ATHABASCA UNIVERSITY

LEARNER PERCEPTIONS OF BARRIERS IN CORPORATE ONLINE TRAINING

BY

NORENE H. TRONDSEN

A thesis submitted to the

Athabasca University Governing Council in partial fulfillment

of the requirements for the degree of

MASTER OF DISTANCE EDUCATION

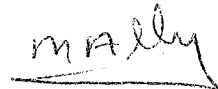Athabasca, Alberta

2004

ATHABASCA UNIVERSITY

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IN CORPORATE ONLINE TRAINING submitted by NORENE H. TRONDSEN in

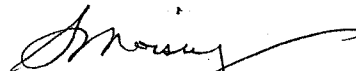partial fulfillment of the requirements for the degree of MASTER OF DISTANCE

EDUCATION.

Jon Baggaley, Ph.D.

Thesis Supervisor

Mohamed Ally, Ph.D.

Susan Moisey, Ph.D.

Date: April, 2004

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ABSTRACT

The purpose of this thesis is to investigate the perceptions and experiences of corporate employees prior to, during, and at the conclusion of their first self-paced, asynchronous, web-based course. Previous studies on barriers have been quantitative in nature at the organizational level, or student perceptions of their first online course focused on instructor-led online courses in an academic setting. Recent literature has identified the barriers faced by novice online learners and the need to conduct more studies focused on learner perceptions and attitudes.

The sample for this study consisted of thirteen adult employees participating in a corporate training program who were about to engage in their first asynchronous, self-paced, web-based corporate training class. Subjects completed pre-course/post-course self-assessments ranking their confidence in the areas related to skills needed for successful online learning, and three surveys consisting of closed and open ended questions to gather data on learner perceptions of the barriers to corporate online learning.

Analysis of the data revealed that, of the four barriers most commonly identified in the literature, subjects perceived limited self-direction abilities to be the greatest barrier throughout the course, followed by support from help desk/ supervisor/ organization, computer skills, time management (identified as an additional barrier by study subjects), and absence of face-to-face contact. Subjects also identified another eleven additional factors that they perceived to be barriers, as well as recurring issues that persisted throughout the course to impede their learning efforts. Despite these barriers, subjects were unanimous in their desire to engage in another self-paced online course.

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CHAPTER I

INTRODUCTION

Increasingly, corporations are looking to web-based training to supplement or replace the traditional classroom for employee training. In 2002, training by using distance delivery and online methods accounted for 26% of corporate training delivery as compared to 23% the previous year. For the businesses that used innovative delivery for training, 48% used web courses, 41% used DVD/CD-ROM and 11% used other computer delivery methods (Galvin, 2002, p. 69).

One of the primary advantages of web-based training is its ability to make consistent learning content accessible to a wide audience regardless of time or place (Blank, 2000). Firms praise it as a cost-effective, convenient and effective way to deliver corporate education (Strother, 2002). Corporate training departments are using e-learning as a component of blended learning strategies, in which the physical and/or virtual classroom is combined, or *blended*, with one or more technologies, or methods to provide learning solutions that take advantage of the strengths of each medium.

A popular form for training delivery in the workplace is via asynchronous, self-paced, web-based study using standardized, prepackaged (off-the-shelf) training content. Most corporate employees take self-paced, technology-based training when they need new information or skills to successfully complete a recently assigned task or project, and typically apply their new skills within a few hours or days of taking the training (Dobrovolny, 2003). Learners may also view the content as quickly as they want to, or as

slowly as they need to, and repeat as often as necessary to understand the concepts and practice the skills contained within each lesson.

Self-paced, web based instruction often doesn't include an online instructor or group work, and collaborative interaction is accomplished through discussions with co-workers or mentors rather than other students (Dobrovolny, 2003).

Corporate training differs from academic learning in several respects. Academic e-learning courses are more group-based and collaboration is accomplished between learners using asynchronous methods such as threaded e-mail discussions and/or synchronous methods such as audio/videoconferencing or live chat.

Whereas in academic programs the learner completes a series of courses, completing assignments and exams with the goal of obtaining a degree, in corporate training, the process and motivational incentives are quite different. Completion of a series of corporate training courses does not automatically guarantee a promotion, but rather allows the employee to maintain employment (especially with regard to obtaining and maintaining specified certifications) and develop the skills needed to function effectively in the workplace.

The expectations around the time and purpose for learning vary in academic and corporate settings. In academic settings, a number of weeks or even months may be allotted for a single course, and knowledge for its own sake is encouraged, as is the case in continuing education courses, or learners may earn a grade.

In contrast, the time allocated for corporate training per employee is measured in hours, or at most, days. The goal of corporate learning is to impart knowledge as quickly and efficiently as possible, and the knowledge gained must be applied on the job to

support on-the-job performance and result in productivity gains that positively impact the corporation's bottom line. Time spent learning is time spent away from productive work, and many organizations expect employees to learn on their own time during non-work hours, although this has been assumed rather than been clearly communicated to employees (unless union rules determine that this would result in paying employees overtime for learning during non-work hours). Of those organizations that allow employees to learn during work hours, it is often a gray area as to who performs the work to be completed while the employee is attending training. Often, the employee works late or on weekends to make up the time lost while in a training class.

In academic environments, the instructor determines whether the learner has successfully satisfied the requirements of the course, and the instructor-learner relationship is, generally, clearly defined. In the corporate setting, the instructor may be delivering the training content, but the employee's supervisor is the one who assesses the employee's on-the-job performance as a result of the skills learned in training. Many organizations struggle to define and enforce the roles and responsibilities of the supervisor, instructor, and learner before, during and after the training course to ensure that what is learned is applied in the workplace. When these roles and responsibilities are not clearly defined and acknowledged, they create a challenge for those directly involved and for the organization as a whole. These ambiguities have a significant impact on the long-term success of corporate training programs, and they are magnified when an organization migrates from formal classroom training toward online learning.

<u>Problem Context</u>

Embracing the use of online learning presents significant changes in the way employees think about, approach and participate in learning. Cohen & Payiatakis (2002) point out that:

> This is not only a new way to learn, but may require a different culture to support a new learning organization: a culture depicted by a greater emphasis on, and support for, self-initiated development, collaborative learning, manager coaching, action learning, and retooled tracking and measuring systems. Adoption of an "e-learning" paradigm is likely to influence how people learn, forever.

The transition from the physical to the virtual classroom brings added responsibilities to employees as learners. E-learning is learner-centered rather than instructor-centered, and the move from synchronous, face-to-face class sessions gives way to asynchronous, self-paced study at the place and time of the employees' choosing.

This represents a big change for the employee who is used to a structured environment and may not be accustomed to taking a proactive, self-directed role in his/her learning. It also represents a change for the employee's supervisor, now placed in the role of coach/mentor and evaluator of employee performance improvement resulting from the training. It impacts the organization as a whole, whose focus shifts from supporting learning as an event managed by the instructor and learners, to learning as a process, requiring the coordinated, sustained efforts of a number of departments and individuals, and the development of new processes and support mechanisms within the organization.

Individuals and corporations have a wide variety of choices in web-based courseware for asynchronous learning. They may be either custom designed and developed for a specific need or purpose, or they may be standardized to fit a variety of audiences. They are especially effective for geographically dispersed learners, providing equal access to standardized content via an Internet connection. Off-the-shelf courseware can be used in a variety of ways: as a pre-requisite to ensure that learners of varying skill levels are at the same skill level prior to engaging in subsequent course work, as pre-work prior to face-to-face learning, or as post-class review. Some of these products may be purchased with the option to use the vendor's authoring tools to create customized content in modules that can be inserted before or after the standardized modules, providing the learner with additional information or applications that fit the context within which the content is used within the organization.

