtual body language* when she talks about engaging people: "I see people engage when they ask more questions and respond quicker. I can hear it in their voice." Brad even has his own phrase for it, *verbal eye contact*, analogous to eye contact in a F2F setting.

### *Design Vision*

Matt explains that their vision of learning encompasses informal learning, collaboration, and peer-to-peer learning. They also embrace blended learning:

While WC is still tied to the live VC, we are moving a bit beyond that. ... There is a large asynchronous learning world out there and there's more and more live learning whether it's instructor-led training or online, but the two by themselves are not nearly as effective as trying to combine the two. ... The idea is you now have this live wrapper around chunks of self-paced content and questions get answered right away rather than in a time-shifted fashion.

Matt is clear that the VSC is not meant to replace the F2F classroom, “Some customers move everything to the VSC and have been successful.” But he adds that for most, and even at WC, the VSC is a complement to instructor-led training and they still fly people in for training. Yet the physical classroom was used as a design model for WC. Matt comments:

People learn in a classroom. ... At a minimum we wanted people to interact, learn, or deliver at least as well as they could in a physical classroom. ... We tried to make it so people can re-create the live classroom online.

To other participants in the study, the VSC is a distant cousin to the physical classroom. Renee is emphatic that they are two totally different media:

It’s not the same. I know we call it a VC but it’s not. It’s a very different environment. It involves a mindset change. [Instructors] have to re-learn how to teach and get people involved. It’s a whole re-learning process.

Robert regards the VSC as a double-edged sword:

It is different ... and if you compare the two, WC will always come up short because as human beings we prefer interaction with live people. Look how long it took for us to get used to using ATMs. And some people still won’t use them. They want to talk to a real person. I don’t see this as all that dissimilar. ... Because we’re just getting used to the technology I think it’s going to hurt our credibility if we try to sell it as the traditional classroom, only online. The tool is primed to give you options not available in a F2F classroom ... but you’re not going to get the interaction, which is the good thing about a classroom-type situation.

The design of the software is not influenced directly by one particular learning theory. Matt explains that the vision of learning that drives their product roadmap comes from talking to customers, their own experiences in trying to manage a business, trade shows, and industry gurus like Elliot Masie. Some of the theory is useful but it isn’t a big factor in their strategy decisions:

Our education team follows that fairly closely ... but when you’re designing products with only x number of features per release, getting down to the n<sup>th</sup> degree of theory isn’t as critical as just understanding the five most important things about how people learn.

*Delivery Training (DT)*

With a focus on WC because of an existing global license, the DC team was put in place with a directive to make distance collaboration work. The major deliverables were a WC curriculum map, a stable of learning solutions, and established business processes. Long before any work was done on DT, the team had other priorities such as getting the technology running on a stable platform. Ten months later the team was in production mode pulling together the courses very quickly. After two months of development, the ten courses were integrated into the internal learning portals and they opened their doors for business with a series of pilots.

Mandates at several levels guided this development. The overriding goal is to make distance collaboration an integral training component. Within the internal learning group, the strategic objectives are to present learning solutions in more than one media (design blended learning solutions) and keep a learner-centered focus. Specific targets for medium usage are set: 35% of all training delivered F2F, 30% in the VSC, and 35% by cbts. The slogan “right training right time” echoes the prevailing just-in-time philosophy. Sandy explains that this translates to her team as, “help other folks [in the company] have the best distance collaboration experience.” They will be considered successful if CC employees have a positive e-learning experience and are willing to try it again. Acknowledging that the VSC is not for everyone, Sandy emphasizes that it is important that poor technology or delivery does not turn people off. The desired result is for the VSC to become integrated into how the organization works and does business.

The DT training curriculum identifies seven possible WC roles including event manager, leader, and participant. The learning path for each role specifies the required learning events, sequence, and expected time commitment. According to the curriculum

map, becoming a certified WC Leader should take about 15 hours. CPE credits are awarded on completion of learning sessions; attending DT earns participants three CPE credits.

Prior to attending DT, learners are expected to have completed the other four e-learning events in the Leader learning path: Introduction to WC, WC Best Practices, Hands-on WC!, and Leader training. Participants in this study had worked their way through these pre-requisites for DT as well as a number of other courses for the event manager and content developer roles.

The final step in the certification process is for a member of the DC team to observe the candidate's first delivery. Sandy comments:

We think [this] reinforces our message that these are best practices. We don't want you to take our training and then go do anything you want in any way .... The only way I can really tell how effective our training is to see what they do after.

The certification has some "teeth" within the organization. Although she had been creating and delivering her own WC events for two years, once this curriculum was put in place Renee was not able to access the WC system until she was certified.

### *Designing DT*

For a comprehensive outline of the second VSC event refer to Appendix G. The intent of DT is to generate a common understanding and sharing of best practices about delivering in a VSC. Sandy explains, "The value we add ... is from our [collective] experiences and what we know works for CC. If we don't impart this information, people won't get it anywhere else." It is difficult to pinpoint how voice became the primary focus of DT. Brad notes there were no "aha" moments when settling on voice as the key focus: "We both knew that was the direction we wanted to go."

The DC team had a number of design parameters: take people's experiences and put them in a virtual classroom context, engage the learner prior to the event, work within the learners' busy schedules, and get "hands-on faster quicker". Bruce comments that it is important to design activities that give learners exposure to various features of the tool, "My advice to learners is to use the tool for what it's got. Use it to its max." He worries that learners won't realize all its potential capabilities if all they do is get content delivered to them rather than being encouraged to use the tool.

There is some discrepancy in whether DT was intended to be a collaborative learning experience. Sandy believes that it is, especially when the bigger picture is taken into account: "When learners go back to work on their projects ... they are collaborating with a whole new group of people. The skills they have learned in DT are affecting those people's first impressions of WC." Like Sandy, Bruce believes DT is a collaborative learning experience: "I don't think we'd want to do one [an event] that was not." In contrast, Brad comments, "DT was meant to be interactive and by the nature of the tool meant to be collaborative. But in the first draft of this course we ... weren't trying to make it a collaborative learning event."

The actual design of the DT event was done virtually using another distance collaboration tool and webcams. Brad states, "It came together like clockwork as we [Bruce and I] worked late into the night for a few nights." Although the instructors did not seem to have divergent opinions, Bruce explains there was animated discussion after the pilot. Although Brad laughingly admits he doesn't know Bruce's teaching philosophy, he believes it is similar to his: "I find it hard to think that we could be on such a similar wavelength and bounce ideas off each other and work so well together if we actually weren't looking at this from the same perspective." Collaborating with Brad on this course has had a lasting

impression on Bruce. Influenced by Brad's radio presenter background he is now conscious of how he uses his voice in the VSC.

By giving learners an opportunity to practice and self-assess their voice in the SMP prior to the VSC session, the learning event grew into a blended solution. The Orientation session (initial VSC event) was not conceived as part of this blended learning event. In the DT advertisement, attending the Orientation is only "highly recommended", not mandatory. It came about because the blended approach needed to be explained to the learners. Aware they were looking at a cultural shift, the DC team feared that people wouldn't do the SMP, not realizing that it was an integral part of the course. Sandy comments that they cannot trust that learners will read about the blended approach in an e-mail or in the course guide. As a result, the 60-minute Orientation was designed to convey that the self-managed components were mandatory.

The layers surrounding this case study have been peeled back. First, what it is like to be a learner at CC was explored. The next layer was the virtual setting for this learning event. Finally, we delved into the background behind DT itself. We now take a look at the second VSC session of the three-part DT event to capture the participants' teaching and learning experiences in a VSC.

### *The Event*

It's 19 minutes before the second VSC event is scheduled to start. The e-mail that I have been anxiously awaiting finally arrives in my inbox:

Re: URGENT, USE THE ENCLOSED LINK - WC Delivery Training  
Please do not go to the server referenced in the earlier change notice! Please follow the instructions below to attend today's event. Sorry for the confusion!

Network difficulties over the past few weeks have resulted in technical problems and a decision was made on Friday to move the DT event to a new server. During a conversation with Sandy, two hours before the event on Monday morning, we realize that I will not be able to attend the event because the new server is behind the CC firewall. She springs into action to find another server. A new event is created and participants re-registered and notified. It takes me four minutes to login and I arrive in the VSC four minutes before the event is scheduled to begin.

In the Main Room I can see Sandy, Robert, and Lori's names in the people panel. Bruce sits in the leader box and does a sound check with me: "Give me a green ✓ if you can hear me" (which I can) and then giving me a microphone, "Hold down your control key and say a few words" (which I do). To my relief I can both hear and be heard. The title slide, *Delivery Training*, is in the media window. At this point each person would normally have a microphone icon by their name, giving us the ability to speak and talk with others. However, we are already in session mode so learners cannot speak unless the leader gives them a microphone. I open text chat and check for messages, private or public – none. I peruse the agenda in the bottom left-hand corner of the screen to see who has done their voice recordings. It looks like Lindsey, Renee, and myself.

As participants drift in over the next 10 minutes, Bruce does sound checks with each one. Renee mentions that she needs to whisper because she is sitting in a cube at a client site and doesn't want the people around her to hear. No sign yet of Brad, the other instructor. Unlike the Orientation session last week, there is no chitchat as we wait for today's event to get started. It is strangely silent. I sit staring at the screen. Others are busy doing last minute e-mails. Without microphones we can't speak without raising our hand. There is always text chat but no one is typing into that either.

Sandy wonders how to replicate what happens when you walk into a room, look for someone you know, and then go over to them and start a conversation. She doesn't like feeling like she's the only person in the session sitting in the corner by herself:

You can see names in the VSC. ... But even if you recognize a name the challenge is how you strike up a conversation. ... We will have a whole class of people who know each other and they won't raise their hand to talk to each other. Even if we give them microphones they won't say a word, but if this was a F2F session they would be talking their heads off.

Her group has had limited success with building the pre-class rapport although she believes it will come as people get more familiar with the tool and use the text chat.

Waiting for today's event to start I think back to our Orientation last week.

Thankfully we don't seem to be having the same network glitches. People were getting dropped off at the beginning, their names just disappearing from the screen. Both Brad and Bruce's voices kept breaking up. This must be part of the VoIP problems that prompted the last minute server switch. It's hard to know if our voices would have also broken up – we did not say a lot.

According to the e-mail advertisement, the purpose of the Orientation session was to give an overview of the DT program, provide us with the SML materials, and instruct us on how to complete the SMP. Mission accomplished. We left with our action items and timelines well laid out. Sandy comments that the SML and SMP components are mandatory: "If you don't do this you cannot attend the training. We don't want people to just show up and not have their recordings done."

Twenty-eight minutes and thirteen slides later, applause icons flash as Brad thanks us for attending the Orientation session and lets us know that we should prepare to have fun. There's one question from Renee who missed the announcement about next week's date change because someone dropped by her cube during the session, distracting her. No one

except the instructors introduced themselves. Where was the icebreaker I have come to expect at the beginning of a training session - the activity where we highlight our experiences and talk about why we're taking the course? I wonder if we'll do one today.

Today's 2.5 hour VSC event is slotted into day timers like a meeting. Participants in DT work in three time zones. For Renee it is only 10:00 in the morning while it is already 4:00 in the afternoon for Brad. Everyone's day leading up to the session is different.

### *Bruce*

Bruce arrived at work not sure what was going to happen. Networking issues have been showing up as glitches in the audio, a problem that is proving difficult to solve.

I had two meetings in the morning, the last one finishing an hour before DT. Throughout the morning I was busy talking with Sandy about the server. Other than the server switch, which didn't bother me that much, preparations were routine. Hanging on my cubicle wall is a plastic tent card reading, 'Please do not disturb. I am participating in a live e-classroom online learning event.' Fifteen minutes prior to the event I logged out of extra stuff and logged into the VSC. I was first in, which I like. I hate jumping into the room when participants are already there. My workspace is already configured for VSC instruction, so I didn't need to do a lot of special preparation. I have a huge clock and a bottle of water handy and my instructor notes are laid out.

### *Brad*

Brad is late joining the session. Normally he likes to give himself 60 minutes to prepare himself and both his physical and virtual learning environments. His well-honed routine starts with reading through his notes. He then unplugs his PC, goes to another room, sets up again, and makes sure he's comfortable before logging into the event, preferably 30 minutes in advance.

Although little glitches are common, the server swap at the last minute created somewhat of a nightmare for me. Turns out I didn't have a logon so I did a lot of phoning. This running around was compounded by network problems in the UK. I launched my browser and my screen was just sitting there blank. It chewed up a lot of the prep time I would normally have.

*Lindsey*

Although everyone knew Lindsey was going back to school, leaving so abruptly was unexpected. She got to work early that day to find Robert and give her notice. She was frazzled from having just found out the Friday before that she needed to take pre-requisite courses over the summer.

The last minute server change was not a big deal for me because I was aware of all the crazy server outages and changes with other courses. I was a bit jittery coming into DT because I now realized I had limited time to work on my reports and get them done. I didn't really change my physical environment too much. I stayed at my desk. I had a pen and paper ready and all the SML/SMP materials.

*Robert*

The morning leading up to the event was typical, responding to e-mails, voice-mails, and making phone calls. Spencer, Daphne, and Lindsey are sitting nearby in the cube farm.

I tend to look forward to these events so about 30 minutes before, I start thinking about the upcoming session. I like to log in early and see who else is there. I made the decision to do this from my cube rather than go into a conference room. I would only book a room if I was going to contribute a lot, be more than a learner, or if I just wanted to get out of my cube.

*Renee*

Renee made a point of arriving at work early because she is in the midst of a global implementation and had booked off 2.5 hours to attend DT. She was busy trying to get things taken care of prior to the session.

Trying to schedule time during the day is really hard. Normally I would reserve a conference room just to be away from the noise. But today I had to do this session from my desk because I needed to be able to circumvent client questions. I get ready for a VSC session about 15 or 20 minutes before it starts. I told my team members that I had something to do for about an hour but to come ask questions if they were urgent. I put on my headset, got out the handouts and a notebook, checked e-mail one last time, found out about the server change, and then logged on.

Learners were taking this course to fulfill certification requirements. The fact it was the last in a stream of five mandatory courses shaped the attitudes learners had about

attending and participating in DT. Commenting that it is not uncommon for classes to be mandatory, Robert, on the one hand, finds it is often better if something is mandatory because then he has to block out the time and prioritize it above other things. On the other hand, it made Lindsey less excited about attending this course; a feeling that got stronger when it seemed that much of the material was a repeat of previous courses.

At 11:08 the event finally gets underway and Bruce welcomes us. Looking at the names on the screen I recognize only Renee and Lindsey from the Orientation session. Robert had deliberately not attended Orientation because he had already been through a few in previous courses. Lori had also not attended, although she is a member of the DC team and familiar with the content. Spencer and Daphne are colleagues of Robert and Lindsey. Brad sends a quick private text chat to Bruce asking who some of these people are. Bruce knew they were working on a rush VSC project, found about DT, and just hopped on. Brad thinks, "Fair enough. ... This is what just-in-time training is all about."

The addition of Daphne and Spencer to the DT creates a distinct group dynamic. Lindsey calls them the *window cubes*. In her building, consultants have to have a certain designation to get a window cube. Throughout the DT session the window cubes - Robert, Daphne, and Spencer - shout back and forth to each other over their walls. Lindsey adds, "I'm not really friends and they're all friends which is why I didn't participate in the yelling. I would have though if I had felt more comfortable."

After reminding us to log out of other applications, including e-mail, Brad asks us to contract for a safe environment:

I'd like you to click on that green ✓ if you are happy to contract with me that this event will be an honest event, feedback will be constructive, and that this is a safe environment. Any sharing we do or feedback that we give to each other is kept in confidence and within the four walls of this event itself. So if you do agree to that contract of security, safety, and honesty in today's event please give me a green ✓. Thank you.

Green ✓'s go up beside everybody's name except Robert. This is the first time in DT history that someone has not put up a ✓. Publicly Brad invites us to send a text chat if we have any comments about the contract. Privately he interprets Robert's silence as an indication that he may have zoned out. He communicates privately with Robert using text chat and receives his agreement.

Not everyone followed Brad's instructions to log out of other applications. In our interview Robert explains why he didn't: "Everybody says please shut down all of your other tools. And they're saying they want me to shut [these down] so I'll be forced to listen to this individual. I'm not going to do it."

Bruce introduces the first activity, an icebreaker called Trash'Um. The visual in the media window is a waste paper basket with the words "Um", "Hmm", and "Err" littering the floor beside crumpled pieces of paper. The text reads: "Can you speak for 30 seconds without using any verbal garbage?" Bruce asks us to click on our raised hand icon. As each person clicks, a raised hand appears by their name along with a number to indicate the order in which hands were raised. Each of us is given 30 seconds to introduce ourselves. Every time we use verbal garbage, Bruce puts a blue ✓ on the slide. Deciding to start with the person who raised their hand last, which happens to be me, he passes me the microphone and I think, "OK, 30 seconds to fill". I start with "um" and up goes the first blue ✓. When I finish, I get a round of applause from Bruce who uses the clapping hand icon and the microphone is passed to Lori.

Lindsey and Renee liked this icebreaker. Renee says, "It shows people how long 30 seconds really is in a VC when you have dead space and you don't have anybody that can talk back to you." In the meantime Robert, thinking this is kind of lame, intentionally steps out of the session and returns which re-numbers the hands and makes it appear as though he

has already gone. Bruce however catches on and asks Robert to introduce himself at the end. Robert uses a lot of ums, and the blue ✓'s go up quickly:

... taking this particular program to learn a lot more about um delivering training via WC so that I can – will you stop putting those checkmarks all over this thing? [more blue ✓'s go up] Thank you very much. [even more blue ✓'s]. I quit.

Sitting at our desks we laugh out loud at Robert's antics. But in the virtual space there is only silence until Bruce comes back on five seconds later and we can hear him laughing as he starts to speak. Because of the way the instructors have set the VoIP functionality we will never hear the whole group laugh. We can hear only the person with the microphone and only then if they have their Control key pressed down. By now we are 20 minutes into the event and the rhythm of the conversation is established. There is a sense of formality to the dialogue. One person speaks at a time and only when the instructor gives them a microphone. Because we do not all have microphones it is difficult for people to jump in with a quick comment and some of the spontaneity of synchronous dialogue is lost. Although having microphones would facilitate discussion, Brad explains that they have a lot to pack in so instead they invite people to raise their hand if they have a comment.

It takes five to eight seconds from when the microphone is given to someone until you hear their voice. Already in this session we have been polled three times and asked to give either a green ✓ or a red X in response to a question. This introduces another pause into the conversation as it takes about 10 seconds for everyone to respond and for the instructor to interpret the response and then clear the people panel of the ✓'s or X's. The result is a slower paced dialogue, filled with pauses while we coordinate our actions on the interface so we can interact with the virtual tools instead of words. Lindsey contrasts this dialogue to her experiences in a F2F setting:

It's easy to raise your hand to ask a question in a physical class. In the VSC there is a delay from the time the person stops talking, when I hear them finish talking, when

I raise my hand and am told to ask my question, to when I finally ask my question. Then it's back to the instructor to respond.

Brad talks about the four objectives and comments that although much of the material we receive today may be a reminder of delivery basics, the angle we are approaching it from is a distance learning perspective. He then urges us to participate:

Throughout today's event we encourage you to click that raised hand icon. We want to have today's event as open, free, talkative, and interactive as possible. You guys have a lot of experience when it comes to delivering, especially in traditional classrooms and a lot of that experience can be leveraged here in the virtual classroom too. So we really encourage you to share any experiences with us. Maybe you've got an insight into a particular area. Don't forget that other people can also learn from your experiences. So we really want to encourage that open interactive environment today and encourage you to raise that hand if you've got anything you want to say, any questions you want to ask, or anything you want to add. As much interaction as possible is going to enrich today's session so I really do encourage you to feel free to share with us today.

As Bruce begins on the next section, he stops to do a quick sound check with Daphne who has just logged in. She apologizes for being late - technical difficulties – and introduces herself quickly. We move along. Bruce asks for a green ✓ if we can see the quote on the slide: “The single most important skill that all distance educators must develop is to make their students active participants in their educational programs.” We're asked to think about the quote. Once again we raise our hands to establish the speaking order but this time we start with number one. Robert is last to raise his hand and immediately steps out. In between learner contributions Bruce thanks each person. Robert is still stepped out so we move to the next section.

Finding this process time consuming, Lindsey did not like this activity:

I recognize there are different interpretations to think about but ... maybe have people raise their hands and take the first three. ... If you're the 9<sup>th</sup> person to interpret it there is pressure to come up with something original. If you're the 9<sup>th</sup> person maybe you don't have anything to add and I always feel dumb saying I think the same thing Lori did.

Seventeen minutes later in this second VSC event we've moved through the next three sections dominated by Brad or Bruce elaborating on points on the slides. Three times we've been asked if we want to add anything based on what we have observed in other classrooms or if we have any questions or other points we want to raise before we move on. These questions are met with silence. In a couple of instances the other instructor steps into the silence and adds a comment.

Consistent with Brad and Bruce's views on learning, we are encouraged to think about what we are experiencing and reflect on how we might apply it. Brad urges us to think about the activities in this course as ways we can connect with the learners:

Can you use any of these tools to put yourself into the learners' world for a moment and realize how hands-off it can be unless you guys make it hands-on? ... What do you see in today's event that you can emulate?

Unfortunately we are not given an opportunity, or perhaps do not make the opportunity, to discuss these more thought provoking questions. We press on.