Desktop software applications are popular choices for off-the-shelf courseware because these applications contain specific sets of steps and keyboard shortcuts to perform various tasks. Topics can range from business applications, such as word processing, spreadsheets, presentation tools, databases, e-mail, calendars, contact management, to graphic/web design and programming languages. A number of business skills and soft skills topics are also available.

Web-based courseware evolved from computer-based training (CBT) and was previously delivered via CD-ROM. While CD-ROMs allow for media rich presentation of content, the content is fixed and cannot be updated. Web-based training (WBT) provides the ability deliver media rich learning, to update content as needed and to distribute widely without the costs associated with CD-ROM production and distribution.

The caveat is that special plug-ins (such as *Macromedia Flash/Shockwave* or *QuickTime*) are often required to properly view the animations contained in web-based training. Downloading and installing these plug-ins is a challenge for many corporations, because employees' computer equipment may or may not support the plug-ins, many corporate IT departments have policies prohibiting the download and installation of these plug-ins and employees may be unsure of how to download and install plug-ins without assistance.

Interfaces for these standardized online courses might range from viewing a series of *QuickTime/Real-time* movies with or without sound, to sophisticated simulations that allow the learner to click on icons or use keyboard shortcuts to perform tasks as if using the actual software, receiving feedback on whether or not they performed the correct actions and built-in remediation. Tutorials within a course may be viewed sequentially or in random order depending on the learner's needs/interests. Pre-course assessments may be used to guide the learner to the specific recommended tutorials needed to fill skill/knowledge gaps. Post-course assessments can be used to validate knowledge and skills acquired, and as a practice test prior to certification testing, if applicable.

Many companies do not have training staff with the skill set needed to deliver formal computer training courses; providing asynchronous, off-the-shelf courseware for standard software applications makes economic sense as part of the organization's learning strategy.

Off-the-shelf products present savings to the organization in terms of development costs, however, there is time and cost associated with the lease/purchase and administration of these products.

Making the online courses available to learners within the organization involves a number of considerations, including, but not limited to the logistics of determining courses to be offered, who is eligible to take courses, how they are paid for, providing user IDs/passwords, preparing processes for communicating information and instructions to learners and support staff, learner administration, technical requirements, and troubleshooting.

Because self-paced courses have no fixed start and end dates, new online learners may be unsure of how and when to get started or who to ask for help with technical difficulties. Tracking usage and completion is difficult unless the off-the-shelf vendor's products contain these types of tracking mechanisms or the organization uses a learning management system in conjunction with the off-the-shelf vendor's product. Without the motivation of deadlines or clearly defined expectations for on the job performance within a specified timeframe, learners may have difficulty completing the desired modules and applying the skills learned on their own.

The chief reasons for this study are to discover what employees as novice online learners think about and experience in their first online course, and the ways in which their actual experience differs from expectations. How does it compare to the instructor led, face-to-face classroom experience? What factors, as identified in the literature, might prove to be frustrations, and which might be real barriers? Do learner perceptions of these barriers change or diminish, as they become accustomed to this different way of learning?

This study will be valuable to those who work in the training & development field in corporate, academic or government environments who have recently implemented or who are contemplating implementing self-paced online learning in the near future as a

part of their learning strategy. It will provide insights into the novice online learner's real life experiences and validate the factors that they view as barriers in the online environment.

Ultimately, the findings will be valuable to program and course designers and those responsible for preparing and supporting novice online learners in the workplace so that appropriate instructional and other strategies may be devised to prepare learners for a smoother transition into the online learning environment.

Purpose of the Study

The purpose of this study is to investigate the perceptions and experiences of corporate employees prior to, during, and at the conclusion of their first self-paced, asynchronous, web-based course. Specifically, the study aims to discover learner perceptions regarding which of four factors most commonly identified in literature (computer skills, self-direction/time management skills, the absence of face-to-face contact/physical classroom and organizational support) presents greatest barrier to success in the online environment. This study also seeks to determine whether these factors change as the learner adjusts to the online environment, and whether learners identify additional as they progress through the course.

Research Questions

These are the research questions for this study:

1. How do learners perceive and rank the following four factors as barriers prior to engaging in their first online course:

   Computer skills?

Self-direction abilities (including time management skills)?

Absence of face-to-face contact/physical classroom?

Organizational support of online learning?

1. What other factors do the subjects identify as possible barriers?

1. How do learners rank the perceived barriers during, and at the conclusion of the course?

1. Do learner perceptions of these barriers persist or diminish at the conclusion of the course?

Limitations of the Study

This study has several limitations. The size of the group of subjects participating in the study (n=13) is manageable for collecting and analyzing qualitative data, particularly subject comments, but provides a limited number of responses. Statistics gathered from a small sample size may indicate patterns, or the lack thereof, that may or may not be observable in a larger sample size. The results of this study would need to be interpreted with caution due to the small sample size.

The researcher's past experience with attendance rates in corporate training programs indicates that not all learners that start a course will complete it, or they may choose to drop out of the course and/or study due to time constraints, client deadlines or some other reason. In the case of this study, 18 subjects indicated interest in participating in the study, 16 began the study and 13 completed it. Those that dropped out indicated lack of time due to workload as the reason.

This study focuses on corporate training, and the results may not be generalizable to other disciplines (academic, government) of distance education. Self-paced

asynchronous training comprises only a portion of corporate training, and a similar study focusing on synchronous or blended training might produce very different results.

In terms of delimitations of this study, every effort was made to keep any responses, views, opinions and identities of the subjects or the name of employer organization confidential. Results of the study will be made available to the employer and subjects upon their request when the thesis document is approved.

Definition of Terms

The following terms that appear in this document and relate to training and education are defined below as adapted from Learning Circuits (2003):

Asynchronous learning: Learning in which interaction between instructors and learners occurs intermittently with a time delay. Examples are self-paced courses taken via the Internet or CD-ROM, Q&A mentoring, online discussion groups (except chat), and email.

Blended learning: Learning events that combine aspects of online and face-to-face instruction.

Competency: The knowledge, skills, and attitudes that must be present to possess a certain level of performance in a particular area or task.

Computer Literacy: The computer skills needed to successfully perform the tasks associated with the operation of a computer or a specific software application.

Courseware: The software used to deliver the course.

Distance education: Educational situation in which the instructor and learners are separated by time, location, or both. Education or training courses are delivered to remote

locations via synchronous or asynchronous means of instruction, including written correspondence, text, graphics, audio and videotape, CD-ROM, online learning, audio and videoconferencing, interactive TV, and FAX. Distance education does not preclude the use of the traditional classroom. The definition of distance education is broader than the definition of e-learning.

Distance learning: The desired outcome of distance education. The two terms are often used interchangeably.

E-learning (electronic learning): A term covering a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio and videotape, satellite broadcast, interactive TV, CD-ROM, and more.

Extranet: A local-area network (LAN) or wide-area network (WAN) using TCP/IP, HTML, SMTP, and other open Internet-based standards to transport information. An Extranet is only available to people inside and certain individuals outside an organization, as determined by the organization.

Intranet: A LAN or WAN that's owned by a company and is only accessible to people working internally. It is protected from outside intrusion by a combination of firewalls and other security measures.

Metacognitive: Refers to high-order thinking that involves the learner having active control over the cognitive processes engaged in learning.

Off-the-shelf: Pertaining to a learning product that is already manufactured and available for delivery from stock.

Online learning: Learning delivered by Web-based or Internet-based technologies.

Self-directed learning: A purposeful mental process, usually accompanied and supported by behavioral activities involved in the identification and searching out of information. The learner consciously accepts the responsibility to make decisions about goals and effort, and is, hence, one's own learning change agent. Time management, project management and setting goals are self-directed learning skills.

Self-paced learning: An offering in which the learner determines the pace and timing of content delivery.