Brad takes us into the next section on learning styles. So far there are no technical problems. Everybody can see, hear, and talk clearly. Brad finishes his nine-minute lecture and we do a survey to indicate our dominant learning style. Our next activity is to use the public text chat tool to list WC tools and how they appeal to our dominant learning style. The text chat box scrolls up quickly. Responses are being typed and sent before Brad has finished explaining the activity. Many people give multiple examples. Brad walks through the contributions, highlighting a few.

Robert thought these last activities were OK, although he admits being lukewarm on some of the stuff:

If I believe something is somewhat contrived I tend to think of it as a waste of time. I'll check out if that's the case. ... It has to do with my experience level. ... A new instructor is going to be a lot more tolerant of those things than I am.

Lindsey also has expectations about effective use of her time. She liked this activity because everyone could type at the same time.

In the last section before the break we are finally all given microphones, not to talk but to interact in the media window. Bruce walks us through the protocol for bringing up our markup tools:

I'd like you to walk through with me – don't jump ahead – just walk through with me and we'll go ahead and bring up your markup tools so you'll be able to do this activity. Bear with me one moment and I'll give everybody a microphone. [3 second pause] At this point I'd like everybody to select the word "Mark Up – Show Tools". Once you see your tools up there, give me a green ✓. [10 second pause] So from there I'd like you to go ahead and click on the gold star and then go down to the blue bar. Somewhere in the blue bar click on the item you think is most important when delivering in WC.

According to Matt, verbal step-by-step instructions to learners about where to click next is a best practice. As a group we seem to be proficient at using the interface and clicking in the appropriate places with the appropriate tools. Perhaps we could be evolving to higher levels of interaction and engagement. Renee is looking for a more problem-oriented approach that elevates the discussion by probing the real questions and problems that WC instructors face.

Before we break, Brad steps in to introduce the idea that delivering online can be likened to presenting a radio program:

In a radio program the music, interviews, and the news can be considered similar to the content and the activities that make up an online training event. It is the presenter in both that is responsible for keeping the listener engaged. ... I'd like you to give that some thought over the break.

We are also tasked to come back with an answer to the question on the slide: "Think about your favorite radio presenter and describe to the group what keeps you listening."

Everyone steps out leaving Robert and I alone in the VSC. But we are left without microphones and no way to request one. We are limited to text chat if we want to chat with

others. There is seven minutes of silence. I send a private text chat to Brad and Bruce to ask them how they think its going. Brad responds, “So far so good. Not a very talkative audience. I’ll let you know more at the end.”

Brad thanks us for getting back on time. Once again we click on the raised hand icon to select a speaking order. Perhaps the most engaging activity so far, this discussion provides a way to explore online delivery from the perspective of a radio program. Tapping into our own experiences draws us in. As each person shares what keeps them listening to their favorite radio program Brad suggests how these characteristics could be translated to the VC. He weaves and extends the learners’ contributions. A few examples are provided in Figure 4.

Learner	What keeps me listening to my favorite radio presenter?	Brad’s translation of how this could be applied to instruction in the VSC
Spencer	Chicago Cubs baseball announcer – humor and unpredictability to liven up the broadcast	<ul style="list-style-type: none"> <li>• throw in a few curve balls every now and then</li> <li>• put in a few different angles to provoke our learners into engaging with the material</li> </ul>
Daphne	offers a different point of view	<ul style="list-style-type: none"> <li>• maybe because they’ve got that position of holding the whole thing together</li> <li>• take that helicopter view of the discussion and maybe just drop something else in that people haven’t thought of</li> </ul>
Robert	announcer for the Detroit Tigers - his voice was very reassuring and calming, almost like listening to a very close friend that you could immediately connect with	<ul style="list-style-type: none"> <li>• calming – there may be times when we need to calm down (perhaps someone is having difficulties, something isn’t going to plan, or there are technology problems)</li> <li>• friend – I like to think that the audience consider me to be their friend</li> <li>• connect – take an interest in our learners and connect with them on everyday things; consider your choice of case studies and real life examples</li> </ul>
Lori	enthusiasm and such a welcoming voice that you just want to sit next to him and let him tell you a story	<ul style="list-style-type: none"> <li>• because people listen to us for a long period of time we need to pay particular attention to sounding welcoming and reaching out to learners</li> <li>• make sure our delivery is acceptable not just in the first minute but in the 50<sup>th</sup> minute too</li> </ul>

Figure 4. The radio presenter analogy extended to the VSC.

Wrapping up, Brad suggests that we have proved there are some similarities between presenting online and presenting a radio program. It's not important to him whether people agree with this analogy. He just wants learners to take away some thoughts they can apply to their own delivery.

Although the instructors hope they have the undivided attention of the learners neither expects this to be the case. It is difficult to find clues of distracted learning solely by observing the session. The most obvious is when a learner steps out of the event and their name is grayed out. Another signal is when a learner does not, or is slow to, put up a ✓/X, raise their hand, or respond to a direct question. The interviews however, reveal an abundance of multi-tasking. Renee worked on a Word document and answered questions from co-workers dropping by her cube. Robert took phone calls, checked e-mail, and did some "virtual daydreaming" by blasting out to the web. Lindsey was diverted by her list of things to do and a complex problem sitting on her desk that she was trying to solve. She was also distracted by her physical proximity to Robert, "[My cube] is close to Robert's and I could hear him talk when he would say things and then I would hear him through my headset."

For the next 10 minutes we are led through the next two sections on engaging the learner. Both Lindsey and Spencer speak up to offer their thoughts on questioning strategies. We are two-thirds of the way through this event and our dialogue pattern seems to be well established. No one seems to be particularly forthcoming either by asking questions or sharing experiences. When called on individually learners respond, but when questions are targeted to the group there is a "wait-and-see who will speak up first" feeling. Brad and Bruce seem to accept the non-responsiveness of the group stoically, although in a few instances I hear disappointment and frustration in their voices when no one speaks up.

Bruce comments that a lot of things go through your head when you ask a question and there is dead silence: “Is it because of the content? The leaders? The participants? ... How do you work with that? ... How do you use the tool to pull that out of participants and work with them?”

Brad takes a more direct approach in this section. Without waiting to see who will volunteer to answer he singles out Robert. Matt comments that online instructors have to be much more diligent about calling on people directly:

The presenters that aren't very good will just throw out a question and say please raise your hand if you want to respond. And you just sit there. It's much easier when you are remote to hide. The more effective instructors are the ones that say, “John, what do you think the answer to this is?” Just like in a physical classroom but you need to do even more of it online.

This approach doesn't sit well with Bruce:

It takes a knack to get proficient at pulling people in and if it's quiet out there, asking one person directly what they think about xyz. ... I would not normally do that. If it were really bad I probably would but I didn't think it was really bad.

Robert and Spencer continue to provide light-hearted relief. Brad uses Robert as an example of when it would be OK to direct questions to an individual.

Brad: I happen to know Robert has a lot of experience in delivering events so I might direct a question to him to bring out some of that experience. Don't worry Robert I'm not going to, because we don't have a lot of time, otherwise I would. [laughs]  
Oh I see that he has stepped out - in fear! [laughs]

Spencer and a few others respond with emoticon laughter.

MAPS (modulation, articulation, projection, and speed) takes up the next nine minutes. Bruce asks for four brave volunteers. Robert immediately steps out. Lindsey considers raising her hand but is scared off:

I thought it was a fun activity. But it seemed difficult to get people to raise their hand to participate. I would have done it but I felt he made it, “Now we need you brave souls out there.” And I'm, “Ooh, brave souls, well maybe I'm not so brave. What exactly do we have to do?” So it depends on how the presenter presents the

opportunity to participate. I would have done it if I'd known it was just reading and you get to pretend that you're monotone. No problem.

After 10 seconds there are no volunteers. Bruce gets tough: "We need four. If we're not going to get four we're going to use another system. So raised hands please. [laughs]" Lori raises her hand. "There we go. Thanks." Then Renee. There are no more volunteers so Bruce assigns Daphne and Spencer. The learners seem to enjoy this activity, although no one is forthcoming when Bruce tries to start a discussion on multi-cultural considerations and voice articulation in a VSC. He ends up answering his own question. Learners are given microphones so they can act out their assigned voice qualities. Having a microphone gives participants access to the media window and Daphne and Spencer start doodling on the slide. It's quickly erased. We move on.

The text in the media window is about engaging the learner through voice. Brad asks us to take a look at the five points and sets the stage:

Think about them and picture yourself sitting there now. You've booked a meeting room. You're about to deliver the content that you know so well. You've got your headset on. Read this slide and think about how you can apply them.

Hoping to spark a discussion he asks, "Anyone delivered online yet and want to share their experience?" Silence for 15 seconds. You can hear in his voice that he is resigned to our non-contribution but moves on to the voice recording assessments.

Renee's first reaction when she heard about the SMP in the Orientation session was, "Oh gosh, when am I going to have time to do this?" Nevertheless on the day it was due, she took her computer, ran to a conference room, recorded it once and then sent it. Lindsey really liked doing the SMP. She did it at home and recorded her voice five or six times before she came up with a recording she was comfortable with. Robert completed the SMP after the DT event. Because he did not attend the Orientation session he wasn't aware of the self-managed components, even though they were outlined in the pre-course e-mail.

The SMP was a positive learning experience for Lindsey and Robert. The greatest learning seemed to be in doing the recording, self-assessing performance, and then re-recording in an effort to improve. Lindsey thought the SMP was useful:

I played with it. It was interesting to listen to what I sounded like. Mostly because I've spent the last year and a half teaching classes and I have always wanted to hear what I sounded like and you can't in live situations. Although I don't think anybody likes the sound of their voice I decided that I wasn't boring. I've come a long way.

The one thing Robert liked about DT was the SMP:

I locked myself in a room, recorded my voice, listened to it, and thought that's not my voice. Ended up doing it three or four times. ... All of us have idiosyncrasies in our voice ... and you don't really notice that until you're forced to pay attention to it. So the [knowledge] that I got from the course was the necessity of paying attention to those types of things to be a more effective public speaker.

Renee would have liked to see the scope of this activity expanded:

I think they were trying to demonstrate another good delivery technique. ... However, this was basically like a public speaking class and I think you learn this best by doing it. ... Having learners do a mini-presentation and then critique that ... would have incorporated all the elements of delivery, not just voice.

Brad thanks those who did the SMP and acknowledges that some did not have the opportunity to do it. He reminds us of the contract we made agreeing that this was going to be a constructive environment. Once again he urges people to speak up:

I think this is a great group and a lot of experience in this group to be able to share some feedback in this safe environment. Don't be shy. If you do have a thought on the voices you hear, click that raised hand icon.

He begins by playing the first 30 seconds of Lindsey's recording. When it is done, applause emoticons flash beside each person's name. He invites us to share our feedback. Silence in the VSC, although messages are flying back and forth on Instant Message between Lindsey, Lori, and Robert. Although she is getting feedback, the rest of us in the session are not part of it. Lindsey explains:

That was good giving each other feedback that way. ... We were comfortable using Instant Message to say, "Hey you did a good job" or, "Hey you could have done this." Kind of like passing notes in class. ... There was no way I wanted to go in there and raise my hand and say this is my feedback.

Unaware of these background conversations, Brad and Bruce continue. After giving Lindsey her feedback, Brad plays a snippet of Renee's recording and then mine. Each is followed by applause. With these two recordings there is some feedback from the group. I'm a bit unsure about having my recording played and wonder what feedback I will get. Unbeknownst to me Instant Message is buzzing once again. In our interview Lindsey tells me about her reaction to the "even better ifs" I was given:

I thought your recording was fantastic and so did some other people. Brad said that you weren't enthusiastic enough or something and I'm like what is he talking about, she is so good! I thought that the feedback was very subjective. ... So I'm talking with my peers in Instant Message about she did great I can't believe he's saying that.

This comment surprised me. I thought the feedback given to me was very perceptive.

Using MAPS as a guide, Brad shares what he and Bruce enjoyed about the voice and then the "even better ifs", suggestions not only on what to improve but how to improve it. Brad's experience in learning to be a radio presenter was the driving force behind the emphasis on constructive feedback:

The most effective feedback I got [when I was doing my radio work] was from people who said you did this well keep doing it, but you need to work on this and here's how to do it. Not just identifying what didn't work well. That's not constructive. That's just feedback.

Although Lindsey found the SMP valuable, she disliked that Brad seemed to have one style of what he wanted to hear in people's voices. She found his style too "over-the-top" and by the end of the course was tired of listening to his voice. In contrast, Renee found herself being drawn to what Brad was saying because she thought he was fun: "He very much has a radio voice. His accent was fun to listen to and he was very engaging."

Brad admits that people are not particularly forthcoming in their feedback and if there is a comment it tends to be something they liked. He is not the only one to express disappointment with the level of feedback shared by the learners. Lindsey comments:

Because it was such a small group of people, and I knew a lot of these people, it seemed like we could have been in a more informal setting where we played the recording and our peers would give each other feedback. But I did not think that the VC lent to that at all.

Brad closes this section by clicking on his applause icon and thanking us for sending in the voice recordings. Bruce begins the wrap-up at 10 minutes after the hour by also commending the efforts of those who sent in recordings. We cover best practices of effective presentation. He ends by asking if we have any questions on anything that has been covered today. No one raises their hand. Brad steps in to review the learning objectives. As he reviews each of the four objectives he asks us to give him a red X if we feel that we did not cover that objective. Everyone seems satisfied as no X's appear. He gives us one last chance to raise our hand if we have anything else to add. He closes by thanking us for our participation:

These events wouldn't be half as good if it wasn't for you guys interacting with the content, each other, and us as instructors. Thanks so much and keep it up. I hope that your future participants are as participative as you guys were.

Bruce tells us that he thought this was a really good event, adding that he hopes we are able to apply some of the ideas delivered here to our upcoming events. He reminds us that we will be receiving a course evaluation by e-mail later today. Names disappear quickly from the people panel. There are no verbal good-byes or thank you's exchanged; participants do not have microphones. None of the learners, other than me, stay around for post-course socializing.

### *Reaction*

Reactions to the DT event were mixed and center around the content and Brad's delivery style. Robert thought DT was poorly executed and the material far below the expectations and capabilities of the learners. Brad's radio host style did not work for him as

a learner: “[To someone] who has spent years teaching in a variety of media it just switched me off.” Robert thinks his reaction is not a reflection of the media, believing he would have had a similar reaction if it had been delivered in a F2F classroom.

On the contrary, Renee thought the instructors were really good and knew the tool well. She adds, “It was well prepared. ... It was fun to do some of the activities. ... Overall I thought it was a good experience.” She thought Brad was a great WC instructor, “One of the better ones that I’ve had.” However, she thought the instructors needed a better understanding of what experience each person was bringing. She found much of the content remedial. Commenting that there is more to effective delivery than just voice, she wanted more discussion of best practices, VSC-related research, and the challenges of VC delivery.

Lindsey was bored and found the material poorly structured because there was not much new information except for the feedback on the voice recording. But the blended approach worked for her: “It was good they had it spread out and had the Orientation session. ... In the final session it was nice to get feedback on the voice recording.” She thought she got out of it what she needed in order to be effective in the VC.

Participants shared impressions of their DT experience back in their communities of practice or work groups. Renee was the first person on her team to attend DT. After discussing it within her community, she approached the DC team about putting together a customized and shorter version of DT for her group given their already considerable WC experience. In their post-DT discussions, Lindsey and Robert shared concerns about the ongoing technology glitches. They as well went back to the DC team. Their request was for a more robust technological infrastructure for their upcoming deliveries.

The DC team assembles detailed course evaluation results, which were consistent with the comments from the interviews. According to the evaluations it seems the training

accomplished its purpose and prepared people for the work they would soon be doing. But the level of the training was below people's ability level and they found it too long. Although the course materials were not entirely helpful to people's learning, the course activities did seem to reinforce learning. Participants evaluate each instructor. Brad had more *strongly agree's* on each dimension than Bruce, but one person rated Brad much lower on most dimensions.

According to Bruce, session choreography went more or less to plan and both instructors felt the course met the learning objectives. Brad says that he always comes out of an event really pleased, "My doubts come when I think about what the learners get from the event." He questions if they are giving the right information or if they can "change it for the better to impact the learner in a more appropriate way."

They would have liked more interactivity in the session. Brad had hoped people would take advantage of the audio capabilities of WC to share more of their experiences, which he sees as one of the benefits of this technology. He continues to wrestle with how to increase the degree of engagement in the course. Responding to criticisms that the high level content discouraged participation, Brad thinks the opposite should happen: "If a learner is thinking this is basic stuff then they should be thinking I'm going to start sharing some stuff and let's get some more meaty conversation going." He adds that the headset isn't just for listening. Learners also have a microphone so they can ask a question, share an experience or ask others what they think. Bruce's ideas for improvements seem to be focused on using the technology to add a richer visual element. Brad's comments reflect a different emphasis: "Participants do interact and answer questions but it would be nicer if they engaged more. For example, sharing a story about what worked or didn't work for them or asking others how they handle a situation they've encountered."

Chapter 4 explored what it is like to be a learner at CC, the virtual setting for this e-learning experience, and the rationale behind the DT course design. These layers of context were peeled back until we were able to peer into the event. This story of one workplace learning event reveals what happened, people's impressions, and factors that influence the design, delivery, and outcomes. This descriptive narrative helps fill the gap identified by Salmon (2000) who observes, "Millions of words have been written about the technology and its potential, but not much about what the teacher and learners actually do online" (p. 11).

## Chapter 5 Themes

Wolcott (1994) suggests that analysis reveals “key factors and relationships between them” (p. 10) and by discussing these relationships a case study presents “the potential for understanding something beyond it” (p. 33). Following Wolcott’s suggestion to present a finer level of detail in the analytic writing, I build on the descriptive base established in Chapter 4 that drew from interview, observation, document, and journaling data.

The participants in this study played different roles in the design and delivery of DT and viewed this e-learning event from different vantage points. Although each person’s perspective affords a unique view on what unfolded in the DT event, five themes around teaching and learning in a VSC emerge: evolution not revolution, tensions and trade-offs, adjustment, online presence, and convergence of the virtual and physical.

### *Evolution not Revolution*

What unfolded in this case study signals a change to teaching and learning that is more evolutionary than revolutionary. Shaping this theme are three elements: replication of the F2F classroom, ambiguity surrounding collaborative learning, and the eclectic knowledge base of participants.

### *Replication and Innovation*

Innovation of e-learning technologies is relentless. This version of the VSC may be just a stepping stone to another technology as companies such as WC strive to leapfrog their own advancements. Yet participants’ reflections and experiences suggest that for the most part we are looking at a progression of corporate learning rather than a transformation. Even

though this is an innovative technology, much of the current usage reflects replication of the familiar F2F classroom and traditional approaches to teaching and learning.

The legacy of the F2F classroom influenced DT at every level. The software developers deliberately used the physical classroom as a model. Given their limited experience as F2F instructors, Brad and Bruce may be more open to innovating new approaches. However, they borrowed heavily from existing F2F courses. With varying exposure to e-learning, learners inevitably compared this experience to the most familiar learning medium – the F2F classroom. Synchronicity and the concept of a classroom are well-understood legacies of the traditional learning environment. But because the VSC is a *virtual* media there is uncertainty about how far the likeness extends. While Matt says the goal is to re-create the live classroom online, Renee cautions they are two different media. Part of this struggle is reflected in the labels participants use to distinguish F2F from the virtual: live, real, actual, traditional, physical, instructor-led.

There is a question about how much of the traditional F2F milieu we can replicate in a VSC and what new strategies more appropriate to an e-learning environment are needed. Brad and Bruce likened online instruction to radio presenting, which draws from a tradition outside education. Perhaps it is an indication that they are searching for new teaching approaches more suited to the VSC. Participants recognize they are still learning how to make the VSC effective. Sandy says, “We haven’t exploited the technology as much as we could. An area we continue to grow in is how to connect people.” Lindsey is pragmatic, “There needs to be more time spent figuring out what topics it works for and how you make sure the learners get out of it what they need.”

Matt’s comment reflects this idea of continuous improvement: “It’s definitely an area that is still evolving and we’re trying to figure out how it’s going to work and how people

work and best interact.” There are signs of innovation as he talks about the progress of WC: “Four years ago ... we were replicating the classroom. We tackled the first obvious need, which was to get people out of physical classrooms and learning from their desk. Things have changed.” There is now a move to blend asynchronous and synchronous learning and facilitate the sharing of corporate knowledge.

Other factors may thwart innovation. A willingness to assume risk seems to go hand-in-hand with innovation. Although Brad and Bruce introduced novel learning activities, there was a sense of managing the “riskiness”. Bruce does not feel he can take risks: “With technology you don’t want to do anything that would shut down an event or make it appear as if you don’t know the tool.” Even these instructors, who were experts on the technology and wanted to foster collaborative learning, struggled. Imagine how difficult it is to innovate new learning approaches if time, resources, energy, expertise, and willingness to change are in short supply and the tool itself makes it easy to use a presentation-only mode rather than force users to adopt a more progressive approach.

### *Ambiguity Surrounding Collaborative Learning*

The data reveals murky understandings of concepts that the DC team holds as foundational to their desired outcomes. Participants had a number of views on what collaborative learning is and how it contributes to the learning process. Matt suggests that across the industry *collaborative learning* is used by people to mean lots of different things. The participants’ definitions conveyed a sense of working together and learning from each other. Interactivity, participation, and community building became part of discussions on collaborative learning, further muddying the water.