Synchronous learning: A real-time, instructor-led online learning event in which all subjects are logged on at the same time and communicate directly with each other. In this virtual classroom setting, the instructor maintains control of the class, with the ability to "call on" subjects. In most platforms, learners and teachers can use a whiteboard to see work in progress and share knowledge. Interaction may also occur via audio or videoconferencing, Internet telephony, or two-way live broadcasts.

Time management: A strategy for planning learning activities and scheduling time for completing them. The strategies help one to predict when one will be most busy so plans to get things done may be made ahead of time.

Virtual: Not concrete or physical. For instance, a completely virtual university does not have actual buildings but instead holds classes over the Internet.

Web-based training: Delivery of educational content via a Web browser over the public Internet, a private Intranet, or an Extranet. Web-based training often provides links to other learning resources such as references, email, bulletin boards, and discussion groups. WBT also may include a facilitator who can provide course guidelines, manage

discussion boards, deliver lectures, and so forth. When used with a facilitator, WBT

offers some advantages of instructor-led training while also retaining the advantages of

computer-based training.

<u>Organization of Thesis</u>

The remainder of the thesis is organized in the following manner:

Chapter One – Introduction.
Chapter Two – Review of Literature.
Chapter Three – Methodology.
Chapter Four – Results.
Chapter Five – Conclusions and Recommendations.
References.
Appendices.

<u>Summary</u>

This chapter has described the characteristics of corporate online training, and the

challenges faced by corporations as they migrate to the increased use of online training

methods. The chapter also described the problem context, the purpose of the study,

research questions, delimitations and limitations, definition of terms and organization of

the thesis.

CHAPTER II

REVIEW OF THE LITERATURE

<u>Introduction</u>

Although numerous factors can be barriers to new online learners, four of the initial factors chosen for this study (computer literacy, self-direction, absence of face-to-face contact with others, and supervisor/organization support) consistently appear in the literature as it relates to the individual learner as opposed to the organizational or institutional levels.

<u>Computer literacy</u>

There is substantial literature on the topic of computer literacy and its importance for learners (and instructors) in order to participate successfully in online learning. Much of the literature questions whether learners possess sufficient computer skills.

Blank (2000) writes that, as an educator, she is concerned that e-learning is taking off without the appropriate preparations, including proper instructor preparation and technology that breaks or fails. She notes that

> E-learners must have some technological background in order to capitalize on the content and avoid getting hung up on how to post their comments in a chat room. Do our e-learners have the technological skills to complete exercises on a computer?

Without solid technical skills, learners may have a difficult time succeeding in Web-based learning environments (Osika & Sharp, 2002). With the assistance of faculty,

the researchers compiled a list of the minimum technical competencies needed for distance learners and compared learner perceptions with faculty expectations. The five highest rated essential skills (according to faculty) for learner success in Web-based courses include learner ability to:

Access information on the Internet;
send and receive e-mail;
log into the (university) network;
start and shut down a PC; and
send and receive attachments/files through e-mail.

The results of this study confirmed faculty concerns that learners often did *not* possess the technical skills required to be successful in a Web-based course.

It is important to note that the literature in this area comes from both the higher education sector and the corporate sector. Today's learners are tomorrow's workers, and if learners lack the minimum technical skills and computer literacy needed for e-learning success, this must also be a concern in the corporate sector, as they will be absorbing these learners into the workplace.

The literature related to competencies needed for learning technical skills required for e-learning concerns technical skills, and whether learners have the level of computer literacy needed to successfully complete online courses. More than a decade ago, literature on the topic revealed that computer literacy is recognized as an important skill for successful learning. Howard and van Duren (1993) state that a computer literate populace is as necessary to an information society as raw materials and energy are to an industrial society and that:

As computer technology becomes more "transparent" less obviously in a physical presence in our environment, the issue of technological literacy becomes more critical. Paradoxically, however, the more likely technological literacy is to be taken for granted becomes a non-issue.

McAlister, Rivera and Hallam (2001) also raise the question of whether learners have the skills necessary to use the Web and participate in class. They note that while many people can connect and make rudimentary use of the Web, it may be difficult for learners to take advantage of more sophisticated delivery methods, and recommend development of programs to train learners in delivery methods as well as provide course content.

As learners increasingly use computers for self-paced learning, much of their time is spent in solitude with the content. Determining how and where to incorporate learning and the optimal frequency and duration of learning activity needed to complete the learning content become critical success factors and challenges in completing a self-paced course. Self-direction abilities play a significant role in the learner's ability to succeed in a self-paced learning environment.

Self-direction

Long (2000) identifies three primary dimensions of self-direction in learning: Motivation, metacognition and self-regulation, supported by four secondary dimensions: choice, competence, control and confidence.

Long notes that learners are developed from childhood to expect learning to occur under the strict guidance of a teacher, leading to difficulty for learners to accept responsibility for their own learning:

> Paradoxically, while adults prefer freedom and independence of action, they often expect control and supervision of trainers in formal training and education settings. This expectation appears to contribute to discomfort when control is minimal or absent. As a result, expectations of teacher/trainer control are usually present in adult teaching/training, even though adults have a variety of successful learning experiences that were free of a formal teacher's effort. This expectation seems to prevail, even though studies indicate that approximately 80 percent of what managers and professionals learn occurs as a result of learner self-direction. That is, most of what they learn takes place beyond formal training or instructional environments (2003, pp. 4-5).

Long (2003) also identifies three important barriers to acceptance of personal responsibility in learning as: (1) The learner's previous formal training and instruction have provided limited opportunity for learner responsibility in those settings; (2) Past experiences with self-direction in formal settings have been negative; and (3) Failure to relate learning goals to learner's personal interests.

According to Birch (2002), three major factors that influence an e-learner's success include management of the learning environment (self-directive competencies), interaction with the learning content (metacognitive competencies) and interaction with virtual learning facilitators and classmates (collaboration competencies).

The self-directive competencies determine a learner's ability to manage their time and maintain sufficient motivation to persist in their studies.

Birch notes a major difference between the physical and virtual classroom and how it shapes learner pro-activity and self-direction by stating "the traditional lecture format [of the classroom] has conditioned learners to be passive–subjects listen and absorb information that they will apply in the future." (2002, p.2).

Grow (1991) proposes a model that describes four stages through which a learner must pass to become self-directed, with the corresponding teaching style to support the learner's efforts, so that the teacher/facilitator guides the learner in moving from a dependent state to a self-directed state. Stage One "Dependent Learners" and Stage Two "Interested Learners" both require an instructor to direct/guide them through their learning, while Stage Three "Involved Learners" are able to begin to work on their own and with others with minimal guidance. Stage Four "Self-Directed Learners" "exercise skills in time management, project management, goal setting, self-evaluation …and use of educational resources." (p. 134).

The self-directed nature of asynchronous web-based learning demands, at minimum, stage three and four skills; thus raising the question of how many employees whose previous experience is in stage one and two instructor-led classroom training, possess self-directive skills at levels three and four.

Conrad (2002) found that learners in their first online course were explicit about their need to have workload expectations explained, revisited, and clarified, and that finding a course organized with brief introductions, clear expectations and explanation of course outline created a good beginning to an online course (p. 216).

The physical classroom environment is an environment that is familiar to learners. The instructor and learners occupy the same physical space and time, and the relationship/interaction between the instructor and learners, and between learners, is generally understood. Self-direction skills are not strongly emphasized in the classroom, as learners understand that the instructor is the primary content delivery vehicle and controls the pace of the class.

Removing the physical classroom introduces a very different environment for the novice online learner in which to navigate while also learning to take greater responsibility for his/her learning.