Because of the “lack of group stuff and one-way nature of the learning”, Brad did not describe the event as collaborative. Sandy’s statement that the goal of DT is to get common understanding and share best practices appears to be consistent with collaborative learning. However, it seems that *learners* are not exploring best practices. The event transcript indicates an instructor-dominated session, with little opportunity for collaboration between learners. Subdividing the transcript into instructor and learner contributions, a page count shows that the instructors were responsible for 85% of the dialogue. Learners did not share experiences even though collectively there was a wealth of instructing knowledge in the group. They also did not ask any content-related questions of either the instructors or each other.

Participants did learn from others in the session. Sandy explains how the learners’ voice recordings help other learners: “It’s good to hear what suggestions we give to other people because maybe you didn’t do it in this recording but might in the future.” Renee and Lindsey agree. However, Robert rules out engaging dialogue in a VSC: “It is not possible by the very definition of what’s normal in this environment.” Wondering why the session wasn’t more collaborative given that they were a small group, Lindsey concluded that the VSC could not support this type of exchange. For Lindsey and Robert the technology appears to be a barrier.

Although DT itself was not a highly collaborative learning event, the development of the course was. As Sandy indicates, it was pulled together based on the collective experiences of her team and best practices from throughout the organization. There is evidence Brad and Bruce constructed new understandings because of their collaborative efforts with each other. Even though these three DC team members have a history as a team, which likely enhanced their ability to collaborate, it is noteworthy that they are a virtual

team, each person in a different location. Their collaborative efforts, including the design of DT, rely on distance collaboration technologies such as WC.

Disrupting the notion of collaborative learning is the nature of workplace learning, which appears to be an individual pursuit related to meeting job needs. Learners focus on getting what they can out of a class and will interact as required. Decisions are made about how much effort to invest in creating a community with others in the event. Lindsey does so only if she will be in contact with these people in the future. She adds, “But it is not necessary if I’m just here to get the information so I can do my job better.” Likewise Renee does not expect to create a learning community in a session such as DT. It’s a big organization and her alliance is with more immediate co-workers.

Building community was challenging for other reasons. Lindsey comments that it is difficult to do when the instructors take up most of the time talking. Robert believes it is hard to establish a community without F2F contact. Spending enough time together was also raised and everyone emphasized that getting to know one another by providing personal information is critical. The online venue does not emerge as an overwhelming barrier. Lindsey shared how community was built in another WC training course that made extensive use of breakout rooms. Session design appears to be a factor. Even though Brad would have liked a community “feel” this was not a design goal and he explains how the design, in fact, has an adverse effect: “The learners work in isolation throughout the SMP and SML and are then thrown together and talked through the course.”

### *Eclectic Knowledge Base*

Although participants could be considered adult educators, no one has a formal teaching background. For most, ending up in training was not a planned career. What they

know about teaching and learning is from attending conferences, reading magazines, dialoguing with peers, asking questions, and hands-on experimentation. They are conversant with adult learning principles, e-learning in the workplace, and various teaching methods but draw primarily from the practitioner literature and not the research; their focus is pragmatic not theoretical.

As Brad and Bruce developed DT most of their dialogue centered on method. Yet tacit philosophies, personal predilections, and legacies of learning experiences influenced what they think is important in e-learning and the way they design and engage in these events. Brad's radio background noticeably shaped the activities in DT, the focus on voice, and his delivery style.

When I began this study I referred to Bruce and Brad as *facilitators* and then realized that everyone used *instructor*. Matt refers to the legacy terminology of WC, which includes instructor. Perhaps the choice of title is more from habit than a conscious assertion of teaching philosophy. Bruce complained he was tired of the buzzwords, commenting that DT is a training course; he's an instructor; blended learning just a mix of options. But there are indications of a more instructor-centered approach despite the instructors' desire to be learner-centered. Brad and Bruce exerted a high degree of control over all aspects of the learning event, from content and process to access to communication tools.

### *Tensions and Trade-offs*

Participants' experiences reflect a myriad of competing interests. As a result of these tensions, participants made trade-offs in their teaching and learning decisions. In some cases they accepted less than ideal conditions or ventured into the unfamiliar due to circumstances.

Elements of this theme include design and delivery, return-on-effort, and conflicting organizational values.

### *Design and Delivery*

Strong design and delivery expertise seems to be crucial to provide learning solutions that are effective, enjoyable, and well received. Creating bite-sized pieces of learning, rapid development, and the inevitable technology glitches generated frictions in this workplace VSC learning session.

Widespread e-learning initiatives appear to support a continuous learning model. With two hours often being the maximum length for VSC sessions, the worker-learner can now slot bite-sized packages of training into their workday as easily as a meeting. They are usually busy right up until the moment it begins. Instructors stick to timeframes, realizing that their hold on the learners is tenuous after the scheduled end time. It seems learners arrive in these sessions already on fast forward and the pace continues once they arrive. When distractions are added to the mix, it is possible learners never do focus on the event and their responsibilities as learners. Although convenient for scheduling purposes, these bite-sized pieces create challenges. Brad comments:

In a traditional classroom there is more time to relax and get into the sharing mode. Here you're in and out in two hours. I've had dentist appointments that have lasted longer. How much time do learners have to think whether they've got any experiences to share? ... Everything crammed into two hours. Is this an environment you want to spend time thinking about what's happened to you in the past? Well, probably not.

Most took the last minute server change in stride. It comes with providing just-in-time training in a VSC and consistent with both the last minute advertisement of the session and the way Daphne, Spencer, and Lori jumped in for the third part of the blended learning solution. The just-in-time mandate that e-learning is expected to fill seems to translate into

extremely short development cycles. Brad comments, “Time to market demands quick turnaround.... It seems that F2F courses can take ages to develop. The distance collaboration stuff just seems to be thrown together.”

Design efforts walk a fine line as they strive to meet both organizational mandates and learner needs as well as reconcile the amount of time people can allocate to a VSC session to what can be accomplished in that time. Directives on media mix drive blended learning and determine which e-learning tools are used. This leads to trade-offs, some made willingly, others more grudgingly or with a sense of trepidation.

### *Return-on-Effort (ROE)*

Both the worker-learner and the organization expect a ROE for their investment in the VSC. The organization is demanding not only more effective and efficient learning solutions, it keeps a watchful eye on the bottom line, insisting on cost-effectiveness as well. Their slogan, “right training, right time” seems to fit learners’ expectations in this study. Efficient use of time and providing content relevant to learners’ current projects was a recurring comment.

Given the contortions people go through to schedule time to attend a VSC session, it seems every minute should count. However, as learners did not devote 100% of their attention to DT, the session was less effective. Robert and Lindsey emphasize that learners have a responsibility to participate. But despite the organizational expectation of self-managed learning, they acknowledge that learners do not always fulfill their responsibilities.

Lindsey comments:

You can tell learners to get to a private room, not bring any work with them, turn off all their programs, do their SML but in the end it’s their responsibility and they may not appreciate that. ... They have to be held accountable.

The data reveals how participants weigh the drawbacks of the VSC against its benefits. One drawback of the VSC is that it seems to be a less rich communication medium when compared to F2F. Participants miss the traditional classroom with its familiar setting and ways of learning. This sense of loss is compounded by the frustration of dealing with unpredictable technology meltdowns. Participating in a VSC as an instructor or learner can be stressful because it is not always easy or possible to make the technology do what you want to do. Some of these shortfalls of communicating in the VSC could be because instructors, learners, and the organizations are still trying to figure out how best to use the technology. Robert comments, “We’re new at it, so we’re going to get better at it over time. But while we’re still learning, it’s not going to be as exciting as it could be.”

Another drawback of the VSC is that it signifies the passing of one of the highly valued rituals for many professionals – opportunities to get away and meet others F2F. Bruce comments that CC employees have complained about not being able to network properly in the VSC, saying, “I can’t sit at lunch and talk with someone or maybe go out afterwards and have a discussion.” He admits that this type of networking has a place in their corporate culture.

At the same time, each participant extolled the benefits of the VSC as a way to provide just-in-time training while saving the corporation money. Sandy explains that current practice, which relies heavily on F2F training, is very disruptive to utilization. Blended learning solutions that incorporate the VSC seem to create easier transitions between learning and work; training becomes less disruptive. She adds, “Getting to your classroom through the Internet enables consultants to be in the office and able to attend client meetings immediately following the online session. So you’re not getting too distracted.”

*Conflicting Organizational Values*

Fluctuations in what the organization is willing to spend on training produces uneven and unpredictable opportunities for the worker-learner. Training opportunities are at the mercy of the political will emanating from the top as well the immediate priorities of the worker-learner's manager. As the company strives to provide a superior service there is an emphasis on not disrupting utilization. Although F2F training is largely handed out as a reward, according to Sandy, e-learning presents an opportunity for more equitable and accessible learning opportunities. The economic benefits and convenience of the VSC are evident to participants. What is less clear is its effectiveness from a learning perspective.

There is a feeling that training may not be a priority in the top echelons. Bruce believes that leaders do see the necessity but specifies that it is "right training in the right place at the right time" that is valued. There seems to be a tension between *training* and *learning*. With reduced resources allocated to training, the implication could be that learning is less valued or at the very least, not to be done on company time. What emerges from the data is a picture of an organization forced to watch its bottom line and consequently reduce formal F2F training sessions. At the same time the organization and people in it seem to value learning immensely; it is job-critical. I am not sure the same can be said about corporate training sessions. Materializing from this turmoil is a stronger appreciation of informal learning. Matt believes that the future of organizational learning is using virtual collaboration technologies, such as WC, to enhance informal learning opportunities.

*Adjustment*

The sense of "getting used to" the technology emerges as the third theme. At the micro level, participants adjusted to the lack of facial expressions and body language and

developed learning and teaching strategies for this new media. At the macro level, the organization is faced with adjusting its business processes.

### *At the Micro Level*

Learners and instructors spoke of learning to communicate without the familiar markers provided by nonverbal cues. This seems to be one of the first hurdles. The least experienced in the VSC, Lindsey seemed to struggle the most. Renee comments that one of the biggest challenges is not knowing what everyone is doing. Nevertheless it appears as though most people do eventually adjust. Participants shared compensatory strategies they had developed: Lindsey spoke of training herself to be attentive to different visual cues; Brad monitors engagement by relying on verbal exchanges; Renee believes it is critical to ask a lot more questions; and Bruce comments that he pictures learners sitting at their desks listening to him.

Although some strategies carry over from the F2F classroom, participants spoke of modifying what they do in this new medium. Attitudes towards making adjustments seem to reflect the degree of investment they have in the traditional classroom and exposure to other e-learning media. Robert found, "Many of the things that made me comfortable in the past are not necessarily the strengths of a virtual learning session." Because of his radio work Brad has always felt comfortable in the VSC: "I'm used to sitting with a pair of headphones on, a microphone in front of my mouth talking to no one." This is consistent with Matt's observation that instructors with a disc jockey personality and used to keeping people engaged through their voice are most successful. Perhaps the level of adjustment will decrease as we become more web-centric. Matt comments:

Three years ago we heard more complaints from students about not being close to the instructor or feeling too remote. But now people are so used to doing everything on the web they almost expect to sit there watching the slides go by.

The software developers deliberately used the familiar lexicon of the F2F classroom to facilitate the adjustment process. But despite Matt's claims that end users do not have much of a learning curve, Robert comments that it does take a lot of learning, "You have to try to absorb the material while at the same time managing the technology, which is an added distraction." Renee adds that it is a mindset change and it was necessary for her to adjust her learning. Regardless of new approaches, some do not feel comfortable in this medium. Lindsey has decided that she learns best if it is not a VC.

In some instances, learners created their own communication channels rather than adjust to the technology. In addition to the undertone of Instant Message conversation, three learners shouted over their cube walls. These background conversations may have diminished the exchange of ideas within the session itself. Lindsey admits that although she liked using Instant Message, she found it counter-productive: "Most times we were just trying to distract each other."

In Matt's experience, most instructors pick it up fairly quickly. Renee, however, cautions that although it is easy to learn it is much harder to learn to use effectively. She says, "I thought, 'Wow! This is so cool'. But when I first did it I was like, 'Oh boy, this is much harder than you think it is'." Sometimes instructors do not adjust their approach. The technology seems to facilitate a default instructional methodology of just flipping through PowerPoint slides; just pushing information. Of questionable effectiveness, this approach enables an instructor to get through a session. The data suggests that instructors and learners need to understand how to use all the features of the technology for learning purposes, not just to present information. The inclination for instructors to step into the VSC and merely

present PowerPoint slides troubles the experienced WC instructors. Not only is this default approach easier, it is also well engrained. Matt explains:

The classic problem in corporate America is they've got ten times more information they need to get to their employees than they have time for. So they fall back to information push ... get all this information out there very quickly in a one hour session ... throw it out at them and hope some of it sticks. They don't have the time or don't want to spend the effort or resources to really make it engaging or collaborative. Most sessions are just "here's information".

Matt comments that the intent in the software design process was to make it easy for people to use existing strategies in this new medium rather than expect them to change the way they learn and teach. However, in this study it seems learners and instructors have had to not only adjust familiar strategies, in some cases they have innovated new ones to fit this new medium.

#### *At the Macro Level*

The DC team is focused on driving a significant organizational change, which entails shifts in the corporate culture at all levels. Matt sees the implementation of VSC learning as more than providing another venue for formal training. It can change the way an organization does business. But he adds, "This is not something that happens right away. It can take months or even a year to become a way of life." He states that its integration into the organizational fabric depends on three criteria: how much of a need the organization has for it, how frequently people use the VSC, and the role the formal training group plays in introducing the technology.

From all accounts the DC team seems to be on its way to fulfilling its mandate. A number of factors are in their favor. Because F2F training is increasingly difficult to obtain due to budget restrictions, CC has made two e-learning options accessible: cbts and the VSC. Despite its shortcomings, the VSC is more appealing to most participants than clicking

through cbts. Furthermore, CPE credits can be acquired by attending formal training events offered in the VSC. These conditions create a need for the VSC. By declaring that WC training is mandatory and helping other groups set up their own WC sessions, the DC team is attempting to establish a quality standard.

In addition to the WC certification curriculum, the DC team is trying to promote widespread use of the VSC throughout CC. Some of this work, such as setting up and maintaining the technological infrastructure, is done behind the scenes. The DC team has also stepped in to champion the VSC and role model best practices in an effort to help change perceptions in the organization about using distance collaboration tools. Bruce observes that there is increasing excitement as “more and more people are hearing the buzzwords, hearing about the courses being offered in WC.” This team has worked to counter negative impressions created by earlier versions of this technology that were plagued with numerous problems.

Matt comments that a technology has become part of the way the organization does business when people wonder how they ever did without it. Although CC is not yet at this point, there are pockets, such as Renee’s group, that have clearly arrived. Renee comments that people in her group find the VSC valuable: “If it were gone I think people would be upset. It’s solved some of our problems related to monetary constraints within the organization plus the information flow.”

### *Online Presence*

Freedom, virtual substitutes and enhancements to dialogue, and engagement define the fourth theme, creating an online presence in a virtual classroom.

*Freedom*

Although it is easy to hide and get lost in a VSC some participants are more forthcoming than in a F2F session. Sandy believes that unlike the physical classroom, the VSC brings out her outgoing nature: “I guess it’s the anonymity. I don’t mind asking questions ... but I don’t want people to see me asking it. But you can see my name and that’s OK.” Lindsey adopts an online persona, “virtual Lindsey”, when she’s in a VSC event and also mentions the visual: “If others can’t associate my face with my questions or an actual person, I’m more likely to speak up, especially if I don’t know anybody or think I’ll never meet them in person.”

Renee recognizes that she must participate more in order for others to get to know her, “because I don’t see them and they don’t see me.” Bruce talks about being bold, “Learners have to be able to jump out there and be the first one to step forward.” Learners seem to make deliberate decisions on how bold and present they will be. Renee does a quick assessment in the first few minutes to determine how active she needs to be.

Norms of learner behavior are still being established. Lindsey comments that when you’re in a regular classroom you don’t fall asleep because it’s rude: “There’s more room for not paying attention in the VSC ... because there is not somebody that you’re offending and they can’t tell you’re not paying attention.” However, the instructors did sense when their audience was not engaged. Learners are perhaps not as hidden or anonymous as they think. But they may have more freedom than in F2F sessions when they are under the scrutiny of their peers and the instructors. By the time we leave school we are familiar with the part of the attentive student. Robert challenged this norm. In WC the practice is for a learner to click on the step out icon when they are otherwise engaged. Throughout the session Robert

did his virtual daydreaming without stepping out, creating an illusion of presence. To the rest of us it appeared as though he was in the VC, when in fact, the opposite was true.

### *Virtual Substitutes and Enhancements to Dialogue*

One aspect of online presence is creating a sense of connection to transcend what Brad and Bruce call the “virtual divide”. Experiencing a feeling of isolation - a disconnect - is common. Brad remarks that being in a VSC can be like talking into a telephone and wondering if anyone’s picked up yet. While waiting for a response, questions run through your head, “Is someone out there listening to me? Am I making any sense? Do you want to know what I’ve got to say?” The software attempts to bridge this gap. Because other participants cannot see you, your presence is defined by your online contributions. In the VSC this can include spoken dialogue, text messages, and virtual exchanges such as clicking on the ✓ or ✗ . Experienced WC users spoke of virtual body language. Matt explains that the rationale behind these features is to convey reactions graphically. Not only do they provide visual feedback to the instructors they also help learners gauge the responses of others.

### *Engagement*

Encouraging participation and interaction seems to be a conundrum. While several elements were in place to facilitate participation, a number of factors limited learners’ engagement. Instructors tried to interpret the silence that was both heard and felt throughout this event. It was partially attributed to the observation that some audiences are more talkative than others. Brad comments, “Some people are natural sharers and others aren’t. It’s true in the physical classroom so it’s bound to be true in the VSC.”

The data reveals a myriad of reasons why learners were not completely engaged in this session. One factor seems to be the event design and delivery. Matt believes that how the session is structured and led will influence how collaborative it is:

Just like when you go to a physical classroom. ... Some are collaborative and others aren't. ... It's not so much a limit of the physical room you're in or the whiteboard you're writing on. It's more how people use the tool. Same with WC.

Without course designs that create invitations to explore, learners may be put in a passive role without the opportunity or motivation to discover what is possible. In addition, Bruce observes that not everyone in a VSC understands how to use the tool. Even if learners want to be more engaged they may not know how.

Brad points to the learners' discomfort with the technology:

People aren't used to opening up in a virtual environment. ... They are thrown into this ... alien world. Some people are comfortable communicating and others are happy to sit in the background, absorbing but not participating.

The learners highlight how the technology may have held them back. Robert finds the VSC restrictive compared to the give and take of a F2F session and is automatically less engaged. Lindsey questions what is possible in a VC: "I like it when other people ask questions. ... I'm not sure whether it was the VC but not many questions were asked." Learners' perceptions of the barriers created by the technology may reflect their transitional state. Renee, an experienced e-learner, does not attribute her lower level of participation to the technology.

The lack of engagement puzzles Brad as he lists what they did to encourage participation: create a safe environment, ask questions, engage learners in activities, involve them in different ways, and call on individuals. Perhaps it takes more. Robert felt encouraged to share but held back because, "everyone knows me and my experience." To him there was no point re-telling his stories even though there were others in DT he had

never met. Learners were also conscious of their relationship to others. Renee is influenced by the participation of others: “If no one is saying anything, I won’t say anything. If everyone’s responding then I’ll be like, well, maybe I’ve got something to say too.” The sense of connection to others could have been stronger. Lindsey says, “There wasn’t time for me to place Renee’s name other than she lives in ABC.” Renee adds, “People need to get to know each other so they are more apt to share.”

### *The Virtual and Physical Converge*

The interplay between participants’ physical learning spaces and the virtual classroom emerged as a major theme. Two elements define this convergence: distracted learning and the need to create a supportive physical learning climate.

#### *Distracted Learning*

Although participants log into a virtual session they are situated in a physical location. As portrayed in Chapter 4, most were preoccupied during DT by events happening around them, which impacted how the session unfolded. What emerges is a picture of distracted learning. In open plan offices learners sit in the midst of noise and activity. Although Bruce posts a “do not disturb” sign even that does not always discourage interruptions. With a constant barrage of telephone calls, people dropping in, e-mails popping up, and work sitting on your desk, the office environment can work against the learner. Matt comments it is very easy for people in the VSC to do other things and not pay attention if they are not engaged.

Brad is skeptical that learners can keep one eye on learning and the other on their current work, e-mails, the phone, and text messaging. Perhaps the ability to multi-task

learning and work is a myth. Despite reminders, learners did not close other applications. Robert refused simply because he wanted to keep his options open to multi-task, checkout, and communicate with others. Brad admits that although their advice is sound it needs to be put into practice. Perhaps it has to do with how much time and energy learners are prepared to invest. Matt suggests, “In the end it’s going to come down to the student. ... [What measures they take] depends on how serious they are about paying attention and learning.” It is not surprising learners attempt to juggle both learning and work responsibilities at the same time. Multi-tasking is the nature of their workday; interruptions, distractions, and background noise the norm.

### *Physical Learning Climate*

In a F2F event learners walk into a ready-made learning setting. In VSC events it is the learners’ responsibility to create a physical climate conducive to learning. Although Lindsey and Renee admitted it would have been best to book a conference room, they participated from their desk. They did make different arrangements for the SMP. Lindsey did it at home while Robert and Renee booked a private room, which gave them the freedom to participate (asynchronously) where they felt most comfortable.