Absence of face-to-face contact/physical classroom

The single quality that distinguishes distance learning from classroom learning is the separation of time and location between learner and instructor. And if the course is an asynchronous, self-paced course, the primary interaction is between the learner and the content. The delivery medium and the interaction, in effect, *becomes* the instructor.

With regard to the role of the instructor in an instructor-led online course, Conrad (2002) found that learners perceived the role of the instructors at the beginning of courses to be very much a functional one, answering questions, providing support to log on, introduce the framework of the course, and provide advance organizers (p. 205). In a self-paced course, learners still need this type of functional assistance, and if it is not clearly communicated who to contact for assistance or information, the first time learner can easily become intimidated.

Birch describes the communication difficulties a new learner may face in an online environment: "Conveying ideas in a virtual classroom can be dramatically different than speaking in a physical classroom where people use their bodies as well as their voices to communicate." (2002, p.2).

As Shank and Doughty (2001) note, learners who value autonomy over the need for face-to-face interaction can be quite satisfied with online learning (p. 5). However, Hara and Kling conducted a study of learner's frustration with a web-based distance education course, finding, that in this kind of learning environment where learners are away from traditional classrooms, frustration can be a major obstacle for learning (1999, p.7). In the same study, they state that in a web-based distance education situation, learners do not see each other or their instructors. This physical absence of visual cues led to some frustration among learners (p. 15) and that some informants reported the frustration with technical problems and the absence of personnel to provide technical support (p. 16).

Cohen and Payiatakis point out the advantage of instructor-led training in the workplace is that "it is a scheduled event that removes the learners from the day-to-day distractions so they can concentrate on the intended learning. In most companies, e-learning lacks this key element" (2002, p. 14).

Removing the instructor and physical classroom can have mixed effects on learners, as noted in the literature on this topic. The functional aspects of the instructor, such as providing information, assisting in resolving technical issues, and providing moral support/monitoring learner progress still need to be provided to the learner by some other means by the organization.

As businesses make plans to implement alternatives to the traditional classroom, they can benefit from understanding the benefits and barriers to learning online, especially in a self-paced, asynchronous, web-based format.

Chapnick's (2001) eLearning Readiness Assessment™ measures an organization's readiness to adopt e-learning on a variety of levels (a notable omission is learner readiness, although the factors of computer literacy, self-direction and absence of face-to-face contact are woven throughout these assessment areas):

> Psychological readiness;
> sociological readiness;
> environmental readiness;
> human resource readiness (referring to the resources needed to implement the initiative and support learners);
> financial readiness;
> technology readiness;
> equipment readiness; and
> content readiness.

Cho and Berge (2002) have identified a number of barriers to distance education and training in corporate settings in the following areas:

> Technical expertise;
> administrative structure;
> evaluation/effectiveness;
> organizational change;
> social interaction and quality;
> learner support services;
> threatened by technology;

access;

faculty compensation and time; and

legal issues.

The areas of computer literacy (technical expertise, threatened by technology) and absence of face-to-face contact (social interaction and quality) are identified as barriers. The authors suggest that when using teaching methods or styles that have not been used in the past, to provide a "bridge" to the new methods and processes.

The need to identify skill gaps and "train the learner" on learning how to learn online is stated throughout the literature. Criteria-based pre-assessments and various forms of "train the e-learner" courses prior to the time when actual courses begin are recommended, for the dual purpose of acquainting learners with the skills needed and to educate on the differences between face-to-face and online learning.

Buchanan (1999) recommends the use of formal, criteria-based pre-assessments by potential learners (and potential instructors), possibly in the form of a survey instrument developed by each institution and distributed before admission to Web-based programs or courses. She posits that "to ignore such pre-assessment methods is to lessen the quality, pedagogical integrity, and learning experience for all involved" (1999).

Providing support to the new online learner is an important factor in learner acceptance and success in the self-paced online environment. Awareness and support of the learner's situation as s/he encounters challenges with the online medium needs to be taken into account at the supervisor and organizational levels.

Cho and Berge (2002) suggest that organizations consider:

Creating a position that functions to ease others through the distance learning changes, using a combination of non-computer and computer activities to increase learner and instructor comfort, and offering courses for faculty and learners in which the goals are for subjects to adjust from classroom based to distance learning.

McAlister, Rivera and Hallam (2001) state that:

Some institutions have addressed this [the identified skill gap] by requiring that learners enrolling in web-based courses attend a class where they are taught the necessary skills. Other institutions have made a conscious effort to design their instructional materials so that subjects of all skill levels will be able to use them.

Slick (2001) discusses that the use of orientation sessions ensures a smooth start for distance learning, and that software navigation tips are essential to make learners comfortable in a new technological environment.

In summary, sufficient support is needed to guide the new online learner through the technical and motivational challenges faced. The learner's supervisor, other peers, and the organization as a whole have a role to play in providing the encouragement and assistance needed to help the new online learner overcome barriers to successful online learning.

Shank and Doughty (2001, p. 5) identify other factors that can act as barriers:

> Some of the reasons for negative reactions to online
> learning (Peters, 2000) include variations in access (a
> McMahon, Gardener, Gray & Mulhern study, cited in
> Peters, 2000, reports that computer access issues account
> for 50% of the variance in learner attitudes toward online
> learning), computer anxieties, slow Internet connection
> speeds, time factors, (e.g. other commitments, expectations
> around time commitments for the course, synchronous
> activities), and desire for personal contact.

Shank and Doughty (2001) and Birch (2002) both state the importance of writing skills and the ability to use clear, concise language that is free of factual and grammatical errors. Although not explicitly mentioned in the literature, it would follow that reading skills are equally important in the online environment, where much of the learning content is presented as text. Those learners who use English as a second language, or who possess visual or auditory challenges may also view the predominance of text to be a barrier.

Palloff and Pratt (2003, p. xiii) note that, "attention needs to be paid to learning online in every course they take. A course cannot simply be created with the expectation that students will know how to access it, navigate it, and participate to the levels they (faculty) expect." Siemens and Yurkiw (2003) echo this sentiment, noting that a critical aspect of any course is the initial orientation (p.130). They go on to say that:

> Once a student has been oriented to the online environment
> and is comfortable navigating content and using

communication tools, he or she can get involved in

learning. Content learning, however, will not happen while

the student is learning about the process of learning online

or is still being oriented to the course software. (p. 128).

Without proper planning and preparation, and learner support mechanisms in place, the first time online learner may face a multitude of barriers that can impact their initial online learning experience, and impact their perception of online learning, and their ability to become successful online learners in the future.

Connection of the Study to Literature

This study supports the work of others in determining the most obvious factors that may be barriers to new online learners:

Blank (2000), Osika and Sharp (2002), Howard and van Duren (1993), McAlister, Rivera and Hallam (2001) all argue that lack of technical skills, specifically computer literacy, is a concern and barrier to successful online learning.

Birch (2002) and Grow (1991) both discuss the importance of self-direction in situations (such as online learning) where learning how to learn is a success factor, and the absence of which creates a dependence on others rather than the learner autonomy needed in the online environment.

Birch (2002), Shank and Doughty (2001), Cohen and Payiatakis (2002), and Hara and Kling (1999) all identify the challenges of the virtual versus physical classroom.

Chapnick (2001), Cho and Berge (2002) and Buchanan (1999) all list organizational barriers to learner success and recommend steps for organizations to take to reduce these barriers.

Shank and Doughty (2001), along with Birch (2002), stress the barrier to successful communication created by poor writing skills, as well as other assorted factors that could be perceived as barriers.

Palloff and Pratt (2003), Siemens and Yurkiw (2003), Mc Alister, Rivera and Hallam (2001), and Conrad (2003) all state the importance of orienting the new online learner to the online environment.