As an illustration of how physical learning climates impact what happens in the virtual space consider the contract for a safe learning environment. The modern-day workplace produces a labyrinth of tightly knit cubicles. Co-workers can easily hear what a learner says unless they whisper. Although participants may agree that what happens in the e-learning event is safe and stays within the four walls of the VC, the learners’ physical context may be far from private.

The convenience of e-learning is the ability to do it at your desk. However, learners in a virtual space are situated in different physical settings, some more favorable to dialogue and participation than others. To some degree they pre-determine their level of participation by where they sit. This data suggests that learning at your desk may be far from ideal, challenging the notion of learning “anywhere-anytime”.

Tackling Wolcott's (1994) question of “How do things work?”, this chapter explored the emergent themes about teaching and learning in a VSC. Despite the innovative technology, the F2F legacy exerts a strong influence and there is more replication of traditional practices than innovation of new approaches. The organization and its workers are still in a transition process as they figure out how to teach and learn in the VSC. Introducing this new learning medium necessitates juggling competing needs and preferences against a backdrop of economic and technological realities. For some it means giving up the comforting routine of the F2F classroom while for others the VSC represents freedom and convenience. This convenience seems to exact a price in terms of distracted learning as participants struggle to multi-task learning and work, suggesting we need to pay more attention to the physical learning space they occupy. Through trial and error and in some instances, by resorting to other tools such as Instant Message, participants learn how to create an online presence and connect with others across the virtual void in the VSC.

## Chapter 6 Discussion

This qualitative case study explored one workplace VSC event and examined factors that influenced the collective meaning making that did or did not occur. It should be possible with this insight to gain an appreciation of the influence contemporary thinking on teaching, learning, and knowing actually has on the design and use of e-learning technologies.

The participants in this inquiry were the triad of key stakeholders: the learner, the adult educator (instructor and business leader), and the software developer. I gleaned a number of perspectives by participating in and observing a VSC event, interviewing the triad of stakeholders, collecting and studying documents, and reflective journalling. Out of this data, an in-depth multifaceted picture of teaching and learning in a VSC emerges. Peering beyond the VSC, the results reveal how the workplace context and the assumptions and beliefs about teaching and learning that participants bring with them to an e-learning event profoundly influence what unfolds inside a VSC learning event.

Detailed descriptions of not only the VSC learning event, but also the participants, the organizational learning culture, the technology, and forces behind the implementation of DT, were crafted to draw out the participants' voices. Reaching out for understanding, interpretation probes "What is to be made of it all?" (Wolcott, 1994). To answer this question, this chapter synthesizes the descriptive narratives with the themes emerging from the data analysis and examines this synthesis within the context of the literature. A return to the three specific research questions that guided the study provides the framework for this exploration and will ultimately lead to insight into the overarching research questions: What happens in a VSC? How is sociocultural perspective reflected in what takes place in a VSC?

### *Question One*

*How do the key stakeholders in a VSC describe their experience?*

The themes explored in Chapter 5 help describe this VSC experience. Despite acknowledging that it is a different medium there is much replication of the traditional F2F classroom. Second, from the software developers to the organization and the instructional team and learners, this VSC experience was shaped by many decisions, not all pedagogically driven. Users at all levels made a series of trade-offs. Third, both the organization and the individuals in it are learning to adapt and innovate in response to this new media. Fourth, online presence is technologically mediated, requiring participants to assert their online persona. Lastly, although DT happened in cyberspace, physical dimensions impacted this workplace e-learning event. It seemed participants were in two places at one time.

There are three concepts we can use as springboards to help further describe this VSC experience: interactivity, community, and blended learning solutions.

#### *Interactivity*

Interactions included verbal and text exchanges, participating in surveys and polls, self and peer assessments, role plays, and a voice recording. Although it was talked about extensively, "interaction" remained a loose concept. Berge (1999) defines interaction as the "two-way communication among people within a learning context ... that includes a means for the instructor and learner to receive feedback and for adaptation to occur based upon information and activities with which the participants are engaged" (p. 6). Interactions can occur between the learner and his or herself, the facilitator, other learners, the content/learning resources, and the interface (Berge; Hillman, Willis, & Gunawardena, 1994; Moore, 1989; Stoney & Oliver, 1998).

Interactive learning environments make it possible for learners to tap into the expertise of the facilitator, collaborate and brainstorm with other learners, reflect on and apply what is learned to their own work situation, and obtain hands-on experience supported by coaching. Interaction in a sociocultural view is not just clicking icons on the computer screen. Instead, learners engage and reflect, annotate, question, elaborate, problem-solve, link, construct, and evaluate (Berge, 1999). Although the functionality of this VSC and the blended design provided a rich opportunity for an array of interactions in this particular e-learning event, it was not realized.

It is important to differentiate between interactions designed to keep people on their toes and those meant to foster dialogue and collaboration. The former are a necessity in a VSC given that instructors cannot read body language or see who is in the virtual room. These types of interactions dominated DT, perhaps at the expense of more meaningful exchanges. Berge (1999) cautions that increasing the quantity of interaction will not necessarily improve the quality of instruction. These findings highlight the need to pay attention to the types of interaction promoted in the VSC.

There were opportunities in DT to foster the rich interactivity that generates dialogue between learners. For example, the instructors wanted to stimulate dialogue by posing a question. However, these discussions never advanced beyond basic sharing. Perhaps it begins with a question that poses dilemmas, challenges canonical beliefs, and surfaces incongruities (Bruner, 1996). Palloff and Pratt (1999) suggest that to encourage a “volley of views” the art of asking “expansive questions” must be developed (p. 119). These types of questions enable a group to move through the levels of knowledge identified by Bruner: *beyond* what we know individually, *past* what is discoverable by discussion, *to* ultimately

our interdependent network of intelligence and meaning. Collective meaning making emerges in this process.

Even though the learners were “VSC-literate” this was no guarantee that the technology would be used to support meaningful interactions. As suggested in the literature, it is necessary to teach people how to use the technology to have a social experience and collaborate (Chin & Carroll, 2000; Gunawardena, 1995; Kearsley, 2000). Yet there is more to e-learning than just figuring out how to use the technology. Salomon and Perkins (1998) advise that learners need to learn how to “capitalize on the social milieu” (p. 5) by learning to learn with and from others. They add that this entails “learning to mediate others’ learning not only for their sake but for what that will teach oneself, and learning to contribute to the learning of a collective” (p. 21).

### *Community*

Learning in a formal workplace training session seems to be regarded as an individual pursuit related to personal goals. Learners decide how much they will invest to create a community with others in their VSC event. Although successful learning communities exist throughout the organization, they do not appear to be extensions of a formal learning experience. Instead they are linked to work groups (i.e. Renee’s team) and job roles (i.e. project management). Although the organization emphasizes community, it was surprising to find that DT participants did not have this expectation for their learning experience. Somehow a process prevalent throughout the organization was constrained by the nature of this formal learning experience.

With the frenetic speed of change people tend to become more isolated, leading to an emphasis on individualism (Candy, 1991; CONFINTEA, 1997; Selman et al., 1998).

O'Connor (1998) suggests that sociocultural theories may be incompatible with individualistic "folk theories" embedded in Western educational traditions. As evident in this study, the worker-learner takes training to advance their career and sharpen current performance. What is in it for them to build a learning community? Participants admit that they may never work with other people in a course, who by the nature of this workplace and the VSC are already remote. Moreover, learners seemed to get by without a strong sense of course community. This study draws attention to the kind of community that the worker-learner sees as useful to their own learning, a preference that is influenced by the organizational setting and the goals of the learning department.

Trentin (2001) makes a helpful distinction between a community of course alumni and communities of professionals. Encouraged by a common learning experience, the former provides support as individuals attempt to apply what they have learned. In contrast, communities of professionals form in a spontaneous manner to share knowledge and build understanding. It is this type of everyday community that seems to be supported by the CC organization. This study suggests that the *practice* of building and belonging to a community is not necessarily transferable from the day-to-day workplace to a formal learning event. Wenger and Synder (2000) argue that communities must be nurtured by "bringing the right people together and providing an infrastructure in which they can thrive" (p. 140). This is a substantial challenge for a training department.

Although there are studies that suggest community can be built in an online course (Gunawardena, 1995; Herrmann, 1998; Thompson, 2001), this was not the outcome in this study. There are six factors that help explain this finding: (a) the individual nature of learning, (b) short contact time, (c) lack of emphasis on relationship building, (d) instructor

domination, (e) limited focus on co-constructing knowledge, and (f) lack of purposeful design to nurture community.

### *Blended Learning*

As a blended learning solution, the three-part DT event (Orientation, SMP/SML, second VSC session) uses several media such as the VSC, print, Sound Recorder (for learners to record their voices), and audio files. DT also has both synchronous and asynchronous components and unfolds over a one-week time span. Participants liked this approach even though some jumped in part way through.

Despite being called *blended*, the second VSC event seems to be regarded as *the* DT event with the other components playing a secondary role. As a result, some of the synergy between components is lost. For example, learners assemble for the first time in the Orientation. However, without discussions or opportunities to get to know each other, the opportunity to build a sense of community that could extend into the rest of the event is lost. Another example is the SML. Even though this reading is compulsory, the instructors never refer to it in the second VSC event, which makes me wonder what purpose it served.

Participants commented on the novelty of blended solutions, which could explain some of the design issues. There has been little research on designing blended e-learning solutions, although there is plenty of interest in the field. At this point there is no consensus on a definition of blended learning. Some say it is simply e-learning combined with F2F learning (Troha, 2002). Others suggest that it is a mix of F2F training, synchronous and asynchronous e-learning components, and advanced learning support such as assessment tools, e-mentoring, and learning management systems (Fox, 2002; Schacht, 2002).

Interestingly, it is part of our adult education legacy. As Selman et al. (1998) describe the National Farm Radio Forum (NFRF), which ran across Canada from 1941 to 1965, a vivid picture of a blended learning solution, supported by the technology of the day, emerges. Organized by the Canadian Association for Adult Education and the CBC, rural participants were placed into groups. These groups would read a handout on the weekly topic, listen to a radio broadcast and then turn off the radio and discuss it. They would forward their opinions to the provincial secretary who would then broadcast them during the following week's program. Growing out of the "social and economic soil of Canada" (Sim, 1963, p. 216), it was a way for farmers to get acquainted, exchange ideas, and tackle common problems together (McKenzie, 1950). A critical component was increasing "neighborliness" and the expected outcome of the discussion and interaction was local action (McKenzie; Sim).

Much of the current practitioner literature seems to focus on how to determine the blend and choose the right technologies in the right proportions. In contrast, the NFRF started with a focus on the participants and their issues, an interest in building community, and a desire to direct efforts toward the achievement of solutions and action projects relevant to the farmers. Even though technology (radio) was seen as a "magic wand" to erase geographical barriers and "mould the whole farm population into one community each Monday night each winter" (Sim, 1963, p. 215), it was only a tool. Sim emphasizes that the discussion, not the broadcast, was the essence of the NFRF and therefore broadcasts were not lectures, but designed to open up a problem for group discussion. This is supported by McKenzie's (1950) comment that considerable time went into framing the weekly discussion questions.

The emphasis on addressing learners' needs and giving them a voice, while also facilitating discussion and neighborliness, is notably absent in current articles on blended learning. Perhaps the focus will shift. Rosenberg (2003) insists that viewing blended learning as only a combination of e-learning and classroom learning is too simplistic and argues that by adding communities of practice to the mix, organizations will achieve higher levels of sustainable learning and performance.

The NFRF was very successful in part due to a design that incorporated community, group and individual work, asynchronous and synchronous components, multiple media (radio and print), and synergy between elements that were designed to work in concert. We would do well to learn from our history.

This first question asked how the key stakeholders describe their VSC experience. By using interactivity, community, and blended learning as springboards in this section to amplify our understanding, the research literature in these three areas was supported, extended, and even questioned.

### *Question Two*

*What are the key stakeholders' impressions and attitudes about learning in the VSC?*

Participants had a range of attitudes toward learning in the VSC. Organizational mandates have forced these learning professionals to learn how to design and deliver effective VSC events, regardless of their opinion about this medium. All were determined to "get up to speed". However, the push-back on F2F classes has forced people into the VSC and some arrive with reservations. The findings indicate that not all learners are immediately capable of learning effectively in the VSC. Some struggle to get past the lack of F2F

contact. Others grasp the technology and seem to be happy to get what they need without the inconveniences of F2F training such as travel and time away from work. Compared to other e-learning tools, the VSC was a welcome relief to some learners because there are opportunities for synchronous exchanges with other learners and an instructor.

The findings indicate that participants can feel both close and removed in a VSC experience. With exposure, the technology presents less of a barrier and they are better able to create a sense of connection to others. To some, working in the VSC has become second nature. Participants learn to read virtual body language, rely on verbal eye contact, and visualize others to produce a sense of closeness. As DT progressed there were more humorous exchanges and use of the emoticons, suggesting that the “virtual divide” was bridged to some extent. However, the sense of connection participants felt with others could have been stronger.

These findings support Gunawardena’s (1995) discovery that failures occur far more with the social dimension in an online class than the technology. Concluding that we need to pay attention to the kind of interactions taking place, she emphasizes that it is the learners’ *perceptions* of interaction that create a sense of social presence. The weight given to learners’ perceptions is consistent with Hammond’s (2000) research into several online forums (VAC). He found that the nature of the medium can create a high threshold particularly for learners who focus on constraints.

The VSC constrained some participants’ ability to communicate even as others discovered a newfound sense of freedom, feeling more comfortable because others could not see their face. As the data so richly illustrates, learners can easily present a façade of attentiveness in the virtual classroom, hiding behind other learners and the technology. However, according to Kiesler (1986) anonymity exacts a price. She cautions that when

“communication lacks dynamic personal information, people focus their attention on the message rather than on each other .... They detect less individuality in others ... feel less empathy ... and are less influenced by norms” (p. 48).

Burge (1999) advises that we must distinguish between issues related to the technology and those based on inappropriate applications of it. Thoughts about the technology are closely intertwined with how it was used in this course and it is challenging to untangle these threads. Each experience in a VSC adds to the learners’ perceptions of the technology and themselves as e-learners. As pioneers within their organization, the DC team’s concern about creating a positive first impression of the technology is justified, as the literature suggests. Rheingold (2000) emphasizes that the way a technology will be used depends on how well the “first people who are using it succeed or fail in applying it to our lives” (p. xxvii). Alavi et al. (1995) state that the novelty effect can result initially in higher levels of engagement and motivation. We must ask ourselves what happens when the novelty effect wears off.

For some learners the technology is not transparent and they must consciously manage it on top on their learning process. Others have voiced this concern (Harasim et al., 1995; Veerman et al., 2000). Jelfs and Whitelock (2000) state that the more an individual is aware of the interface the harder it is to achieve telepresence. However, consistent with the literature (Salmon, 2000; Wilson, 2000) it seems that once there is a comfort with the technology, more energy can be spent on using the functionality of the tool to create more meaningful learning experiences.

### *Question Three*

*How do factors such as assumptions about teaching and learning, workplace context, and the technology influence collective meaning making in the VSC?*

This section begins with an exploration of the nature of the collective meaning making that occurred in the three-part DT event. Although literature specific to the VSC is limited, there is ample discussion of collective meaning making (see Chapter 2) to provide insight into how it could take shape in such an e-learning environment.

Collective meaning making in this study was limited. Lave and Wenger (1991) suggest that learning *to* talk as a practitioner rather than learning *from* talk is critical. Instructor-dominated discussions gave learners little time to engage in conversations with each other as practitioners. The rudimentary level of the content diminished the relevance of many of the modules and seemed to discourage people from probing further. The Orientation session is one of the first indicators that point to the lack of collective meaning making. There are no exchanges between learners as it is primarily a recitation of what self-managed activities need to be done before the next VSC session. There isn't much to say about the Orientation session, other than it lasted 28 minutes and covered 13 slides; a fact that speaks volumes.

Despite the underwhelming evidence of collective meaning making, the data suggests that the topic – instruction in the VSC - invites sociocultural exploration. Beliefs about teaching could be re-examined as learners prepare to instruct in this new media. Ford (1999) states that a spirit of inquiry develops as people speak and listen “as creators, rather than as reporters” (p. 493). This spirit of inquiry was notably absent. Although learners responded when asked, they did not volunteer information, jump in with their own thoughts or questions, or initiate a discussion on something that interested or challenged them.

The potential for collective meaning making was present. Multiple perspectives materialized when the group explored the radio presenter analogy. Offering a unique way to look at instruction, this activity might have provided an opportunity to surface assumptions and negotiate new understanding, especially if the learners rather than the instructor had the onus for making connections, weaving ideas, and surfacing inconsistencies. Although the instructors came up with this analogy themselves, others have similar ideas. Salopek (2002) uses the analogy of a “great morning drive-time radio show or interplay among the commentators on Monday Night Football” to describe facilitation in the VSC (§ 24).

Although some studies have found collective meaning making in e-learning events (McLoughlin, 1999; Nicaise, 1998), others have not (Ferraris et al., 2000; Tiwari, 2002). In their study of a VAC learning event, Kanuka and Anderson (1998) found little negotiation of meaning resulting in new knowledge. Despite this, participants felt the forum was useful. The greatest value was to share and receive information, not construct new knowledge. The DT course evaluations reflect a similar outcome, raising the possibility that not all learners expect or want to engage in collective meaning making.

Lave and Wenger (1991) suggest that the discussions that take place around events and between learners and their communities are important. There was evidence of collective meaning making in the construction of DT. The DC team learned as they interacted with each other and other groups within CC. They built on current knowledge and extended it by adding their own experiences. This exchange between old-timers and newcomers reflects Lave and Wenger’s idea of legitimate peripheral participation. Out of disagreements new understandings emerged. This team was clearly operating within a participation framework. The findings also suggest that learners shared and discussed learnings back in their communities in the organization.

As illustrated in Chapter 2, the literature suggests that assumptions about teaching and learning, workplace context, and the technology influence learning. What is less straightforward is how these three factors influence collective meaning making in a VSC. This study provides some insight by exploring each of these elements.

### *Assumptions About Teaching And Learning*

Participants arrived in DT with an array of beliefs about learning and a myriad of F2F and online experiences. As CC employees, they were imbued with the organization's learning philosophy. Despite trendy buzzwords, the data reveals that participants are swayed by traditional views of learning. Their lexicon includes labels such as *instructor* and phrases such as *imparting knowledge*, suggestive of the transmission model. This may be changing. By stressing just-in-time learning, blended learning, and learner-centered approaches, this organization seems intent on altering traditional learning practices.

### *Learners.*

Participants recognized that learning in a VSC was different than the F2F milieu and acknowledged that some adjustment to their learning strategies was necessary. They did not anticipate adopting a new learning paradigm. The learners seemed to value discussion-oriented sessions but still expected the DT instructor to be a subject matter expert passing out knowledge. Learners did not seem uneasy with their more passive role, responding when required either by clicking on the interface or taking their turn at the microphone. No one spoke up publicly or used the anonymous feedback feature to tell the instructors that the content was not meeting their needs. They did not log out but became less invested in the online event, which had a negative impact on group activities and lessened the possibility of collective meaning making.

Despite flaws in the course design and limitations of the technology, there were opportunities for engagement. However, learners did not appear to be active participants in their own learning. Other researchers have also noted that learners sometimes do not tap into opportunities provided, suggesting they can bring restrictive expectations and behaviors with them (Land & Hannafin, 2000; Stansfield, 1997).

*Software Developer.*

As the third party in an e-learning event, there is not yet much research to demonstrate how the software developer's learning philosophy influences an event. The thinking behind this VSC seems to be consistent with Squires' (1999) assertion that software design needs to be volatile in order to provide "environments which can be tuned to the idiosyncratic needs of [users]" (p. 52). The technology seems to accommodate the gamut of teaching approaches from flipping through PowerPoint slides to collaborative group discussions and hands-on labs. To some degree, users have the ability to shape the tool to their own context and practice. Although it is stretching it to say this technology is learning theory agnostic, WC does not seem to force users to adopt a specific learning philosophy. However, departing from the default approach seems to require conscious effort by both instructional designers and instructors.

*Instructors and Business Leader (Adult Educators).*

Finding that the instructors' philosophies strongly impacted DT is consistent with Annand's (1997) discovery that instructors' learning philosophies are critical in defining their relationship with the technology. The adult educators in this study did not articulate a particular learning theory that guided their practice and were highly influenced by corporate learning mandates. The design and delivery of DT reflects more of a constructivist rather

than behaviorist approach, although there seems to be elements of both. It stopped short of a sociocultural orientation. Designed to engage the learners in discussion and to encourage them to re-examine beliefs about teaching in light of this new medium, it was still instructor dominated with a goal to impart information.

Wilson and Myers' (2000) reference to an eclectic grab-bag stance seems to fit the DT design process. Although the instructors knew what they wanted to achieve, they had no explicit learning theory to draw on and instead relied on past experiences and their own learning preferences. This study illustrates the pitfalls of a grab-bag approach. Even though the learners seemed to enjoy several of the activities, some of the activities, or the way they were facilitated, worked against the instructors' vision of an engaging session.

For example, learners were asked what they thought was most important when delivering in WC and instructed to place a gold star in the media window next to their choice of either: words, voice quality, or questions you ask. They were not asked to explain their response. Nor were they given an opportunity to suggest other ideas. The instructors wanted to encourage exploration and discussion of what it is like to teach in this new medium but this type of activity kept learners in a more passive role, clicking rather than dialoguing. Without a well-defined learning theory to provide a framework, it seems that elements of the design and delivery ended up conflicting with each other and the desired outcomes.