The current study aims to add to the limited existing body of knowledge about learner perceptions and experiences perceived as a need by Shank and Doughty (2001), and Hara and Kling, who state that, "Clearly, *we need more learner-centered studies* of distance education. We need research that is designed to teach us how the appropriate use of technology and pedagogy could make distance learning beneficial to learners" (1999, p. 24).

Summary

This chapter has reviewed the literature associated with computer literacy; self-direction; absence of face-to-face contact; organizational support factors and other factors (computer access, reading/writing skills and auditory/visual challenges) as possible barriers to novice online learners. The connection of the study to the literature has been described.

CHAPTER III

METHODOLOGY

Introduction

This chapter covers the methods used to conduct the research study of new online learner perceptions of barriers to corporate online training. It describes the research design, recruitment of subjects, description of subjects, procedure, instrumentation, and data collection/analysis used in the study.

Research design

Other studies on barriers to distance learning (Cho & Berge, 2002, Berge & Muilenberg, 2003) have collected and presented quantitative data on this topic; while another (Conrad, 2002) used both quantitative and qualitative methods to discover learner perceptions, but related an instructor-led academic course. Therefore, the focus of this study was to gather and analyze the qualitative aspects of barriers in corporate training to gain insight into the experiences and thoughts of the subjects in their own words.

This study utilized a survey for data collection on learner perceptions. The survey featured both closed and open-ended questions in order to gain a better understanding of the reasoning behind the subjects' perceptions and experiences. Inferential methods were used as required.

Qualitative data were gathered in the form of combined scores/rankings of survey items and verbatim comments by study subjects and displayed in a series of tables to provide a visual representation of the data, supported by textual information.

Quantitative data were gathered and analyzed for association with the qualitative data, and to determine whether similarities exist between the findings of this study and those conducted by other researchers on this topic.

Prior ethical approval for the study was obtained from the Athabasca University Ethics Review Board. The data were collected via a series of surveys administered before, during and after the completion of each subject's first self-paced, web-based online course.

Recruitment of subjects

The organization from which study subjects were recruited for this study is the world's leading real estate services and investment management firm. Study subjects were recruited from the organization's offices in the United States, which have several thousand employees; however, a maximum of 375 licenses were purchased for online learning, each non-transferable license being assigned to a specific individual employee in one of the U.S. locations. A general e-mail message describing the study and criteria and asking for volunteers was sent to the general population to recruit a random sample. Study subjects came from a number of different geographic regions, and were not aware of each other's identities.

The researcher's link to the organization is a former training and development colleague who is employed by this organization. This colleague is currently involved in the introduction of online learning for the Chicago (home) office, and offered the assistance of her organization to participate in this study as a significant number of employees have no prior experience with self-paced, web-based, asynchronous online

learning. The researcher had no previous relationship of any kind with the subjects who participated in this study.

Description of study sample

The subjects for the study were recruited from those employees among the 375 that have not previously taken a self-paced, web based asynchronous online course in the specific course topic areas offered, and were about to engage in their first asynchronous, self-paced, web-based training class.

Study subjects (n=13) consisted of 6 females and 7 males, ranging in age from 24 to 55 years, with a mean of 38.15 and a median age of 39. Geographic distribution of study subjects is as follows: Three subjects from New York, two each from California, Illinois, Massachusetts and Texas, and one each from Ohio and Virginia. Eleven subjects work in an office, and two work from home. Eight subjects indicated that they were taking the course to improve/expand current skills, and four selected courses to gain new skills. One participant indicated that s/he was taking the course both to gain new skills *and* to improve/expand current skills.

Procedure

At the beginning of the study, prior to the learner beginning the online course, each subject completed a consent form, providing demographic data, and answered a series of closed and open-ended questions about their perceptions of the four factors identified as possible barriers. The subjects were then asked to rank them with their

reasoning why, and to discover any factors that the subjects may have, and their ranking relative to the initial factors.

Mid-way through the course, and again at the conclusion of the course, each participant was sent a private communication via e-mail with a few closed-ended questions (pertaining to their rankings at the present time as opposed to the beginning of the course). Open-ended questions were also included to encourage in-depth answers. As subjects responded to the researcher, additional e-mail communications were sent to the subjects to gain more information about points they made when clarification was needed.

Before and after the course, subjects completed a pre-course and a post-course self-assessment of their skills in the four areas for comparison of their perceptions of their skills before and after the course.

In the organization that provided subjects for this study, employees who signed up for online courses were sent the following:

An e-mail containing a username/password; and

a link to a personalized web page.

The web page contained information on the benefits of online training, notes for new users, how to access courses, and a sign in area for username/password. The personalized web page also included a link to the *Microsoft Office* Library containing 109 courses, including 20 courses for use with Screen Readers, and a link to additional courses, which are available for a fee charged back to the learner's business unit.

Each study subject selected the *Microsoft Office* course of his/her choice. The courses chosen by study subjects are as follows: Four subjects chose *Microsoft Excel*, two

subjects each chose *Microsoft Front Page*, *Visio* and *PowerPoint*, and one each chose *Microsoft Access*, *Microsoft Publisher* and *Microsoft Word*. The courses ranged in length from three to five hours of learning time, depending on the complexity of the content. Subjects viewed the course one module at a time, spending between a few minutes to up to an hour at a time over the course of approximately six weeks.

Study subjects were asked to complete a consent form (see Appendix A) and three Surveys (See Appendices C, D and E), the first and third of which contained self-assessment (See Appendix C). All documents were distributed and received via e-mail.

The vendor whose courses were used in this study is a leading provider of e-learning solutions for technology and business skills serving Fortune 1000 companies, schools and universities, government organizations and individuals. The vendor has a 20-year history in computer training and is a pioneer in courseware development and e-learning, offering over 1,200 online courses in 15 languages in the areas of computer software (desktop applications), information technology, business skills and soft skills. They offer both self-study and e-instructor led courses.

Study subjects participated in self-paced web-based asynchronous courses. A fee for the use of training courses are charged to each employee's business unit training budget; however, the courses used in this study were prepaid by the organization and offered to employees without a charge to their business unit's training budgets.

Courses are targeted to provide or enhance skills in word processing, presentation, spreadsheet, web page and other business software applications.

The "free" courses offered to employees are grouped in a library and are related to various *Microsoft Office* applications, such as *PowerPoint, Excel, Word, Front Page,*

Access and *Visio*. Three additional libraries (*Microsoft Project*, Graphics and Media, and Web) are available for an additional charge to the employee's business unit.

This offering of free online courses was advertised in an initial all-employee mailing, followed by periodical mailings (i.e. at midyear review time, these courses were advertised as a professional skill building opportunity, and something that managers could recommend to their employees). Those who wish to use the training courses are self-chosen, and access the courses via a specially designed page that allows each student to log on and provide a password to gain access to the course of his/her choosing. In order to view the interactive content of this vendor's courses, *Macromedia's Shockwave* plug-in must be downloaded and installed on the employee's computer.

There were no official start or end date guidelines for learners to complete the courses, since they are entirely self-paced. For purposes of this study, a six-week timeframe was selected during which study subjects were to access and take the course and provide their perceptions via three separate surveys that were completed before, during, and after the designated six-week period.

Instrumentation

The following documents were developed for the study:

A pre-course/post-course self-assessment for subjects to complete, ranking their confidence in the areas of technical skills, self-direction skills, learning without contact with peers/instructor, and organizational support (Appendices D, F).

Three surveys containing closed-ended and open-ended questions for subjects, with instructions on how to complete and send to researcher (Appendices D, E, F).

A pilot study was conducted to test the accuracy of the instructions and the wording of survey questions to assure that survey questions are concise and easy to understand and answer. In addition, pilot testers were asked to calculate the amount of time taken to complete each survey so that a reasonable estimate could be given to possible study subjects as to the time commitment needed to complete the three surveys (approximately one hour).

The survey questions were designed to correlate to the study research questions:

One—How do learners perceive and rank four factors (computer skills, self-direction, the absence of face to face contact/classroom and organizational support of online learning) as barriers prior to engaging in their first online course?

Question 1 asked subjects to identify any or all of the four factors that they feel will be barriers.

Question 2 asked subjects to assign a rank, or value, to each of the four factors to indicate the priority of each factor in their perception.

Two—What other factors do the subjects in this study identify as possible barriers?

Question 3 asked subjects to identify additional factors that they perceive as barriers.

Question 4 asked subjects to add the additional factors identified in Question 3 to the four existing factors and re-rank the combined list in the order of

priority to indicate the position of importance of the subject's factors in relation to the existing factors.

Subject comments throughout the three surveys identified barriers related directly or indirectly to the existing factors.

Question 5 asked subjects to rank the existing and newly identified factors on a five point Likert-type scale to indicate the degree to which each factor poses a barrier.

Three—How do learners rank these factors during, and at the conclusion of, the course?

Question 2 asked subjects to assign a rank, or value, to each of the four factors to indicate the priority of each factor in their perception.

Question 5 asked subjects to rank the existing and newly identified factors on a five point Likert-type scale to indicate the degree to which each factor poses a barrier.

Four—Do learner perceptions of these barriers change in importance or diminish at the conclusion of the course, as they become accustomed to self-paced, asynchronous learning?

Questions 6 through 10 asked subjects to describe specific challenges with regard to technical/computer skills, self-direction/time management skills, and the absence of face-to-face contact with instructor/other learners, support, and/or any other challenges/barriers they may have encountered.

The questions presented to subjects in the self-assessment and three surveys were designed to capture their perceptions before, during, and after the course/study period to

see how their rankings and comments evolved as they proceeded. Questions one through ten remained constant on all three surveys so that comparisons could be drawn between them. Surveys two and three contained additional questions based on the responses to open ended questions to surveys 1 and 2 and e-mail communications with the researcher. These will be discussed in the Results sections pertaining to surveys 2 and 3.

<u>Data Collection and Analysis</u>

Questionnaire responses were collected via e-mail. Questionnaire responses were copied and pasted into a *Microsoft Excel* spreadsheet for ease of sorting and creating tables. Quantitative data were imported into a web-based statistical calculation tool for analysis.

Each study subject was assigned a unique set of two characters, and all written communications were coded with these characters instead of the subject's name to protect subject confidentiality.

At the conclusion of the course, when the subjects returned all questionnaires, responses were gathered and organized to correspond to each of the four guiding questions. Both qualitative data (comments and observations by the study subjects) and quantitative data (the rankings applied to various study questions) were analyzed to discover what patterns and trends emerged. Qualitative data were categorized into topic areas for greater clarification and for comparison between surveys. Quantitative data were placed into spreadsheets for tabulation and sorting.

A one sample Chi-square Goodness of Fit test was conducted on the scores for each of the thirteen factors rated by the subjects on the pre-and post self-assessment, to

test whether the frequencies with which the thirteen subjects used the five response options (Low, Low-Medium, Medium, Medium-High, High) were significantly higher or lower than an expected set of average response frequencies on the five options. This procedure tested the null hypothesis that observed scores would correspond to expected scores in an even distribution.

Where appropriate, tables were created to display data visually, accompanied by text as appropriate. The tables show:

Pre-course/post-course self-assessment scores and rankings.

The ranking of the four factors (computer skills, self-direction, absence of face-to-face contact/classroom, organizational support of online learning) by each subject at the beginning of the course as a baseline and picture of pre-course perceptions.

A listing/ranking of other factors identified as barriers by subjects.

The ranking of the four factors (computer skills, self-direction, absence of face-to-face contact/classroom, organizational support of online learning) plus the additional factors identified by each subject at the beginning, middle and conclusion of the course to determine the overall ranking of each factor at each of the three stages.

The patterns of barrier change in importance or diminished status at the conclusion of the course.

The results of the Chi-square Goodness of Fit test, performed to compare the observed and expected scores on the pre and post-course self-assessment and question 2 on surveys 1, 2 and 3.

These tabular representations show patterns and relationships between the factors from different perspectives.

Summary

This chapter described the research design, recruitment of subjects, procedure, instrumentation and data collection/analysis, with the goal of gaining a better understanding of how learners think and feel, and what they say about their perceptions as novice online learners.

CHAPTER IV

RESULTS

<u>Introduction</u>

This chapter covers the results of the research study of new online learners'

perceptions of barriers to corporate online training, specifically in the use of web-based,

self-paced online courses in desktop applications. It begins with a description of the study

sample, the quantitative results, and then the qualitative results of the pre and post-skill

assessments and the three surveys distributed during the study including verbatim

comments from study subjects.

<u>Quantitative Results</u>

Despite the relatively modest sample size for the study (n=13), upon collecting

and analyzing the data gathered on the pre and post-course self-assessments and surveys

1, 2 and 3, a pattern began to emerge. Study subjects' scores were highly concentrated in

several areas rather than showing an even distribution among all areas as might be

expected.

In the pre-course self-assessment, the one sample Chi-Square Goodness of Fit test

yielded significant results on six of the thirteen factors ($p< .01$). <u>Table 1</u> displays the

results of these tests, which indicate that there is a difference between the observed

responses on each question and those that may be expected to arise on each question by

chance.

Table 1. Categories with significant results-pre-course/post-course self-assessment.

Factor	Chi-Square (*p* Value)	
	Pre-course	Post-course
Web browser skills	15.8 (.003)	
Confidence in computing skills	15.0 (.005)	13.5 (.009)
Reading skills	16.6 (.002)	21.2 (.000)
Minimal instructor interaction	13.5 (.009)	
Supervisor support	13.8 (.008)	
Organization support	16.6 (.002)	13.5 (.009)
Time management skills		21.2 (.000)
Self-direction skills		15.8 (.003)

p < .01

The same Chi-Square test was conducted for Question 2 on surveys 1, 2 and 3, and results were significant ($p < .01$) for two factors: self-direction abilities (surveys 1, 2, 3) and absence of face-to-face contact (surveys 1, 3). These results refute the null hypothesis that observed scores match expected scores in an even distribution (Table 2).

Table 2. Significant barriers across all three surveys.

Factor	Chi Square (*p* Value)		
	Survey		
	1	**2**	**3**
Self-direction abilities	15.84 (.003)	20.46 (.000)	27.38 (.000)
Absence of face-to-face contact	18.15 (.001)		15.84(.003)

p< .01

In this study, subject scores demonstrated a consistent and significant perception of self-direction abilities (or lack thereof) to be the most important barrier to novice learners engaged in self-paced, web-based, asynchronous learning in a corporate environment.

Self-Assessment Results

A self-assessment survey (see Appendices D, F) was distributed at the beginning and again at the conclusion of the study attached to the beginning of surveys 1 and 3.

The purpose of the pre-course self-assessment was to obtain a baseline of subjects' perceived skill/confidence in thirteen key areas related to the possible barriers they would encounter as novice online learners. The post-assessment was identical to the pre-assessment and was used to determine how the subjects' experience would contrast with their perceptions at the beginning of the course.

Questions were based on various aspects of the four previously identified barriers and the skills needed to reduce/overcome the barriers. Subjects ranked their skills in the following thirteen areas:

Technical/computing skills

General computing skills;

ability to use a web browser to navigate between web pages, and perform basic functions; and

confidence in computing skills to successfully complete an online course.

Self-direction skills

Reading skills;

time management skills;

ability to learn in a variety of different settings; and

confidence in self-direction skills.

Absence of face-to-face contact

Comfort level with minimal/no interaction with instructor;

Comfort level with minimal/no interaction with other classmates; and

Comfort level with working at one's own pace, setting one's own schedule deadlines for course completion.