### *Workplace Context*

The workplace seemed to have a profound influence on the collective meaning making in this VSC event. Even in a VC, learners are challenged to carve out a place and space for learning. These findings suggest that a cubicle may not be the most conducive environment for learning. Referring to the VSC, Salopek (2002) states that learners have a

responsibility to create a learning climate around themselves. This may be easier said than done. Even while learners acknowledge it is better not to participate from their desk, they still did so in order to multi-task learning and work.

The worker-learner is compelled to be more self-sufficient in their own learning endeavors albeit without much corporate support. Cutbacks in formal training and the move to short modular e-learning components puts an onus on the learner to rely on informal learning opportunities and engagement within communities of practice. There seems to be less dedicated time for learning in the workplace, a challenge echoed in other studies (Ferraris et al., 2000; Tiwari, 2002). Although short VSC sessions are easy to schedule, learners found it difficult to stay focused on their learning responsibilities and often wandered out of the VSC to tackle ever present work. Given the just-in-time nature of e-learning it is debatable whether sufficient time is given to learners or instructors to take part in experiences that ask for more than sitting through a PowerPoint presentation.

This organization is no different than others in its need to get information out to employees quickly. To some degree the workforce not only tolerates information-push sessions, they expect them. Although the DC team intended DT to be a dynamic experience, I wonder if the VSC will become a low-cost corporate vehicle for disseminating need-to-know information quickly and with a modicum of fuss. An apt metaphor is *take-out learning*. Learners show up at these short just-in-time sessions, get what they can and then take it back to their community of practice to build understanding in a work-related context. Perhaps this is a viable integration of work and learning. Trentin (2001) suggests that conventional learning paths will become “springboards for long-term learning processes managed by the learner” as formal learning is abandoned in favor of “endogenous growth through the exchange of knowledge” (p. 5).

*Technology*

Technology also influenced the degree of collective meaning making in DT. Some learners cited limitations of the VSC such as lack of nonverbal cues and inability to maintain a free-flowing dialogue. Although the VoIP technology generally results in a conversation similar to a telephone, microphone privileges were granted in a way that resulted in a formal dialogue characterized by delays and absence of chitchat. Perhaps the altered conversation patterns prevented more intimate dialogue, a critical stepping stone to collective meaning making. Enterprising learners created the communication channels they needed, using tools such as Instant Message or shouting over their cube walls. This is consistent with Squires' (1999) observation that users will engage in subversive use and shape the tool to fit their needs.

The VSC has the potential to support collective meaning making (Driscoll, 2001), although it did not seem to do so in this case study. Instructors can give each learner a microphone for the entire session, which allows people to contribute when they want. By tightly controlling the microphones the instructors likely curtailed spontaneous discussion and the dialogue they were so keen to cultivate. Paradoxically, one of the strengths of this technology may hinder collective meaning making. Given the sophistication of the VoIP functionality, VSC events rely heavily on audio. Perhaps this leads to an over-emphasis on *telling*. After all, DT focused on verbal presentation skills. Although Salopek (2002) comments that an engaging voice is important in a VSC, this course was meant to explore effective VSC instruction, suggestive of a broader scope.

Users need to know the technology well enough to make it do what they need it to do quickly (Salopek, 2002). This audience was well versed and confident. But as Renee pointed out, learning to use WC can be deceptively simple: "It is easy to learn but

challenging to learn how to use it effectively.” It is not just a matter of clicking the right buttons on the interface. This study supports assertions in the literature that both instructors and learners need to be trained and supported to use an e-learning tool (Palloff & Pratt, 2001; Romiszowski & Chang, 2001).

As this case study so vividly illustrates, it was a challenge to keep learners engaged throughout the VSC components of the DT learning event. All three factors influenced the collective meaning making that unfolded in the VSC. The workplace created and validated a climate of distracted learning. The technology created a feeling of being both close and removed and allowed learners to hide. Assumptions about teaching and learning permitted learners to be comfortable in a passive role and instructors to assume a teacher-centered role.

### *Overarching Research Questions*

*What happens in a VSC?*

*How is a sociocultural perspective reflected in what takes place in a VSC?*

By exploring the three specific research questions, a picture of what happens in a VSC emerged. We also now have an understanding of how factors such as assumptions about teaching and learning, the workplace context, and the technology worked to both discourage and encourage collective meaning making in this VSC event. By pulling these threads together we are in a position to explore in more depth how a sociocultural perspective was or was not reflected in this VSC experience.

The organization is in the midst of a strategic learning shift. It is making investments in technology to support peer-to-peer collaboration while emphasizing knowledge management and learning communities. Somehow this stops short of a transformation of

formal learning sessions, such as DT. The instructors *wanted* an event filled with dialogue and interaction; not an information-push session. Even though this vision of DT reflects some of the current thinking about learning, they were only partially successful in this respect. Five factors conspire to create information-push events: short design cycles, lack of more sophisticated learning models, the ease of *presenting* content in the VSC, the need to impart information quickly, and limited resources.

I was interested in understanding the influence contemporary research has on the design and use of e-learning technologies. Despite predictions in the literature, there was a lack of revolutionary fervor in this workplace e-learning event. The introduction of the VSC has not yet evoked new paradigms. Barab and Duffy (2000) explain that a community approach shifts the focus from a collaborative learning environment (practice fields) to the connections an individual has with the community. Communities of practice are slowly emerging throughout the organization. Within the realm of this training department however, practice fields seem to be more in tune with their goals and resources, although this would be an aspiration for only selected courses they design and deliver. The rest of the courses are best described as information-push and intended to remain that way.

Effective VSC delivery is a new and largely unexplored domain in which few people could call themselves experts. Given the interest in making distance collaboration an integral business process, the learners tramping through DT could be considered the first members of a fledgling community of practice around VSC instruction. Newcomers supported by old-timers and sharing of best practices are compelling reasons for CC to consider nurturing a community of practice. This aligns with strategic business directives and the overall impact could be more significant than a one-time formal WC training curriculum that continues the practice of separating learning and work.

Despite extensive debate in the literature about sociocultural learning perspectives, there is not yet much evidence they have been successfully implemented in the VSC. The findings indicate three forces that prevented the development of a VSC session reflective of more contemporary learning theory: (a) lack of theoretical grounding coupled with an eclectic mix and match approach to method; (b) a powerful tie to the traditional classroom and the transmission model; and (c) limitations that have more to do with design and delivery than the technology.

#### *An Eclectic Mix and Match Approach*

This event had many positive elements. What was missing was a theoretical framework to glue the pieces into a cohesive whole. Within a corporate training entity, a variety of orientations may be present (MacKeracher, 1996). Although Brookfield (1986) suggests that different viewpoints may be essential for a thriving program, Dewey (1930/1970) states that an educational philosophy should not be a “compromise between opposed schools of thought” or an “eclectic combination of points picked out hither and yon” (p. 5). If as Land and Hannafin (2000) assert, technology extends underlying assumptions, we need to pay attention to the paradigms guiding this VSC event.

These findings add to the literature that points to the misalignment between theory and practice and brings into question how aware practitioners are of learning research and theory. Even though it seems the participants in this study do not draw from the academic literature, several quoted Eliot Masie, a popular e-learning guru. Thought leaders in the training industry such as Masie, Rosenberg, and Hall seem to play an important mediation role between academic researchers and practitioners.<sup>3</sup>

Findings support Bednar, Cunningham, Duffy, and Perry's (1992) assertion that practitioners are caught up in day-to-day work and cannot keep an eye on the research and pull out its practical implications. This study also highlights the practice of packaging complex learning theory into organizational slogans and buzzwords. To some degree this practice appears to be successful. It keeps the learning department focused and in tune with the most current ideas. But as this study also shows, this practice can lead to challenges when they implement their learning solutions. Bednar et al. warn that removing concepts from a theoretical base can strip them of their meaning.

Practitioner eclecticism is debated in the literature. Wilson and Myers (2000) call this approach *practitioner-centered* as it allows the needs of the situation to rise above rules. However, contemporary learning theories are based on different ontologies and epistemologies than traditional objectivist foundations and result in different learning goals and teaching strategies (Bednar et al., 1992; Jonassen & Land, 2000). Mixing and matching can result in design elements that work at cross-purposes with each other.

Grounding e-learning experiences in learning theory starts with dialogue. Rodrigues (2000) states that the challenge ahead for software designers and educational researchers is to discuss issues regarding features, views of learning, intended outcomes, and the context in which the technology will be used. Changes in the commercial e-learning product used in this study are driven by customer requests (which represent a plethora of different contexts and views), the learning philosophies of the software design team, and strategic business decisions. As this case study illustrates, it seems that the relationship between educational researcher and software developer is arms-length at best.

*Powerful Tie to the Traditional*

Personal histories shaped engagement in the VSC, decisions on how it would be implemented, and the look and feel of the technology. Beliefs about themselves as learners, instructors, and workers along with assumptions about the learning process for the most part adhere to a behaviorist philosophy. One exception is Matt, whose beliefs seem to have roots in situated learning, although his views of formal learning have hints of behaviorism. The findings suggest a traditional teacher-student association. Despite content that lends itself to co-discovery, the DT instructors did not position themselves as co-learners. Learners allowed the instructors to lead them through a learning event that by all accounts was too simplistic to meet their needs.

Even with an innovative technology, it is difficult to escape the legacy of the transmission model. Furthermore, participants in this study do not necessarily view these learning traditions negatively. Although some claimed that the VSC allows them to do things not possible in a F2F session, there was more evidence of adaptation than innovation. Perhaps we are limited by the restrictions *we* place on what formal learning can and cannot be. It is possible we impose restrictions on the technology and not the other way around. O'Connor (1998) cautions that:

Deep changes in pedagogy, however well motivated and secured by research, do not easily take hold. While the accoutrements of practice and the terminology may change, teaching practices often stay the same despite attestations by practitioners that they have changed (p. 43).

We need to ask how innovative a technology can be if users are not ready to change.

Participants need to be prepared to play a different role in the learning experience. Nicaise (1998) found that when building her social constructivist e-learning environment, a major challenge was altering learner expectations and helping instructors change their roles. Perhaps a more dramatic shift is required. Stimulated by a growing interest in peer-to-peer

informal learning, Matt is changing his learning paradigm by moving away from formal learning and any vestiges of the classroom environment – physical or virtual.

### *Design and Delivery*

Once in the hands of users there is enormous potential to shape this e-learning environment. Findings suggest that personal and organizational learning philosophies become easily embedded into VSC events. Driscoll (2001) states that because opportunities for live peer-to-peer learning and the immediacy of feedback are unique strengths of the VSC, these sessions can be characterized by “dialogue and discussion, problem-solving, and maximum interaction” (p. 175). Although the technology lends itself to a sociocultural learning experience, this was not the case in this study.

The design of an e-learning event is critical to its success (Berge, 2001; Jung, 2000; Palloff & Pratt, 1999; Willis, 2000). Barab and Duffy (2000) provide design principles that could be used to guide the development of VSC sessions that are part of a formal training curriculum, such as DT. These eight principles pull together the many dimensions that go into the creation of practice fields: (a) active learning, (b) learner ownership, (c) coaching and modeling of thinking skills, (d) opportunity for reflection, (e) loosely structured dilemmas, (f) learner support, (g) collaboration and social environment, and (h) motivating learning context. Because they are grounded in sociocultural theory, instructors and business leaders may find that using these principles will help them deliver VSC events more consistent with their desire to foster dialogue and sharing of best practices.

The literature highlights the importance of intentionality to achieve learning outcomes. McLoughlin (1999) found that through reflective practice teachers learned how to use a VSC-like tool less as a device to display content and transmit facts and more as a

cognitive and social tool. Her findings suggest that a shift in teaching philosophy requires a clear sense of direction, time, freedom to experiment, and a strong coaching relationship to succeed. Unfortunately, these elements were not abundant in the present study.

The present study also suggests that the instructor's facilitation skills are critical. Matt comments that the need to keep people engaged is more acute online and the consequences of poor instructional strategies more severe. The DT instructors struggled to interpret and work with the silence of the learners in this event. Although the instructors tried to achieve an interactive learning event by including a number of activities, the findings suggest the social fabric needed attention. As Palloff and Pratt (2001) argue, even a well-designed course can fail if the instructor is not a skilled facilitator working to build a learning community. The instructors might want to pay more attention to learner ownership, validating each person's unique experiences (especially the old-timers), and encouraging learners to challenge their assumptions and tacit beliefs about teaching.

The literature offers insight into facilitation strategies that might be appropriate. Salmon (2000) suggests that in order to facilitate knowledge construction the facilitator needs to facilitate process and weave the discussion. MacKeracher (1996) describes this as enabling - facilitators are called upon to act as a catalyst and to provide guidance and process resources. Barab and Duffy (2000) comment that this scaffolding provided by the instructors distinguishes a practice field from just doing your job.

Learners have increased responsibilities in a sociocultural paradigm. No longer fact sponges, they must be active collaborative meaning makers and invest more than just their time. Although many contextual factors distracted the learners, collective meaning making is impossible if they do not, or are not able to, participate more meaningfully. As with interactivity and collaborative learning, *participation* was ill-defined by participants in this

study. MacKeracher's (1996) ten themes may provide the clarity they were searching for. Her themes, a mix of behaviors and attitudes, set the stage for collective meaning making: (a) trust the process, (b) stay open to new ideas, (c) take risks, (d) enjoy the detours, (e) ask for help, (f) ask questions and think critically, (g) reflect, (h) share your ideas, (i) have fun, and (j) take time to facilitate the learning of others (p. 243). The quality of learner participation in DT might have been strikingly different if the instructors and learners had negotiated what meaningful participation entails, using a list such as this as a starting point.

Although the VSC event studied in this inquiry was not reflective of a sociocultural perspective, a rich understanding of the complexities of what happens in a VSC has been created. Assumptions about teaching and learning, workplace context, and the technology influenced the collective meaning making throughout the e-learning event. Participants' impressions and attitudes about learning in the VSC were varied and reflected their different entry points into this experience. Three forces that complicated the development of a VSC reflective of contemporary learning theory offer insight into ways to create e-learning events that are grounded in sociocultural theory. First, ground designs in a strong theoretical base. Second, be prepared to change teaching and learning strategies. Lastly, use technology as a tool to extend innovative design and delivery strategies.

This study addresses Annand's (1997) concern that there are few descriptive studies that explore the interrelationship of learning theory and practice. The findings also highlight opportunities for partnerships between practitioners and researchers. As Vogel (2000) explains, when "theoretical frameworks inform actions, and actions modify theories so that future actions grow out of what we have learned by experience and reflection, the entire system is energized" (p. 25).

## Chapter 7 Conclusion

This section begins with a reflection on the contributions this study provides to scholarly knowledge. A number of recommendations for future research endeavors and workplace learning practices emerge from this study and are shared. I conclude with thoughts on this research process.

### *This Study's Contributions*

There is not yet much research literature on the VSC, one of the newer and more sophisticated virtual classroom technologies. This exploratory study may therefore serve as a starting point for other researchers interested in this e-learning genre. The qualitative case study approach allowed for an in-depth analysis of a number of perspectives, revealing impressions and rich descriptions of one workplace e-learning event. By bringing participants' voices to the forefront a deeper understanding of how they give meaning to their VSC experiences has been produced. This study makes a unique contribution to the scholarly dialogue by including the perspective of the software developer as a key stakeholder in this workplace e-learning event.

This research inquiry was conceived and conducted by looking through a sociocultural lens. By broadening the inquiry to include contextual factors, this study provided insight into not only teaching and learning in a VSC, but also teaching and learning in the workplace. In the process we caught a glimpse of how the dialogue and practices of worker-learners within an organization are integrated into the fabric of a formal e-learning event.

Given the lack of collective meaning making in this event, I was unable to document how a sociocultural perspective was implemented in the VSC. However, the study does

highlight the challenges inherent in a paradigm shift from a traditional behaviorist model to a sociocultural approach. Particular attention was paid to the challenges that come from the technology, the learning legacy that people bring with them, and the culture and infrastructure of the workplace. Given the ability of sophisticated tools like the VSC to connect distant people easily, this study takes a broad sociocultural view and suggests a need to re-conceptualize workplace learning initiatives. This includes considering how formal e-learning events could be integrated with powerful informal learning mechanisms, such as communities of practice, to encourage collective meaning making.

My experiences support O'Connor's (1998) comment that researchers are grappling with the tension between the collective and the individual. Based on the work of Vygotsky (1978) and Lave and Wenger (1991), the third cluster in O'Connor's social constructivist typology emphasizes the dynamic interaction between the collective and the individual. These sociocultural views guided the present study. However, more consistent with O'Connor's second cluster, which is based on a Piagetian framework, the focus of participants was on the individual; the collective played a minor role. Nevertheless, as this study so vividly demonstrates, the influence of the social context on individual learning paths cannot be ignored. O'Connor acknowledges that even within the second cluster, the many ways that "social contexts and social phenomena play a role in the learning of individuals" have become an important consideration (p. 55). I have discovered that rather than providing a ready-made approach and specific strategies, sociocultural theories at this juncture instead offer the researcher "tools to think with" (O'Connor, p. 64).

I wrestled with two issues that may be of interest to other e-learning researchers. The first concerns the challenges inherent in conducting research in a virtual setting without ever meeting your participants F2F. We are in the early stages of understanding the complexities

of a research context in which the researcher conducts telephone interviews, exchanges e-mails, and appears as a name on the screen while participating in and observing virtual learning events. I moved in and out of the participants' workdays in brief encounters with surprising ease given that the closest person was 1000 kilometers away, the farthest on the other side of the Atlantic Ocean. I have only an idea what their cubicles look like. I have a mental picture of each person and as we were engaged on the telephone or in the VSC I imagined them talking, listening, reflecting; I do not know how accurately my imagination captured reality. Sandy and I exchanged digital pictures. Does it matter that she did not look as I had imagined?

And yet they are very real to me and for a period of time we were part of each other's lives. Not surprising in a multi-national company, people become skilled in distance communication. Telephone and e-mail are so ubiquitous we cannot imagine our workday without them. More sophisticated collaboration tools, such as the VSC, may someday attain this status. Is this study diminished because of the virtual nature of what was being studied and the methodology used?

Second, I encountered a dilemma I have not yet seen addressed in the research literature, namely the use of pseudonyms for software products. Discussions with other e-learning researchers and my own experience suggest that knowing what technology is being used in a study can facilitate a more systematic literature review. The e-learning field includes a large number of computer-assisted learning tools and virtual settings. Reading various studies, you often ask yourself if the researchers are referring to the same, similar, or different technologies. Although I had intended to use the VSC product name, when I was working with Matt's data I realized the threat this posed to his anonymity. Despite his pseudonym, being aligned with particular software could make him more identifiable.

Protecting Matt's anonymity as much as possible *is* the paramount issue and hence a pseudonym was created for the technology used in this study. I hope that other researchers will still be able to draw their own conclusions about how this study and the VSC technology, which provided the virtual setting, are relevant to their own work.

### *Recommendations for Research*

Although there is a growing body of literature on e-learning, research on the VSC is still very new and needs to continue. The VSC lends itself to short modular events. This practice, as well as increasing use of the VSC in blended learning, raises questions. Salmon's (2000) vision of networked learners demanding "smaller chunks of relevant learning, backed up by connections and explorative opportunities with like-minded others" seems to fit with the needs of the workplace (p. 91). How will learners construct knowledge when formal training is delivered in short chunks? How can synergy and cohesion be created in a blended learning solution that mixes asynchronous and synchronous learning in formal and informal venues?

Although building community is widely touted, this study provides a glimpse of how learners and instructors perceive community and what they are willing to invest to create it. Research is needed to explore what value participants in workplace e-learning experiences attach to community and what kinds of community best enhance learning.

As organizations seek improvements in the way they work, think, and build knowledge they are reaching for new learning paradigms. However, the findings in this study indicate a lack of deliberate application of contemporary learning theory to practice. Research that studies how sociocultural theory can be implemented would be helpful. Perhaps more action research studies in which researchers and practitioners work together

are needed. Wells (1998) argues that the model of the researcher who finds out “the truth” and then tells practitioners what to do is fraught with difficulties. He adds that lasting improvements do not occur because of top-down recommendations but rather from practitioners doing inquiry and reflecting on their own practice.

### *Recommendations for Practice*

Although collaborative learning seems to be valued, the lack of engagement in this e-learning event suggests that perhaps it needs to be planned and supported more systematically. Attention should be paid to designing exchanges that are not, according to Rowntree (1995), merely active but *inter-active*. Participation is multi-faceted and should be negotiated between learners and facilitators. It could include a willingness to engage holistically, be involved in higher order thinking, step out of learning silos and dialogue with peers, learn the tool well enough to engage collaboratively, and take responsibility for personal learning as well as the development of a community.

Design and delivery strategies need to be consistent with each other and the desired learning outcomes; a consistency achieved when the learning event is grounded in a theoretical perspective. For practitioners searching for more than just knowledge transfer sessions, social constructivist and situated learning theory may provide the inspiration and guidance they need to understand what learner-centered learning entails.

Participants in a VSC have a responsibility to create dual learning climates: within the VC and in their physical space. Although there are substantial distractions in the workspace, learners need to realize that what they do (or don't do) as a result of these distractions impacts the learning of others. On their part, VSC facilitators and instructional designers need to design events that take distracted learning into account.