Technical/supervisor/organizational support

Ability to proactively ask for help when needed;

supervisor's ability to provide support; and

organization's ability to provide support.

Each subject ranked his/her skills and perceptions using a 5-point Likert-type scale using the following ranks: Low (1), Low-Medium (2), Medium (3), Medium-High (4), and High (5). A combined score of 65 would be the maximum possible combined score for any of the thirteen questions.

Pre-assessment versus post-assessment total scores and rankings

Table 3 compares the total scores and ranks given by subjects for each question in the pre-assessment and post-assessment. A ranking of 1 denotes the greatest perceived barrier.

Table 3. Pre-assessment/post-assessment total scores/rankings of barriers.

Pre-assessment	Rank	Score	Post-assessment	Rank	Score
Reading skills	1	58	General computing skills	1	44
Organizational support	1	58	Web browser skills	1	44
Confidence in computing skills	3	57	Confidence in computing skills	3	39
Minimal instructor interaction	3	57	Reading skills	3	39
Minimal peer interaction	5	56	Organizational support	3	39
Self-direction abilities	6	55	Learn in various settings skills	6	37
Web browser skills	7	54	Supervisor support	6	37
Ability to work on own	7	54	Minimal instructor interaction	8	36
Proactively seek help	9	53	Minimal peer interaction	9	35
Supervisor support	9	53	Ability to work on own	10	33
Learn in various settings skills	11	51	Proactively seek help	10	33
Time management skills	12	50	Self-direction abilities	12	32
General computing skills	13	49	Time management skills	13	30

Pre-assessment scores ranged between 49 and 58, with a median score of 55. Scores were clustered in a multimodal distribution around the four scores of 53, 54, 57 and 58. Post–assessment scores ranged from 30 to 44, with a median score of 37 and a mode of 39, and also clustered in a multimodal distribution around four scores—33, 37, 39 and 44.

Prior to beginning the course, subjects collectively ranked their reading skills and organizational support highest, each with 58 of a possible 65 points. General computing skills ranked lowest with 49 points.

In contrast, after taking the course, general computing skills moved from *lowest* to *highest* in ranking (perhaps indicative of their collective perception of improved computing skills as a result of taking the course), along with web browser skills (again possibly indicative of their interaction with the web-based course), each with 44 of a possible 65 points. Time management skills now ranked lowest with 30 points, moving only slightly from 12th to last position.

In the pre-course assessment, the total scores ranged from a high of 58 (reading skills and organization support) to a low of 49 (general computing skills) with a mean score of 54.23. However, the totals in the post assessment were lower overall, with a high of only 44 points (general computing skills and web browser skills) to a low of 30 points (time management skills) with a mean score of 36.76, averaging 17.47 points lower in the post-assessment. The lowest score in the pre-course assessment (49) is higher than the highest score in the post-course assessment (44). This indicates that the optimistic perception of skills before the course decreased sharply after experiencing the challenges and barriers that were encountered throughout the duration of the course.

Table 4 shows a comparison of how subjects ranked each question before and after taking the course. For eight of the thirteen questions, subjects ranked their skills higher in the pre-assessment (reading skills, time management skills, self-direction skills, minimal instructor interaction, minimal peer interaction, work on own skills, proactively asking for help, and organization support), while they ranked their skills higher on four

questions on the post-assessment (general computing skills, web browser skills, ability to learn in various settings, and supervisor support). Interestingly, subjects ranked confidence in computing skills as 3rd in both the pre-and post-assessments, with respective scores of 57 and 39.

Table 4. Comparison of mean scores/ranking by factor—pre and post course

Factor	Pre-course	Post-Course
General computing skills	3.76 (13)	3.38 (1)
Web browser skills	4.15 (7)	3.38 (2)
Confidence in computing skills	4.38 (3)	3.00 (3)
Reading skills	4.46 (1)	3.00 (4)
Time management skills	3.84 (12)	2.30 (13)
Learn in various settings skills	3.92 (11)	2.84 (6)
Self-direction skills	4.23 (6)	2.46 (12)
Minimal instructor interaction	4.38 (4)	2.76 (8)
Minimal peer interaction	4.30 (5)	2.69 (9)
Work on own skills	4.15 (8)	2.53 (10)
Proactively seek help	4.07 (9)	2.53 (11)
Supervisor support	4.07 (10)	2.84 (7)
Organization support	4.46 (2)	3.00 (5)

Subjects were encouraged to add comments to support their rankings on each of the survey items.

On the pre-course self-assessment, four of the thirteen subjects included comments on the following topics:

Minimal instructor interaction;
minimal peer interaction;
organizational support; and
supervisor support.

On the post-course assessment, only two of the thirteen subjects responded with comments, in the following seven topics, the first three of which were also commented on in the pre-course assessment:

> Minimal instructor interaction;
> supervisor support;
> organizational support;
> computer skills;
> time management skills;
> ability to work on own; and
> proactively asking for help.

Minimal instructor interaction

Pre-course: (two responses)

While subjects gave a high rating to their ability to learn with minimal instructor interaction (both ranked it a 5, or High), their comments indicate this, yet also describe the need to be able to have someone (perhaps the instructor or other support source) to perform the role of answering questions.

Post-course: (one response)

The subject who commented on this topic gave a high rating to this topic (ranking it a 5, or High), and the subject's comment indicates that s/he perceives the role of the instructor to provide pacing to the course, and the desire to work independently of pre-determined deadlines for course completion.

<u>Minimal peer interaction</u>

Pre-course: (one response)

The subject rated his/her skills a 5 (High) and indicated the perception that self-directed learning does not depend on peer interaction.

<u>Supervisor support</u>

Pre-course: (three responses)

Interestingly, none of the three subjects who provided additional comments had mentioned to their supervisors that they were taking an online course. Two of the three subjects rated their perception of supervisor support at 5 (High). One subject did not rate this question, marking it NA (not applicable) and indicated that s/he did not have a supervisor.

Post-course: (one response)

The subject ranked it as 4 (Medium-High), the same score as in the pre-course assessment.

<u>Organization support</u>

Pre-course:(two responses)

One subject rated this with a 5 (High), while the other rated it with a 3 (Medium). The subject awarding the High rating praised the organization's proactive efforts to provide learning opportunities for its employees, while the subject who rated it as Medium cited lack of local IT support.

Post-course: (two responses)

One subject awarded this a 5 (High), while the other rated it with a 3 (Medium), the same scores given on the pre-assessment. The subject that rated it High praised the convenience of the learning method and organization's proactive efforts to provide learning opportunities for its employees, while the subject who rated it at Medium again cited lack of local IT support or being able to apply what was learned on the job.

Computer skills

Post-course: (one response)

One subject ranked this a 5(High). In the pre-course assessment, this individual ranked computer skills with a 4 (Medium-High).

Time management skills

Post-course: (one response)

The subject rated this with a 4 (Medium-High) as opposed to the pre-course rating of 5 (High). Consistent with the responses received in the three surveys (discussed in greater detail in sections pertaining to findings of surveys 1, 2 and 3), workload and time management are key factors that form barriers to finding time to complete courses during work hours.

Work on own with minimal supervision

Post-course: (one response)

The subject that responded to this topic rated his/her skills in this area with a rating of 4 (Medium-High), although acknowledging that this was the most difficult

aspect for him/her. The response also reflects time management challenges balancing multiple priorities and deadlines.

Proactively ask for help

Post-course: (two responses)

One subject rated this High (5) while the other rated it Medium-High (4). The first subject perceived that being able to do problem solving on one's own brought the greatest learning experience. The second subject's comment expressed frustration with being able to access help locally.

Table 5 compares the subjects' verbatim comments in each of these topic areas as noted in the pre-and post-course self-assessments.