Learners, instructors, and software developers should be prepared to innovate teaching and learning strategies for this new media. It is not just a matter of adopting or making a few small adjustments to what worked in the F2F classroom. Other fields, such as the Internet or radio broadcasting, could inspire new ways of teaching and learning in the VSC. Von Oech (1990) praises cross-fertilization, commenting that “often the best ideas come from cutting across disciplinary boundaries” (pp. 104-105).

### *Recommendations for Organizations*

It is challenging to learn in the workplace. The effectiveness of a learning event is diminished when people give it only 50% of their attention. This problem is compounded by a virtual space in which it is easy to hide and wander in and out. The predicament of carving out time for learning warrants consideration of guilt-free *release time* to engage in formal learning events, perhaps in designated learning centers away from the hubbub surrounding the cubicle. Given that most VSC events are only a few hours in length, not the two-day F2F sessions of old, it should be possible to take a brief time-out for learning. The learning center can be a conference room, but perhaps needs an official designation to validate its use.

Learning takes time. Without investing resources, organizations continue to settle for traditional information-push sessions that leave knowledge construction up to individuals; people already under pressure to spend 100% of their time on billable client work. Organizations need to help employees create a place and space for learning, formal or informal. If organizations value this type of learning they have to do more to validate it. For example, sending the message that taking quality time to participate in a VSC event is important.

This study also questions what access practitioners have to research. It might be a logistical issue. Participants were interested in research findings but did not have access to a university library or online journals. If practitioners are not tapping into research then who are we doing this for? Although mediators play an important role in disseminating research findings, the partnership between researchers and practitioners could be stronger. Perhaps organizations could play a facilitation role to bring these two stakeholder groups together.

### *Beyond the Walls of a VSC*

The need to acquire CPE credits sustains the formal training programs in this organization and learning is partially motivated by the need to acquire these credits. Throughout this study I often wondered what would happen if the system of CPE credits was dismantled. Forcing the worker-learner to attend training events can create awkward learning sessions if people don't want to be there. Perhaps it would be better if workers had more freedom to choose their learning options. However, it seems to be very difficult for the worker-learner to prioritize and schedule time for training. If the external driver (i.e. CPE credits) is removed, it may be tough for people to justify taking any time out for learning.

Before we can exploit a new e-learning technology we must be able to imagine the possibilities for learning. Without shifting our learning paradigms, even the VSC has walls. I see tremendous potential when we move beyond the familiar terrain of formal training. More than ever, the ability of tools such as the VSC to support real-time peer-to-peer collaboration signals a shift to informal learning methods, such as communities of practice, that better integrate work and learning, are less disruptive, and support ongoing collective meaning making.

The *take-out* metaphor illustrates this sociocultural perspective of learning. When a member of a community of practice recognizes they have a learning need they often consult old-timers and engage in other informal learning activities. But at some point it may be necessary to drive through a short, targeted formal learning event, designed to be followed by integrative work back on the job and supported by a community of either course alumni or other professionals. Although not a full dining experience, these formal learning events fill a need and if re-conceptualized and designed as practice fields, not information-push sessions, they can be more than a cost-saving convenient alternative.

A model of community-based learning in which the worker-learner moves between formal and informal learning experiences, is not happenstance. It reflects what Lave and Wenger (1991) call a learning curriculum – “situational opportunities viewed from the perspective of learners” (p. 97). What role does the training department play? Lohman (2000) suggests that a productive focus is to create “organizational environments that do not inhibit individuals and groups ... from learning on their own” (p. 85). Imagine the possibilities if we asked, “How can we create a learning community in this content area?” rather than, “What courses do we need to build?”

Even though an organization may be eager to offload responsibility for learning to employees, this study suggests learners require support. To engage meaningfully in collective meaning making requires sophisticated competencies. Learners are expected to be their own learning self-managers, adept at collaborating in online contexts as well as they do F2F, competent with learning technologies, and able to use advanced thinking skills. Although these skills can be developed, we cannot assume they are present.

Four tasks for the adult educator surface: (a) foster an enabling culture, (b) equip learners with collaboration and metacognition skills, (c) address personal learning myths,

and (d) leverage technology to support a learning curriculum. These tasks mark a new role in creating learning solutions that blend formal and informal learning encounters, asynchronous and synchronous modes, and a variety of technologies.

Driscoll (2002) states that e-learning is a 23 billion dollar industry. This case study is a stark reminder that technology is merely a combination of software, hardware, and network connections. It is the human and contextual dimensions that ultimately define the nature of the learning. A VSC might allow collective meaning making but cannot create it. Although e-learning technologies create opportunities to re-conceptualize learning in the workplace, moving to a new media and using trendy buzzwords does not change learning practice.

The VSC is not yet a fulfilling learning experience for everyone. Organizations as well as learners and instructors are still mapping expectations and outcomes. Although the VSC offers a cheaper way to quickly disseminate information across a global organization, it would be a shame if this were all it was used for. Sociocultural perspectives offer a way to envision how the VSC could be used to shape more vibrant and dynamic learning in the workplace, learning that extends beyond the walls of a classroom – physical or virtual.

## Endnotes

1. Pseudonyms have been used to mask the identity of the company, course, and names of various business units within the company. A pseudonym is also used to refer to the VSC technology used in this study. A number of acronyms are used throughout this report:

- cbt – computer-based training
- CC – Consulting Company
- CPE – continuing professional education
- DC team – Distance Collaboration team
- DT – Delivery Training (the e-learning event being studied)
- F2F – face-to-face
- NFRF – National Farm Radio Forum
- ROE – return on effort
- SML – self-managed learning (DT component)
- SMP – self-managed practice (DT component)
- VC - virtual classroom
- VAC - virtual asynchronous classroom
- VSC - virtual synchronous classroom
- VoIP – voice-over-Internet protocol
- WC – WebClass (the VSC technology)

2. The current structure within the US arm of the business requires employees to obtain a certain number of CPE credits annually. These credits can be acquired by attending formal training events. As Renee explains, “You are responsible for getting that CPE. How

you go about it and what you take is pretty much up to you.” Failing to get the required CPE credits results in falling out of administrative good standing, which carries negative financial implications.

3. Elliot Masie ([www.masie.com](http://www.masie.com)), Brandon Hall ([www.brandon-hall.com](http://www.brandon-hall.com)), and Marc Rosenberg (author of *E-learning: Strategies for delivering knowledge in the digital age* (2001)). These mediators popularize and disseminate the research literature to practitioners in accessible formats such as reports, online newsletters, web sites, discussion groups, and conference presentations.

## References

- Ahern, T. C., & El-Hindi, A. E. (2000). Improving the instructional congruency of a computer-mediated small-group discussion: A case study in design and delivery. *Journal of Research on Computing in Education*, 32(3), 385-400.
- Alavi, M., Wheeler, B. C., & Valacich, J. S. (1995). Using IT to reengineer business education: An exploratory investigation of collaborative telelearning. *MIS Quarterly*, 19(3), 293-312.
- Annand, D. (with Haughey, M.). (1997). Instructors' orientations toward computer-mediated learning environments. *Journal of Distance Education*, 12(1/2), 127-152.
- Banks, J. (1988). *Multiethnic education: Theory and practice*. Toronto, Canada: Allyn and Bacon.
- Barab, S. A., & Duffy, T. M. (2000). From practice fields to communities of practice. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical Foundations of Learning Environments* (pp. 25-54). Mahwah, NJ: Lawrence Erlbaum Associates.
- Bednar, A. K., Cunningham, D., Duffy, T. M., & Perry, J. D. (1992). Theory into practice: How do we link? In T. M. Duffy & D. H. Jonassen (Eds.), *Constructivism and the technology of instruction: A conversation* (pp. 17-34). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Berge, Z. L. (1998). Guiding principles in web-based instructional design. *Educational Media International*, 35(2), 72-76.
- Berge, Z. L. (1999). Interaction in post-secondary web-based learning. *Educational Technology*, 39(1), 5-11.
- Berge, Z. L. (2001). Evaluating web-based training programs. In B. H. Kahn (Ed.), *Web-based training* (pp. 515-522). Englewood Cliffs, NJ: Educational Technology Publications.
- Billett, S. (1998). Ontogeny and participation in communities of practice: A socio-cognitive view of adult development. *Studies in the Education of Adults*, 30(1), 21-34.
- Brookfield, S. D. (1986). *Understanding and facilitating adult learning*. San Francisco: Jossey-Bass.
- Brown, S. C. (1997a). Curriculum or culture change? In S. C. Brown (Ed.), *Open and distance learning: Case studies from industry and education* (pp. 183-195). London: Kogan Page.
- Brown, S. C. (1997b). Introduction. In S. C. Brown (Ed.), *Open and distance learning: Case studies from industry and education* (pp. 1-9). London: Kogan Page.

- Brown, J. S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organizational Science*, 2(1), 40-57.
- Brown, K. G., Milner, K. R., Ford, J. K., & Golden, W. (2001). Repurposing instructor-led training into web-based learning: A case study and lessons learned. In B. H. Kahn (Ed.), *Web-based training* (pp. 415-422). Englewood Cliffs, NJ: Educational Technology Publications.
- Bruner, J. S. (1996). *The culture of education*. Cambridge, MA: Harvard University Press.
- Buckley, R., & Caple, J. (1990). *The theory and practice of training*. San Diego, CA: University Associates.
- Burge, E. J. (1999). Using learning technologies: Ideas for keeping one's balance. *Educational Technology*, 39(6), 45-49.
- Canada, M. (2000). Students as seekers in online courses. In R. E. Weiss, D. S. Knowlton, & B. W. Speck (Eds.), *Principles of effective teaching in the online classroom, No. 84* (pp. 35-40). San Francisco: Jossey-Bass.
- Candy, P. C. (1991). *Self-direction for lifelong learning: A comprehensive guide to theory and practice*. San Francisco: Jossey-Bass.
- Carr, C. S., & Carr, A. M. (2000). Instructional design in distance education (IDDE): A web-based performance support system for educators and designers. *The Quarterly Review of Distance Education*, 1(4), 317-325.
- Centra (2001, January). *New report from Brandon Hall ranks Centra "best in class" for e-learning*. Retrieved September 3, 2001, from <http://www.centra.com/corporate/press>
- Charmaz, K., & Mitchell, R. G., Jr. (1997). The myth of silent authorship: Self, substance, and style in ethnographic writing. In R. Hertz (Ed.), *Reflexivity and voice* (pp. 193-215). Thousand Oaks, CA: Sage Publications.
- Chin, G., Jr., & Carroll, J. M. (2000). Articulating collaboration in a learning community. *Behaviour & Information Technology*, 19(4), 233-245.
- Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies*. Thousand Oaks, CA: Sage Publications.
- Cole, M. (1995). Socio-cultural-historical psychology: Some general remarks and a proposal for a new kind of cultural-genetic methodology. In J. V. Wertsch, P. Del Rio, & A. Alvarez (Eds.), *Sociocultural studies of mind* (pp. 187-214). Cambridge, England: Cambridge University Press.
- Collis, B., & Winnips, K. (2002). Two scenarios for productive learning environments in the workplace. *British Journal of Educational Technology*, 33(2), 133-148.

- CONFINTEA (1997). *Monitoring adult learning* (2d). Hamburg, Germany: UNESCO Institute for Education.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage Publications.
- Daniel, J. S. (1996). *Mega-universities and knowledge media: Technology strategies for higher education*. London: Kogan Page.
- Davies, D. (1995). Learning network design: Coordinating group interactions in formal learning environments over time and distance. In C. O'Malley (Ed.), *Computer supported collaborative learning* (pp. 101-123). Berlin, Germany: Springer-Verlag.
- Davydov, V. V. (1995). The influence of L. S. Vygotsky on education theory, research, and practice. S. T. Kerr (Trans.). *Educational Researcher*, 24(3), 12-21.
- Dede, C. (1996). The evolution of distance education: Emerging technologies and distributed learning. *The American Journal of Distance Education*, 10(2), 4-36.
- Dede, C. (1999). The multiple-media difference. *TECHNOS*, 8(1), 16-18.
- Defoe, T. A. (1997). Considering context in workplace programs. In M. C. Taylor (Ed.), *Workplace education: The changing landscape* (pp. 279-294). Toronto, Canada: Culture Concepts.
- Denzin, N. K. & Lincoln, Y. S. (2000). The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed., pp. 1-28). Thousand Oaks, CA: Sage Publications.
- Dewey, J. (1970). *Experience and education*. New York: Collier-MacMillan Canada. (Original work published in 1938)
- Dick, W. (1996). The Dick and Carey model: Will it survive the decade? *Educational Technology Research and Development*, 44(3), 55-63.
- Draper, J. A. (1993). Valuing what we do as practitioners. In T. Barer-Stein & J. A. Draper (Eds.), *The craft of teaching adults* (pp. 57-67). Toronto, Canada: Culture Concepts.
- Driscoll, M. (1998). *Web-based training: Using technology to design adult learning experiences*. San Francisco: Jossey-Bass/Pfeiffer.
- Driscoll, M. (2001). Developing synchronous web-based training for adults in the workplace. In B. H. Kahn (Ed.), *Web-based training* (pp. 173-183). Englewood Cliffs, NJ: Educational Technology Publications.
- Driscoll, M. (2002). *Web-based training: Creating e-learning experiences*. (2<sup>nd</sup> ed.). San Francisco: Jossey-Bass/Pfeiffer.

- Duderstadt, J. J. (1999). *Dancing with the devil*. San Francisco: Jossey-Bass.
- Farres, L. (2002). *Understanding the experiences of female national athletes of a team sport in a centralized training camp*. Unpublished doctoral dissertation, University of Ottawa, Ottawa, Ontario, Canada.
- Fenwick, T. J. (2000). Expanding conceptions of experiential learning: A review of the five contemporary perspectives on cognition. *Adult Education Quarterly*, 50(4), 243-272.
- Ferraris, M., Manca, S., Persico, D., & Sarti, L. (2000). Managing the change from face-to-face to distance training for SMEs. *Computers & Education*, 34(2), 77-91.
- Firdiyewek, Y. (1999). Web-based courseware tools: Where is the pedagogy? *Educational Technology*, 39(1), 29-34.
- Ford, J. D. (1999). Organizational change as shifting conversations. *Journal of Organizational Change*, 12(6), 480-500.
- Fox, M. (2002). Keeping the blended promise: What does it take to make e-learning really pay off? *e-learning Magazine*, March. Retrieved January 24, 2003, from <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=11689>
- Freire, P. (1971). *Pedagogy of the oppressed* (M. B. Ramos, Trans.). New York: Herder and Herder.
- Goldman, S. L., Nagel, R. N., & Preiss, K. (1995). *Agile competitors and virtual organizations: Strategies for enriching the customer*. New York: Van Nostrand Reinhold.
- Gooler, D. M. (1990). Changing the way we live and learn in the information age. In R. M. Smith & Associates (Eds.), *Learning to learn across the life span* (pp. 307-326). San Francisco: Jossey-Bass.
- Greeno, J. G. (1997). On claims that answer the wrong questions. *Educational Researcher*, 26(1), 5-17.
- Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco: Jossey-Bass.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research: Collecting and interpreting qualitative materials* (pp. 195-220). Thousand Oaks, CA: Sage Publications.

- Gunawardena, C. N. (1995). Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications*, 1(2/3), 147-166.
- Guy, T. C. (1999). Culturally relevant adult education: Key themes and common purposes. In T. C. Guy (Ed.), *Providing culturally relevant adult education: A challenge for the twenty-first century*, No. 82 (pp. 93-98). San Francisco: Jossey-Bass.
- Hacker, D. J., & Niederhauser, D. S. (2000). Promoting deep and durable learning in the online classroom. In R. E. Weiss, D. S. Knowlton, & B. W. Speck (Eds.), *Principles of effective teaching in the online classroom*, No. 84 (pp. 53-63). San Francisco: Jossey-Bass.
- Hammond, M. (2000). Communication within on-line forums: The opportunities, the constraints and the value of a communicative approach. *Computers & Education*, 35(4), 251-262.
- Harasim, L. M. (1990). Online education: An environment for collaboration and intellectual amplification. In L. M. Harasim (Ed.), *Online education: Perspectives on a new environment* (pp. 39-64). New York: Praeger.
- Harasim, L. (1999). A framework for online learning: The Virtual-U. *Computer*, 32(9), 44-49.
- Harasim, L., Hiltz, S. R., Teles, L., & Turoff, M. (1995). *Learning networks: A field guide to teaching and learning online*. Cambridge, MA: The MIT Press.
- Harrison, J., MacGibbon, L., & Morton, M. (2001). Regimes of trustworthiness in qualitative research: The rigors of research. *Qualitative Inquiry*, 7(3), 323-345.
- Hart, M. (1993). Educative or miseducative work: A critique of the current debate on work and education. *The Canadian Association of the Study of Adult Education*, 7(1), 19-36.
- Herrmann, F. (1998). Building on-line communities of practice: An example and implications. *Educational Technology*, 38(4), 16-23.
- Hertz, R. (1997). Introduction: Reflexivity and voice. In R. Hertz (Ed.), *Reflexivity and voice* (pp. vii-xviii). Thousand Oaks, CA: Sage Publications.
- Hill, J. R. & Hannafin, M. J. (1997). Cognitive strategies and learning from the world wide web. *Educational Technology Research and Development*, 45(4), 37-64.
- Hillman, D. C. A., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *The American Journal of Distance Education*, 8(2), 30-42.

- Horton, M., & Freire, P. (1990). *We make the road by walking: Conversations on education and social change* (B. Bell, J. Gaventa & J. Peters, Eds.). Philadelphia: Temple University Press.
- Hunt, D. (1987). *Beginning with ourselves: In practice, theory and human affairs*. Cambridge, MA: Brookline Books.
- InformationWeek. (1999, April 26). CIO panel: Knowledge-sharing roundtable. Retrieved September 23, 2000, from <http://www.informationweek.com/731/roundtable.htm>
- Ingram, A. L., Hathorn, L. G., & Evans, A. (2000). Beyond chat on the internet. *Computers & Education*, 35(1), 1-35.
- Isaacs, W. N. (1993). Taking flight: Dialogue, collective thinking, and organizational learning. *Organizational Dynamics*, 22(2), 24-39.
- Jarvis, P. (1995). *Adult and continuing education: Theory and practice* (2<sup>nd</sup> ed.). New York: Routledge.
- Jelfs, A., & Whitelock, D. (2000). The notion of presence in virtual learning environments: What makes environments "real". *British Journal of Educational Technology*, 31(2), 145-152.
- Jonassen, D. H. (1991). Objectivism versus constructivism: Do we need a new philosophical paradigm? *Educational Technology Research and Development*, 39(3), 5-14.
- Jonassen, D. H., & Land, S. M. (2000). Preface. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical Foundations of Learning Environments* (pp. iii-ix). Mahwah, NJ: Lawrence Erlbaum Associates.
- Jung, I. (2000). Technology innovations and the development of distance education: Korean experience. *Open Learning*, 15(3), 217-231.
- Kanuka, A., & Anderson, T. (1998). Online social interchange, discord, and knowledge construction. *Journal of Distance Education*, 13(1), 57-74.
- Kauchak, D. K., & Eggen, P. D. (1998). *Learning and teaching: Research-based methods* (3<sup>rd</sup> ed.). Needham Heights, MA: Allyn and Bacon.
- Kaye, A. (1992). Learning together apart. In A. R. Kaye (Ed.), *Collaborative learning through computer conferencing: The Najaden papers* (pp. 1-24).
- Kearsley, G. (2000). *Online education: Learning and teaching in cyberspace*. Belmont, CA: Wadsworth/Thompson Learning.
- Kearsley, G., & Marquardt, M. J. (2001). Infostructures: Technology, learning, and organizations. In B. H. Kahn (Ed.), *Web-based training* (pp. 27-32). Englewood Cliffs, NJ: Educational Technology Publications.

- Khan, B. H. (1997). Web-based instruction (WBI): What is it and why is it? In B. H. Khan (Ed.), *Web-based instruction* (pp. 5-18). Englewood Cliffs, NJ: Educational Technology Publications.
- Kidd, R. (1973). *How adults learn*. New York: Cambridge.
- Kiesler, S. (1986). The hidden messages in computer networks. *Harvard Business Review*, Jan-Feb, 46-60.
- Kirshner, D. & Whitson, J. A. (1997). Editors' introduction to situated cognition: social, semiotic, and psychological perspectives. In D. Kirshner & J. A. Whitson (Eds.), *Situated cognition: Social, semiotic, and psychological perspectives* (pp. 1-16). Mahwah, NJ: Lawrence Erlbaum Associates.
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy* (Rev. ed.). New York: Cambridge, The Adult Education Company.
- Knowles, M. S., Holton E. F., III, & Swanson, R. A. (1998). *The adult learner: The definitive classic in adult education and human resource development* (5<sup>th</sup> ed.). Houston, TX: Gulf Publishing.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.
- Land, S. M., & Hannafin, M. J. (2000). Student-centered learning environments. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical Foundations of Learning Environments* (pp. 1-23). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lave, J. (1993). The practice of learning. In S. Chaiklin & J. Lave (Eds.), *Understanding practice: Perspectives on activity and context* (pp. 3-32). New York: Cambridge University Press.
- Lave, J. (1997). The culture of acquisition and the practice of understanding. In D. Kirshner & J. A. Whitson (Eds.), *Situated cognition: Social, semiotic, and psychological perspectives* (pp. 17-35). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lave, J., & Wenger, E (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Lemke, J. L. (1997). Cognition, context, and learning: A social semiotic perspective. In D. Kirshner & J. A. Whitson (Eds.), *Situated cognition: Social, semiotic, and psychological perspectives* (pp. 37-55). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications.

- Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed., pp. 163-188). Thousand Oaks, CA: Sage Publications.
- Lindeman, E. C. (1961). *The meaning of adult education*. Montreal, Canada: Harvest House. (Original work published 1926)
- Lohman, M. C. (2000). Environmental inhibitors to informal learning in the workplace: A case study of public school teachers. *Adult Education Quarterly*, 50(2), 83-101.
- Longino, H. E. (1993). Subjects, power, and knowledge: description and prescription in feminist philosophies of science. In L. Alcoff & E. Potter (Eds.), *Feminist epistemologies* (pp. 101-120). New York: Routledge.
- MacDonald, C. J., Stodel, E., Farres, L., Breithaupt, K., & Gabriel, M. A. (2001). The demand driven learning model: A framework for web-based learning. *The Internet and Higher Education*, 1(4), 9-30.
- MacKeracher, D. (1996). *Making sense of adult learning*. Toronto, Canada: Culture Concepts.
- Marjanovic, O. (1999). Learning and teaching in a synchronous collaborative environment. *Journal of Computer Assisted Learning*, 15(2), 129-138.
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage Publications.
- Marsick, V. J., & Neaman, P. G. (1996). Individuals who learn create organizations that learn. In R. W. Rowden (Ed.), *Workplace learning: Debating five critical questions of theory and practice*, No. 72 (pp. 97-104). San Francisco: Jossey-Bass.
- Marsick, V. J., & Watkins, K. E. (2001). Informal and incidental learning. In S. B. Merriam (Ed.), *The new update on adult learning theory*, No. 89 (pp. 25-34). San Francisco: Jossey-Bass.
- Masie, E. (2003). The next era of virtual classrooms. *e-learning*, 4(1), 16.
- McKenzie, R. I. (1950). Farm forum: Voice of rural Canada. In Kidd, J. R. (Ed.), *Adult education in Canada* (pp. 169-178). Toronto, Canada: Canadian Association for Adult Education.
- McLoughlin, C. (1999). Providing enrichment and acceleration in the electronic classroom: A case study of audiographic conferencing. *Journal of Special Education Technology*, 14(2), 54-69.
- McLoughlin, C., & Oliver, R. (1998). Maximising the language and learning link in computer learning environments. *British Journal of Educational Technology*, 29(2), 125-136.

- Merriam, S. B. (2001). *Qualitative research and case study applications in education* (Rev. ed.). San Francisco: Jossey-Bass.
- Merrill, M. D. (1991). Constructivism and instructional design. *Educational Technology*, 31(9), 45-53.
- Meyen, E. L., Tangen, P., & Lian, C. H. T. (1999). Developing online instruction: Partnership between instructors and technical developers. *Journal of Special Education Technology*, 14(1), 18-31.
- Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly*, 46(3), 158-173.
- Moore, M. G. (1989). Editorial: Three types of interaction. *American Journal of Distance Education*, 3(2), 1-6.
- Neuman, W. L., (2000). *Social research methods: Qualitative and quantitative approaches* (4<sup>th</sup> ed.). Needham Heights, MA: Allyn and Bacon.
- Nicaise, M. (1998). Cognitive research, learning theory, & software design: The virtual library. *Journal of Educational Computing Research*, 18(2), 105-121.
- Nilges, L. M. (2001). The twice-told tale of Alice's physical life in wonderland: Writing qualitative research in the 21<sup>st</sup> century. *QUEST*, 53(2), 231-259.
- O'Connor, M. C. (1998). Can we trace the "efficacy of social constructivism"? *Review of Research in Education*, 23, 25-71.
- O'Malley, C. (1995). Designing computer support for collaborative learning. In C. O'Malley (Ed.), *Computer supported collaborative learning* (pp. 283-297). Berlin, Germany: Springer-Verlag.
- Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass.
- Palloff, R. M., & Pratt, K. (2001). *Lessons from the cyberspace classroom: The realities of online teaching*. San Francisco: Jossey-Bass.
- Passerini, K., & Granger, M. J. (2000). A developmental model for distance learning using the Internet. *Computers & Education*, 34(1), 1-15.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2<sup>nd</sup> ed.). Newbury Park, CA: Sage Publications.
- Pea, R. D. (1993). Practices of distributed intelligence and designs for education. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 47-87). Cambridge, England: Cambridge University Press.

- Perkins, D. N. (1991). Technology meets constructivism: Do they make a marriage? *Educational Technology*, 31(9), 18-23.
- Phillips, D. C. (1995). The good, the bad, and the ugly: The many faces of constructivism. *Educational Researcher*, 24(7), 5-12.
- Poole, D. M. (2000). Student participation in a discussion-oriented online course: A case study. *Journal of Research in Computing in Education*, 33(2), 162-177.
- Reinharz, S. (1997). Who am I? The need for a variety of selves in the field. In R. Hertz (Ed.), *Reflexivity and voice* (pp. 3-20). Thousand Oaks, CA: Sage Publications.
- Resnick, L. B. (1991). Shared cognition: Thinking as social practice. In L. B. Resnick, J. M. Levine, & S. D. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 1-20). Washington, DC: American Psychological Association.
- Rheingold, H. (2000). *The virtual community: Homesteading on the electronic frontier* (Rev. ed.). Cambridge, MA: The MIT Press.
- Rising, L. S., & Watson, J. E. (1998). Improving quality and productivity in training: A new model for the high-tech learning environment. *Bell Labs Technical Journal*, 3(1), 134-143.
- Rodrigues, S. (2000). The interpretive zone between software designers and a science educator: Grounding instructional multimedia design in learning theory. *Journal of Research on Computing in Education*, 33(1), 1-15.
- Rogers, C. R. (1969). *Freedom to learn*. Columbus, OH: Charles E. Merrill.
- Romiszowski, A. J. (1997). Web-based distance learning and teaching: Revolutionary invention or reaction to necessity? In B. H. Khan (Ed.), *Web-based instruction* (pp. 25-37). Englewood Cliffs, NJ: Educational Technology Publications.
- Romiszowski, A. J., & Chang, E. (2001). A practical model for conversational web-based training: A response from the past to the needs of the future. In B. H. Khan (Ed.), *Web-based training* (pp. 107-128). Englewood Cliffs, NJ: Educational Technology Publications.
- Rosenberg, M. J. (2003). Does e-learning equal e-training? *e-learning*, 4(1), 54.
- Rowntree, D. (1995). Teaching and learning online: A correspondence education for the 21<sup>st</sup> century? *British Journal of Educational Technology*, 26(3), 205-215.
- Russell, M. (1999). Online learning communities: Implications for adult learning. *Adult Learning*, 10(4), 28-31.

- Russell, T. L. (1999). *The no significant difference phenomena*. Raleigh, NC: Office of Instructional Technologies, North Carolina State University.
- Salmon, G. (1999). *The twenty-first century manager*. Retrieved March 23, 2002, from <http://oubs.open.ac.uk/businesscafe>
- Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.
- Salomon, G., & Perkins, D. N. (1998). Individual and social aspects of learning. *Review of Research in Education*, 23, 1-24.
- Salopek, J. J. (2002). Virtually face-to-face: Synchronous e-learning defines bandwidth barriers. *e-learning Magazine*, February. Retrieved February 21, 2002, from <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=9535>
- Schacht, N. (2002). Blended learning: Turning the training center into a learning center. *e-learning Magazine*, May. Retrieved January 24, 2003, from <http://www.elearningmag.com/elearning/article/articleDetail.jsp?id=18566>
- Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco: Jossey-Bass.
- Schrage, M. (1995). *No more teams! Mastering the dynamics of creative collaboration*. New York: Currency Doubleday.
- Schugurensky, D. (2000). *The forms of informal learning: Towards a conceptualization of the field*. (New Approaches to Lifelong Learning, No. 19 - 2000). Retrieved January 20, 2003, from <http://www/oise.utoronto.ca/depts/sese/csew/nall/res/19formsofinformal.htm>
- Schwandt, T. A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructionism. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed., pp. 189-213). Thousand Oaks, CA: Sage Publications.
- Seidman, I. (1998). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (2<sup>nd</sup> ed.). New York: Teacher College Press.
- Selinger, M. (1998). Forming a critical community through telematics. *Computers & Education*, 30(1/2), 23-30.
- Selman, G., Selman, M., Cooke, M., & Dampier, P. (1998). *The foundations of adult education in Canada* (2<sup>nd</sup> ed.). Toronto, Canada: Thompson Educational Publishing.
- Senge, P. M., Kleiner, A., Roberts, C., Ross, R. B., & Smith, B. J. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organization*. New York: Doubleday.

- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4-13.
- Shotsberger, P. G. (2000). The human touch: Synchronous communication in web-based learning. *Educational Technology*, 40(1), 53-56.
- Silverman, B. G. (1995). Computer supported collaborative learning (CSCL). *Computers & Education*, 25(3), 81-91.
- Sim, R. A. (1963). Canada's farm radio forum. In Kidd, J. R. (Ed.), *Learning and society* (pp. 213-222). Canadian Association for Adult Education.
- Solloway, S. G., & Harris, E. L. (1999). Negotiating students' desires and needs in cyberspace. *Educom Review*, 34(2), 8-9 & 12-13.
- Squires, D. (1999). Educational software for constructivist learning environments: Subversive use and volatile design. *Educational Technology*, 39(3), 48-54.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- Stake, R. E. (2000). Case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed., pp. 435-454). Thousand Oaks, CA: Sage Publications.
- Stansfield, L. M. (1997). "Employee – develop yourself!" Experiences of self-directed learners. *Career Development International*, 2(6). Retrieved October 27, 2000, from <http://www.emerald-library.com>.
- Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication*, 42(4), 73-93.
- Stoney, S., & Oliver, R. (1998). Interactive multimedia for adult learners: Can learning be fun? *Journal of Interactive Learning Research*, 9(1), 55-81.
- Tanner, D., & Tanner, L. (1995). *Curriculum development: Theory into practice* (3rd ed.). New Jersey, NY: Prentice Hall.
- Taylor, S. J., & Bogdan, R. (1998). *Introduction to qualitative research methods: A guidebook and resource* (3<sup>rd</sup> ed.). New York: John Wiley & Sons.
- Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. New York: The Falmer Press.
- Thompson, T. L. (2001). *Beyond the technology: A case study of collective meaning making in the virtual synchronous classroom*. Unpublished manuscript.
- Tiwari, D. E. (2002). *Factors affecting collaboration among learners in a web-based learning (WBL) environment*. Unpublished doctoral dissertation, University of Ottawa, Ottawa, Ontario, Canada.

- Trentin, G. (2001). From formal training to communities of practice via network-based learning. *Educational Technology*, 41(2), 5-14.
- Trilling, B., & Hood, P. (1999). Learning, technology, and education reform in the knowledge age or "We're wired, webbed, and windowed, now what?". *Educational Technology*, 39(3), 5-18.
- Troha, F. J. (2002). The right mix: A bulletproof model for designing blended learning. *e-learning*, 3(6), 34-37.
- Van Gorp, M. J. (1998). Computer-mediated communication in preservice teacher education: Surveying research, identifying problems, and considering needs. *Journal of Computing in Teacher Education*, 14(2), 8-14.
- Veerman, A. L., Andriessen, J. E. B., & Kanselaar, G. (2000). Learning through synchronous electronic discussion. *Computers & Education*, 34(3-4), 269-290.
- Villalba, C., & Romiszowski, A. J. (2001). Current and ideal practices in designing, developing, and delivering web-based training. In B. H. Khan (Ed.), *Web-based training* (pp. 325-342). Englewood Cliffs, NJ: Educational Technology Publications.
- Vogel, L. J. (2000). Reckoning with the spiritual lives of adult educators. In L. M. English & M. A. Gillen (Eds.), *Addressing the spiritual dimensions of adult learning: What educators can do*, No. 85 (pp. 17-27). San Francisco: Jossey-Bass.
- Von Oech, R. (1990). *A whack on the side of the head: How you can be more creative* (Rev. ed.). New York: Warner Books.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.
- Watkins, K. E., & Marsick, V. J. (1992). Towards a theory of informal and incidental learning in organizations. *International Journal of Lifelong Education*, 11(4), 287-300.
- Wells, G. (1998). Working together to understand and improve practice. *Orbit*, 29(3), 4-6.
- Wells, G. (2000). Dialogic inquiry in education: Building on the legacy of Vygotsky. In C. D. Lee & P. Smagorinsky (Eds.), *Vygotskian perspectives on literacy research: Constructing meaning through collaborative inquiry* (pp. 51-85). New York: Cambridge University Press.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, England: Cambridge University Press.

- Wenger, E. C., & Snyder, W. M. (2000). Communities of practice: The organizational frontier. *Harvard Business Review*, 78(1), 139-145.
- Willis, J. (2000). The maturing of constructivist instructional design: Some basic principles that can guide practice. *Educational Technology*, 40(1), 5-16.
- Wilson, B. G., & Myers, K. M. (2000). Situated cognition in theoretical and practical context. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical Foundations of Learning Environments* (pp. 57-88). Mahwah, NJ: Lawrence Erlbaum Associates.
- Wilson, E. V. (2000). Student characteristics and computer-mediated communication. *Computers & Education*, 34(2), 67-76.
- Wolcott, H. F. (1990). *Writing up qualitative research*. Newbury Park, CA: Sage Publications.
- Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation*. Thousand Oaks, CA: Sage Publications.
- Yakimovicz, A. D., & Murphy, K. L. (1995). Constructivism and collaboration on the internet: Case study of a graduate class experience. *Computers & Education*, 24(3), 203-209.

Sent by Sandy to participants registered in DT

Terrie Lynn Thompson is a graduate student from the University of Ottawa currently working on her MA thesis. She is exploring factors that influence learning in the virtual classroom. CC has given her permission to use one of our virtual classroom sessions for her research study. **Please respond to her as soon as possible (Friday, April 19 at the latest).** I'll let Terrie Lynn explain the details.

Hello! This study is positioned within the context of the **Delivery Training course** of which you are registered as a student. It has been selected because it is an example of a virtual classroom course offered in the workplace. If you agree to participate in this study, your involvement would consist of attending this course on April 23 and April 29 and taking part as you normally would. I will be observing this session, which will also be recorded.

A few learners will then be invited to participate in a one-on-one 60-minute interview with me. If you are invited and decide to participate, the interviews will be done by telephone. It will be scheduled two to three weeks after your course, at a convenient time for you. In addition, you will be sent a background questionnaire, which should take about 10 minutes to complete. The information you provide on this form will help me understand your background as an online learner. You will also be asked to verify a descriptive summary that I put together about you - adding, deleting or clarifying any information you see fit.

Your insights as a learner are especially useful, as there is much to learn from the people actively involved in an online learning experience. It is hoped that what is learned from this research study will give researchers, learning professionals, and organizations insights into the many issues and challenges that accompany learning online.

Please respond to me by e-mail (TLThompson@rogers.com) indicating whether you are interested in participating in this study; please also include your telephone number. I will then give you a call to clarify details and answer any questions you have. **I would appreciate hearing back from you by Friday, April 19.** In the meantime, if you are interested in finding out more about this research and your potential involvement, I invite you to e-mail me or call 613-739-4771.

Your time and co-operation is greatly appreciated.

Terrie Lynn Thompson  
Faculty of Education  
University of Ottawa

## Learners

Researcher: Terrie Lynn Thompson, Faculty of Education, University of Ottawa  
Contact Information: Telephone 613-739-4771  
Fax 613-234-2575  
E-mail TLThompson@rogers.com

The purpose of this research study, which is part of my MA thesis, is to explore factors that influence learning in the virtual classroom. It is hoped that what is learned from this inquiry will give researchers, learning professionals and organizations insights into the many issues and challenges that accompany learning online and lead to improvements in practice.

This study will take place within the context of the Delivery Training course, which will be delivered using virtual synchronous classroom technology. If you agree to participate, your involvement will consist of attending and taking part (as you would normally) in this course on April 23 and 29. As the researcher I will be observing this session, which will also be recorded and transcribed. You will also be asked to fill out a questionnaire that will help me better understand your background as an online learner. It should take about 10 minutes to complete.

Following the online course, a number of learners will then be invited to participate in a 60-minute interview with me that will be audio-taped and transcribed. If you are invited and agree to participate, the interview will be done in person or by telephone (if you do not live in Ottawa). It will be scheduled two to three weeks after your course, at a convenient time for you. Our discussion will explore what it is like to learn in a virtual classroom session offered within the context of your workplace.

About a month after the interviews, you will be given a copy of a descriptive summary that I put together about you. You will be asked to verify it and are encouraged to add, delete or clarify any information you see fit.

Your identity will be kept anonymous and pseudonyms used in any direct quotes taken from the interviews, informal conversations, documents, or the virtual classroom session. Your name will not appear in the research or any publications or presentations resulting from the research. Any information that could identify you will not be used in such a way that others could recognize you. To ensure confidentiality all data will be stored in a secure manner and accessible only to me and my thesis supervisor. It will be kept in this manner for five years after the completion of this study and then destroyed. Without penalty, you may withdraw from this project at any time, refuse to participate, and choose not to answer questions. At the same time, your involvement in this study enables you to reflect on learning, possibly leading to personal insight.

The University of Ottawa Research Ethics Board has approved this research. Any information requests or complaints about the ethical conduct of the project may be addressed to the Protocol Officer for Ethics in Research at the University of Ottawa, Catherine Lesage (613-562-5387 or e-mail at clesage@uottawa.ca). You may also

contact my thesis advisor directly, Dr. Colla J. MacDonald (613-562-5800 extension 4110). Dr. MacDonald is a professor with the Faculty of Education.

If you have any questions about this research now, or at any time throughout the project, I invite you to e-mail me at TLThompson@rogers.com or call 613-739-4771. To indicate your decision to participate in this study, please print out this consent letter, sign it, and fax it to me at 613-234-2575. You may also want to keep a copy of this letter for your records.

Your time and co-operation is greatly appreciated.

Sincerely,

Terrie Lynn Thompson  
Faculty of Education  
University of Ottawa

Dr. C.J. MacDonald  
Advisor  
University of Ottawa

I, \_\_\_\_\_, am interested in collaborating in this  
(participant name)

research project and I certify that I understand the nature of the research as described above.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

I wish to receive a summary of the findings of this research, which will be sent to me by the researcher in January 2003.  Yes  No

## Instructors

Researcher: Terrie Lynn Thompson, Faculty of Education, University of Ottawa  
Contact Information: Telephone 1 613-739-4771  
Fax 1 613-234-2575  
E-mail TLThompson@rogers.com

The purpose of this research study, which is part of my MA thesis, is to explore factors that influence learning in the virtual classroom. It is hoped that what is learned from this inquiry will give researchers, learning professionals and organizations insights into the many issues and challenges that accompany learning online and lead to improvements in practice.

This study will take place within the context of the Delivery Training course, which will be delivered using virtual synchronous classroom technology. Your participation will consist of leading this course as you would normally on April 23 and 29. As the researcher I will be observing this session, which will also be recorded and transcribed.

You will also be asked to participate in two 60-minute interviews with me that will be audio-taped and transcribed. One interview will take place approximately one week prior to the online session and the other will follow two weeks after the course. The interviews will be done by telephone and scheduled at a convenient time for you. Our discussion will explore what it is like to teach in a virtual classroom offered within a workplace context.

About a month after the interviews, you will be given a copy of a descriptive summary that I put together about you. You will be asked to verify it and are encouraged to add, delete or clarify any information you see fit.

Your identity will be kept anonymous and pseudonyms used in any direct quotes taken from the interviews, informal conversations, documents, or the virtual classroom session. Your name will not appear in the research or any publications or presentations resulting from the research. Any information that could identify you will not be used in such a way that others could recognize you. To ensure confidentiality all data will be stored in a secure manner and accessible only to me and my thesis supervisor. It will be kept in this manner for five years after the completion of this study and then destroyed. Without penalty, you may withdraw from this project at any time, refuse to participate, and choose not to answer questions. At the same time, your involvement in this study enables you to reflect on learning, possibly leading to personal insight.

The University of Ottawa Research Ethics Board has approved this research. Any information requests or complaints about the ethical conduct of the project may be addressed to the Protocol Officer for Ethics in Research at the University

of Ottawa, Catherine Lesage (1 613-562-5387 or e-mail at clesage@uottawa.ca). You may also contact my thesis advisor directly, Dr. Colla J. MacDonald (1 613-562-5800 extension 4110). Dr. MacDonald is a professor with the Faculty of Education.

If you have any questions about this research now, or at any time throughout the project, I invite you to e-mail me at TLThompson@rogers.com or call 1 613-739-4771. To indicate your decision to participate in this study, please print out this consent letter, sign it, and fax it to me at 1 613-234-2575. You may also want to keep a copy of this letter for your records.

Your time and co-operation is greatly appreciated.

Sincerely,

Terrie Lynn Thompson  
Faculty of Education  
University of Ottawa

Dr. C.J. MacDonald  
Advisor  
University of Ottawa

I, \_\_\_\_\_, am interested in collaborating in this  
(participant name)

research project and I certify that I understand the nature of the research as described above.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

I wish to receive a summary of the findings of this research, which will be sent to me by the researcher in January 2003.  Yes  No

## **Software Developer and Business Leader**

Researcher: Terrie Lynn Thompson, Faculty of Education, University of Ottawa

Contact Information: Telephone 613-739-4771  
Fax 613-234-2575  
E-mail TLThompson@rogers.com

The purpose of this research study, which is part of my MA thesis, is to explore factors that influence learning in the virtual classroom. It is hoped that what is learned from this inquiry will give researchers, learning professionals and organizations insights into the many issues and challenges that accompany learning online and lead to improvements in practice.

Your participation will consist of participating in a 60-minute telephone interview with me that will be audio-taped and transcribed. Our discussion will explore your thoughts on learning and teaching in a virtual classroom and your thoughts on how the WC technology can best be used.

About three weeks after the interview, you will be given a copy of the interview transcript. You will be asked to verify it and are encouraged to add, delete or clarify any information you see fit.

Your identity will be kept anonymous and pseudonyms used in any direct quotes taken from the interviews, informal conversations, documents, or the virtual classroom session. Your name will not appear in the research or any publications or presentations resulting from the research. Any information that could identify you will not be used in such a way that others could recognize you. To ensure confidentiality all data will be stored in a secure manner and accessible only to me and my thesis supervisor. It will be kept in this manner for five years after the completion of this study and then destroyed. Without penalty, you may withdraw from this project at any time, refuse to participate, and choose not to answer questions. At the same time, your involvement in this study enables you to reflect on learning, possibly leading to personal insight.

The University of Ottawa Research Ethics Board has approved this research. Any information requests or complaints about the ethical conduct of the project may be addressed to the Protocol Officer for Ethics in Research at the University of Ottawa, Catherine Lesage (613-562-5387 or e-mail at clesage@uottawa.ca). You may also contact my thesis advisor directly, Dr. Colla J. MacDonald (613-562-5800 extension 4110). Dr. MacDonald is a professor with the Faculty of Education.

If you have any questions about this research now, or at any time throughout the project, I invite you to e-mail me at TLThompson@rogers.com or call 613-739-

4771. To indicate your decision to participate in this study, please print out this consent letter, sign it, and fax it to me at 613-234-2575. You may also want to keep a copy of this letter for your records.

Your time and co-operation is greatly appreciated.

Sincerely,

Terrie Lynn Thompson  
Faculty of Education  
University of Ottawa

Dr. C.J. MacDonald  
Advisor  
University of Ottawa

I, \_\_\_\_\_, am interested in collaborating in this  
(participant name)

research project and I certify that I understand the nature of the research as described above.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

I wish to receive a summary of the findings of this research, which will be sent to me by the researcher in January 2003.       Yes       No

### Background Questionnaire

Please complete the following questionnaire by April 26/02. All responses will be kept confidential.

1. Name: \_\_\_\_\_

2. Phone Number: (\_\_\_\_) \_\_\_\_\_

3. E-Mail Address: \_\_\_\_\_

4. Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Date of Birth (MM/DD/YY): \_\_\_\_\_

6. Gender:            Male                            Female

7. Job Title: \_\_\_\_\_

Please briefly describe your key roles and responsibilities.

8. What prompted you to register for this course?

9. If given an option to take this same course in a face-to-face classroom situation, which would you have chosen?

the face-to-face classroom

the virtual classroom

Please describe the factors you take into consideration when making this decision.

10. Will this session be the first time you've been in a virtual classroom?

Yes

No

If No, how many other virtual classroom learning sessions have you attended?

1 – 2

3 – 5

6 or more

11. What other types of online learning experiences have you had? Check all that apply.

web/computer-based training – self-paced training from a CD-Rom or downloaded from the Internet

moderated threaded discussions

real-time chats

university or college courses offered by distance learning technologies – often a combination of media

videoconferencing

web seminars or webinars

simulations

- recorded events (video, audio or PowerPoint presentations) – made available on the Internet
- e-books
- virtual labs

12.

Describe what you would consider to be an ideal learning experience.

13.

Describe how confident you are about being able to learn successfully in this upcoming online learning event.

**Please return this completed form by April 26/02 to:**

Terrie Lynn Thompson

by fax: 613-234-2575 or e-mail: [TLThompson@rogers.com](mailto:TLThompson@rogers.com)

Phone: 613-739-4771

## Learners

I'm interested in knowing how you came to be involved in this course. What prompted you to register for this course offered online in WC?

Describe yourself as a learner.

- Probe how this changed or consolidated during the VSC experience.

### *The Event*

Describe your impressions of / reaction to the DT course.

- What activities did you enjoy? dislike?

Probe a specific incident.

Describe what you were doing in the 60 minutes (or morning) leading up to this session.

Comment on how the three components of this session (i.e. orientation, SM, the event) contributed to your overall learning.

Describe how you engaged in the SMP and SML pieces of this blended learning solution.

Describe your participation in this event.

- What encouraged you to jump in?
- What held you back from participating more?
- What do you believe are your responsibilities as a learner in a VSC event?

Would you describe the learning experience as interactive? collaborative? Give examples.

- Which interactions were the most meaningful to you?

How did the other learners in the course contribute to your learning?

- Describe the sense of community between the participants in this session.

### *Impressions*

What advice would you give to other learners in a VSC event?

What is it like to learn in a VSC?

### *Learning Perspectives*

Describe an experience you've had that has been influential in shaping your views about teaching and learning.

Verify and probe previous schooling and training.

Describe an ideal (workplace) learning experience.

### *Workplace Context*

What is it like to learn at CC?

- Ask for examples.

What learning climate did you create around yourself while engaged in the VSC?

*The Technology*

What strategies did you use that enabled you to learn in this environment?

As a learner, what features of the technology do you like? dislike?

### **Instructor: Pre Observation**

I'm interested in knowing how you came to be involved in this course. What prompted you to become an online VSC facilitator?

#### *Impressions*

What is it like to teach in a VSC?

What advice would you give to learners in a VSC event?

#### *Teaching and Learning Perspectives*

What is your teaching philosophy?

- Describe the most powerful influences on your current approach to, and views on, teaching and learning.
- Verify and probe previous schooling and training.

How has the technology influenced your teaching style and strategies (if it has)?

#### *Workplace Context*

How is learning perceived at CC?

Describe the ideal workplace learning experience.

What influence does the organizational setting have on the teaching decisions you make?

- Ask for examples.

#### *The Technology*

What teaching strategies do you plan to use to enhance the learning process?

Describe a particularly good / bad experience with the medium.

Other thoughts about teaching and learning in the VSC?

### **Instructor: Post Observation**

#### *The Event*

Describe your impressions of the DT event.

- To what extent was the event what you expected it to be? Different?
- What activities worked well? Didn't work as well as expected?
- Do you think you met your objectives? Provide examples.

Probe a specific incident or activity.

- Did one activity or incident stand out for you (positive or negative)? Please elaborate.
- Describe what you were doing in the 60 minutes (or morning) leading up to this session.
- I noticed that some "new" learners joined in for the first time on the Monday session. Please comment on what impact this had on your teaching strategy.
- What kind of communication did you have with the other instructor during the event?

Describe the degree of learner participation in this event.

- What might have held them back from participating more?
- Is there anything you might have done to increase the degree of engagement and participation?
- What responsibilities do learners have in this type of blended learning event? What are your responsibilities as the instructor?

### *Collective Meaning Making*

Would you describe the learning experience as interactive? Give examples of the different types of interaction.

Would you describe the learning that took place as collaborative? Give examples.

Do you think there was a sense of community between the participants in this session? Give examples.

What factors do you think influenced the degree of interaction and collaboration in DT?

### *The Technology*

What are your thoughts about the future of e-learning?

- Could probe a bit further, using a statement such as “Some people say that e-learning is the way of the future and soon most, if not all, of our learning will be done using media such as the VSC. What would you say to them?”

How have you taken WC and shaped it to fit your own teaching style? Organizational conditions?

I’m trying to get a sense of whether you believe you have exploited the capabilities of this technology. What would you like to be able to do with your VSC sessions that you haven’t yet done?

### *Teaching and Learning Perspectives*

What aspects of instructing in a VSC session do you enjoy? find challenging? dislike?

How compatible (vis a vis Brad/Bruce) were your teaching philosophies, ideas on what to do and how to do it?

- Describe areas of agreement / disagreement.
- Did your thinking change as a result of collaborating on the design and delivery of DT? Provide examples.
- How do the two of you arrive at voice as one of the key factors in VSC delivery? How did you establish the learning objectives of DT?

## Software Developer / Manager

I'm interested in knowing how you came to be involved with WC. Describe your experience with the VSC product.

- Your role in the design and development.
- Exposure as a learner.
- Experience as a facilitator.
- Working with end users.

### *The Learning Event*

What features of the VSC product do you find interesting?

Explain how various features could be used to make a session more collaborative / interactive / foster a sense of community.

What advice would you give to instructors / learners in a VSC event?

### *Learning Perspective*

Describe yourself as a learner.

- Verify and probe previous schooling and training.

What is your personal philosophy about learning?

- To what degree do your own beliefs about teaching and learning get embedded in the products you design?

Describe an ideal workplace learning experience.

### *Workplace Context*

What's your sense of how workers use WC as they go about their jobs?

How can this technology be shaped to fit the individual's or the group's environment and learning needs? Give examples.

### *The Technology*

When designing this VSC, what factors / principles were taken into account?

How does WC enhance the teaching and learning process?

- Ask for examples.

What barriers to the teaching and learning process does WC create?

- Ask for examples.

What are your thoughts about the future of e-learning?

- Could probe a bit further, using a statement such as "Some people say that e-learning is the way of the future and soon most, if not all, of our learning will be done using media such as WC. What would you say to them?"

### **Follow-Up Interview**

What makes WC a collaborative learning tool?

Can you please talk to me about collaborative peer-to-peer learning and how WC fits into this vision?

How do you decide what features and functionality are in or out?

What teaching and learning strategies / characteristics do instructors and learners need to make them successful in the VSC?

## Business Leader

I'm interested in knowing how you came to be involved with WC and this course. Describe:

- Your role and the primary business goals for your group.
- Experiences in the virtual classroom.
- DT mandatory? Who is mandating this?
  
- What factors led to the creation of DT?
  - Your role in this decision, as well as the development and implementation.
  - What is the VSC value proposition for CC?

### *The Learning Event*

Describe your impressions of the DT course.

- What activities do you like the most? the least?

Describe what strategies were used to enhance the learning process.

When designing DT what were the guiding principles?

Would you describe the learning experience as interactive? Give examples.

Would you describe the learning experience as collaborative? Give examples.

“Make distance collaboration an integral component of training at CC” – How is DT an example of distance collaboration (if it is)?

Comment on your decision to move the DT to another server the Friday before the course.

What advice would you give to other organizations that are considering using virtual classroom technology?

### *Learning Perspective*

Describe yourself as a learner.

- Verify and probe previous schooling and training.

What is your personal philosophy about learning?

- Describe the most powerful influences that have shaped your current views about teaching and learning.

### *Workplace Context*

How is learning perceived at CC?

What is it like to learn at CC?

- Ask for examples.

Comment on the use of *learning* vs. *training*.

How do you see the VSC being implemented into workplace learning initiatives / linking into CC strategic objectives?

*The Technology*

I'm trying to get a sense of whether you believe you have exploited the capabilities of this technology. What would you like to be able to do with your VSC sessions that you haven't yet done?

What are your thoughts about the future of e-learning?

- Could probe a bit further, using a statement such as “Some people say that e-learning is the way of the future and soon most, if not all, of our learning will be done using media such as the VSC. What would you say to them?”

## Document Inventory

Document	Comments
DC Team Documents	
WC Training Curriculum Map	
DT Instructor Documents	
PowerPoint Slides for DT Orientation (1 <sup>st</sup> VSC session)	
DT Facilitation Guide for 2 <sup>nd</sup> VSC session	created and used by Bruce and Brad - includes slides, notes, choreography, and timings
DT Course Materials	sent to DT course participants by e-mail
SML Participant Guide	component of SML reading
WC Glossary	component of SML reading
WC Leader Quick Reference Card	component of SML reading
WC Participant Quick Reference Card	component of SML reading
WC Leader Guide	component of SML reading
Other DT Resources	
System Check – Audio Troubleshooting	online help; accessed when I was having technical problems
course description (DT – Blended)	downloaded from CC's Intranet
Course Evaluations	
course evaluations for the DT session I observed as well as the two preceding DT events	Excel tables and bar charts
Course Communications	
event advertisement of DT e-mail	sent April 17/02 to North American employees
event confirmation e-mail	sent to participants as they register
reminder communication e-mail	sent 2 days before the DT event

DT server switch e-mail	sent 1 day before second DT VSC session
second server change e-mail	sent at 10:41 am EST on the day of the second DT VSC session (session start time was 11:00 am)
Participant Data	
6 background questionnaires	completed by all learners in the session; similar demographic data collected from the instructors, business leader, and software developer during interviews
e-mail communication with participants	
VSC technology information	
press releases and product info	obtained from the WC web site
WC Bootcamp	
<ul style="list-style-type: none"> <li>• Overview</li> <li>• Leader Training</li> <li>• Content Developer Training</li> </ul>	<ul style="list-style-type: none"> <li>• detailed information about WC and how to use it</li> <li>• these are materials I received when participating in this two-day training session in Boston, includes:                             <ul style="list-style-type: none"> <li>♦ course notes</li> <li>♦ job aids</li> </ul> </li> <li>• also includes printouts from WC online help</li> </ul>

## More About the VSC Technology

As a VSC, WC is part of a suite of online collaborative tools. Other products include web-conferencing and e-meeting tools. Matt explains that all of these tools are supported by the same basic technology, although each is customized for different contexts.

WC offers a rich feature set to support live synchronous interaction. This includes breakout rooms, a multi-user whiteboard, and tools such as online surveys, evaluations, and quizzes. Various communication and feedback mechanisms are provided for the participants and leaders: instant yes/no (✓ or ✗) polling, hand raising, public and private text chat, laughter and applause icons, and a feedback tool that sends anonymous feedback to the leader. To support content delivery, WC features enable application sharing, Web Safaris (visiting and interacting with web sites), and the ability to import multimedia files as well as PowerPoint presentations in advance or during the session.

The raised hand icon, green ✓'s or red ✗'s, and the applause and laughter emoticons were explained in Chapter 4. Matt explains why the applause and laughter emoticons are part of the WC interface:

When you're in a physical classroom you get instant feedback. ... Before we had these icons the instructors would say something funny and be met with silence. They wouldn't see a thing. It's disconcerting for instructors who pride themselves on being humorous and work hard to keep people engaged.

Three other features that participants may use during the session are also found on the top tool bar: text chat, feedback, and step out. Clicking on the *text chat icon* opens up a text chat window with two tabs, private and public. Participants can send public text chat messages to all participants as well as private text chat messages to the leaders during an event. Clicking on the *feedback icon* opens up a window that allows you to send anonymous feedback (done, OK, not clear, too fast, and too slow) to the leader. Learners are asked to

click on the *step out icon* when they leave the room. When someone steps out their name on the people panel is grayed out until they return.

Matt finds breakout rooms one of the more interesting WC features:

When you are all sitting in the same virtual room but literally thousands of miles apart you can't just get up and push the desks together. ... The breakout room features allows you to do that team oriented problem solving that everybody says is critical for success.

Although breakout rooms were not used in DT, learners had tried them in previous WC sessions and reported that they liked them. Robert thought it was cool that the tool could mimic a very common and effective classroom activity. Considered a more advanced feature, Sandy's team uses breakouts although she estimates that only about 5% of their learners do when they go on to lead their own WC events within the organization. Another advanced feature that participants find exciting is application share. Matt explains that application share allows people to remotely play with a shared application and can therefore be used to create a hands-on lab type of environment. Sandy suggests that using this feature enables you to "do so much more in a virtual classroom to get people to learn than you can in a physical classroom."

Delivery Training Course Outline (2<sup>nd</sup> VSC event)

Time	Component	Instructor	Activity	WC Feature Used
11:08	Welcome	Brad	<ul style="list-style-type: none"> <li>reminder to log out of other applications</li> <li>contract for safe environment</li> </ul>	<ul style="list-style-type: none"> <li>3 ✓/X</li> </ul>
11:12	Trash 'Um	Bruce	<ul style="list-style-type: none"> <li>icebreaker</li> <li>each person talks for 30 seconds; Bruce puts a checkmark in the media window each time "verbal garbage" (i.e. "um, hmm, err") is used</li> </ul>	<ul style="list-style-type: none"> <li>annotation tools (i)*</li> <li>emojicons</li> </ul>
11:22	Learning Objectives	Brad	<ul style="list-style-type: none"> <li>reviews the four learning objectives:                             <ul style="list-style-type: none"> <li>understand the importance of establishing credibility as a presenter</li> <li>respond to the different learning styles from a WC perspective</li> <li>engage participants across the "virtual divide" through the effective use of words, questions, and voice</li> <li>describe WC best practices for delivery</li> </ul> </li> <li>encourages people to share experiences</li> </ul>	<ul style="list-style-type: none"> <li>annotation tools (i)</li> </ul>
11:25	Quote	Bruce	<ul style="list-style-type: none"> <li>microphone is passed around the room and each person responds to the statement in the media window: "The single most important skill that all distance educators must develop is to make their students active participants in their educational program."</li> </ul>	<ul style="list-style-type: none"> <li>✓/X</li> <li>raised hand</li> </ul>
11:34	Credibility	Bruce	<ul style="list-style-type: none"> <li>goes over points on slide</li> </ul>	
11:43	Handling Nervousness	Brad	<ul style="list-style-type: none"> <li>yes/no poll: "Who suffers from nerves?"</li> <li>goes through points on slide</li> <li>asks learners to share strategies</li> </ul>	<ul style="list-style-type: none"> <li>✓/X</li> </ul>
11:51	Responding to Different Learning Styles	Brad	<ul style="list-style-type: none"> <li>reviews the three different learning styles (visual, auditory, and kinesthetic)</li> <li>survey on learners' preferred learning styles</li> <li>public text chat activity: "Name one or more WC tools or features that appeal to your dominant learning style."</li> </ul>	<ul style="list-style-type: none"> <li>✓/X</li> <li>survey</li> <li>public text chat</li> </ul>

12:05	Delivery	Bruce	<ul style="list-style-type: none"> <li>learners are asked to put a gold star in the media window next to their answer to this question: "Which do you think is most important when delivering in WC?"</li> <li>the words you use</li> <li>the quality of your voice</li> <li>the questions you ask</li> </ul>	<ul style="list-style-type: none"> <li>2 ✓/X</li> <li>annotation tools (1)</li> </ul>
12:10	Radio Presenter Analogy	Brad	<ul style="list-style-type: none"> <li>introduces us to the radio presenter analogy</li> </ul>	
12:12	Break		Brad and Bruce step out	
12:19	Radio Presenter Analogy	Brad	<ul style="list-style-type: none"> <li>around-the-room response to the question: "Think about your favorite radio presenter and describe to the group what keeps you listening to that person."</li> </ul>	<ul style="list-style-type: none"> <li>raised hand</li> </ul>
12:33	Engaging the Learner: Words	Bruce	<ul style="list-style-type: none"> <li>goes over points on slide</li> </ul>	
12:35	Engaging the Learner: Questions	Brad	<ul style="list-style-type: none"> <li>asks learners to volunteer to answer the three questions on the slide:                             <ul style="list-style-type: none"> <li>With subject matter in mind, what can asking questions achieve?</li> <li>How can listening and responding to questions help you engage the learner?</li> <li>How can asking using different questioning techniques (open-ended vs. close-ended) stimulate discussion?</li> </ul> </li> <li>expands each point</li> </ul>	<ul style="list-style-type: none"> <li>emojicons</li> </ul>
12:43	MAPS activity	Bruce	<ul style="list-style-type: none"> <li>asks for four volunteers</li> <li>each volunteer is asked to portray a voice quality as outlined in a private text chat sent to them by the instructor</li> <li>the rest of the learners guess what voice attribute they are mimicking</li> <li>M is for modulation, A for articulation, P for projection, and S for speed</li> </ul>	<ul style="list-style-type: none"> <li>private text chat</li> <li>✓/X</li> <li>emojicons</li> </ul>

12:52	Engaging the Learner: Voice	Brad	<ul style="list-style-type: none"> <li>asks the learners to share experiences on how voice impacted the delivery</li> </ul>	
12:52	Voice Recording Assessment	Brad	<ul style="list-style-type: none"> <li>plays 30 second snippets of the three voice recordings (SMP) that were sent in</li> <li>the group is asked to give “likes best” and “even better if” feedback</li> <li>using the MAPS tools as a guide Brad shares the feedback he and Bruce have compiled on each recording</li> <li>reads through points on slide</li> </ul>	<ul style="list-style-type: none"> <li>embedded audio files</li> <li>2 ✓/X</li> <li>emojicons</li> </ul>
1:10	Effective Presentation – Best Practices	Bruce	<ul style="list-style-type: none"> <li>reads through points on slide</li> </ul>	
1:13	Learning Objectives	Brad	<ul style="list-style-type: none"> <li>reviews objectives</li> <li>asks learners to indicate if they feel an objective has not been covered</li> <li>thanks us for participating</li> </ul>	<ul style="list-style-type: none"> <li>annotation tools (i)</li> </ul>
1:15	Thank You	Bruce	<ul style="list-style-type: none"> <li>think about applying what you have learned</li> <li>reminder to complete course evaluation form</li> <li>instructions on how to exit the VSC</li> </ul>	

\*“annotation tools (i)” indicates that the instructor used the annotation tools;  
 “annotation tools (I)” indicates that the learners used the annotation tools.