Table 5. Comparison of pre and post-course self-assessment comments.

Topic	Comments	
	Pre-course	Post-course
Minimal instructor interaction	" Instructors have not been very helpful in my other adult education classes, I am a visual learner anyway."	" I'd rather be on my own. An instructor would only make me stay on schedule."
	" It's difficult not being able to ask questions but the system is set up to answer almost all the questions."	
Minimal peer interaction	"Having to learn on our own does not really require classmates."	
Supervisor support	"In general, management is very supportive, however, this class is one that is free and did not need prior approval. I did not inform my direct supervisor I am taking this class. I will, of course, now that you've brought it to my attention."	"[The Supervisor] is very much in support of it but realizes its insignificance relative to getting the job done. As do I."
	"I didn't mention it."	
	"Do not have a Supervisor. The online support is adequate."	
Organizational support	"[The company] has been very proactive in providing and encouraging learning opportunities."	"When I was participating in the class and learning about Access, I kept thinking about how convenient of a way this was to learn about this stuff. The fact that my organization provides the opportunity is great."
	"There is no local IT support from which to draw on. IT support is located in California and while they would be able to support me, I'm not sure they have the time."	"There was very little support available for questions or to implement the course content in my work environment."
Computer skills		"Computer skills aren't an issue. Many of the same techniques are used throughout the Microsoft software."
Time management skills		"I have been able to complete the online course as of this date (10-31). Workload and personal issues have taken up much of my time."

Topic	Comments	
	Pre-course	Post-course
Work on your own with minimal supervision		"This is the hardest thing for me. There is way too much going on. I'm on a "need to do" basis. I love learning new things and am open and welcoming to new knowledge. There's just not enough time to do it all. I'm very active and social."
Proactively ask for help		"I have the ability to ask, but I'd rather figure it out on my own. That's when the real learning occurs."
		"The ability is HIGH but the resources are not available locally".

Survey results–Questions 1-5

Survey 1 was distributed prior to the beginning of the course. Subjects were encouraged to login to the course web page and familiarize themselves with the interface, and complete the survey as they started viewing the course modules.

Since this was the first survey, several informational questions were asked prior to the designated survey questions.

Subjects were asked to indicate whether the purpose of the course was to gain new skills or improve and expand current skills. Eight of the thirteen subjects indicated that they wished to expand/improve skills, four subjects indicated that they wished to learn new skills, and one participant indicated that s/he wished to do both.

Eleven of the thirteen subjects worked in an office, and two worked from home. Subjects were asked in what combination of locations they would be viewing the course:

Four subjects indicated at work only, during work hours.
Four subjects indicated at home only.

Two subjects indicated a combination of home and at work, during work
hours.

One subject indicated a combination of at work, during both business and
non-business hours.

One subject indicated a combination of at work, during non-business hours
and home.

One subject indicated a combination of at home, and at work, during business
and non-business hours.

None indicated that they would be viewing the course while traveling on
business

Survey 2 was distributed the mid-point of the course. Subjects had now all logged
in to the course, had begun viewing the various modules within each course, and were at
various stages of completion.

Survey 3 was distributed the end of period designated for the subjects to complete
the course The first ten survey questions repeated from surveys 1 and 2.

The same ten initial questions were asked on all three surveys. Surveys 2 and 3
contained additional questions based on researcher observations of trends emerging
during the study so that additional perceptions could be gathered based on the subjects'
experiences.

A comparison of subject scores, rankings from surveys 1, 2 and 3, and comments
throughout the study reveal several trends with regard to the subject's perceptions of their
first self-paced online course.

Question 1 asked subjects to indicate which factors they perceived to be a challenge in their ability to participate in a self-paced, online course, selecting as many as applied from the following four choices:

> Sufficient computer skills to participate in the course;
> sufficient self-direction skills to participate in and complete the course;
> absence of face-to-face contact with an instructor or other learners; and
> sufficient support from tech support (help desk), supervisor, and/or the organization.

Although most subjects chose a single barrier, some chose two or three of the factors as areas of challenge. The scores indicate that computer skills and support skills (each with a total of seven) were equally perceived as barriers throughout the course, while absence of face-to-face contact was less of a perceived factor, with a total score of four. However, most subjects, with a total combined score of 25, consistently and overwhelmingly perceived self-direction abilities as the greatest perceived barrier.

Challenges related to self-direction ability were perceived as the greatest barrier to most subjects throughout all three surveys. Most of what is written in educational literature on barriers to new learners focuses on technological challenges and considerations rather than on preparing learners to be self-directed.

Table 6 displays the scores awarded to each factor.

Table 6. Scores of perceived barriers by factor–Surveys 1, 2, 3.

Factor	Survey			Total Score
	1	2	3	
Computer skills	3	3	1	7
Self-direction abilities	8	8	9	25
Absence of face-to-face contact	1	1	2	4
Support	2	3	2	7

Question 2 Results

Question 2 asked subjects to use a scale of 1–4 (4 being the greatest, 1 being the least) to rank the four barriers (computer skills, self-direction skills, absence of face-to-face contact, support) in order of importance to them. Again, in terms of total points awarded and rank resulting from subjects' combined scores, self-direction scored and ranked first in all three surveys (Table 7).

Table 7. Ranking/score of factors (barriers) by perceived degree of challenge.

Factor	Rank/Score by survey			Totals
	1	2	3	
Computer skills	2 (37)	3 (26)	3 (28)	2 (91)
Self-direction abilities	1 (45)	1 (44)	1 (45)	1 (134)
Absence of face-to-face contact	4 (19)	4 (25)	2 (30)	4 (74)
Support	3 (29)	2 (35)	4 (27)	3 (83)

Question 3 asked subjects to identify other factors that might also serve as barriers in addition to those listed above. There were recurring additional factors between the three surveys. Table 8 displays the additional factors for each survey, and on which survey(s) each factor occurred.

Table 8. Occurrence of additional factors across all surveys.

Factor	Occurrence on each survey		
	1	2	3
Time management	–	–	–
Workload	–	–	–
Self-discipline	–	–	
Work/life balance	–	–	
Technical challenges	–	–	
Knowledge retention		–	–
Interface usability		–	–
Mental support	–		
Seasonal events	–		
Interruptions	–		
Course quality		–	
Course relevance			–
Practice opportunities			–

Two factors were identified across all three surveys:

Time management

Workload

Time management is a component of self-direction, consistent with the finding of self-direction abilities (or lack thereof), as the greatest perceived barrier in Questions 1 and 2. Workload is related to time available to take the course, and may or may not be in the control of the participant depending on the situation, workflow and deadlines each subject was required to meet during the timeframe of the study.

These two factors, identified as barriers in addition to the four previously identified barriers, bring the number of consistently identified barriers to six; however, in terms of combined score, only time management ranks with the four previously identified factors. This is consistent with Berge's assertion based on his observations/research, that six to seven factors emerge consistently as barriers to learners (Z, Berge, personal communication, August 15, 2003).

Work/life balance, technical challenges, knowledge retention and interface usability appeared on two of the three surveys, while mental support, seasonal events, interruptions, course quality, course relevance, and practice opportunities were identified on only one survey. These factors scored/ranked as lesser barriers throughout the study, however, they still represent barriers to the individual subjects who identified them.

The factors identified as barriers by the subjects relate back to some of the "Readiness" factors found in Chapnick's (2001) eLearning Readiness Assessment™:

> Time management, workload self-discipline, knowledge retention and mental support may be linked to Psychological Readiness.
> Work/life balance, seasonal events, interruptions and practice opportunities may be linked to Sociological Readiness.
> Technical challenges, interface usability may be linked to Technology Readiness/Equipment Readiness.
> Course quality and course relevance may be linked to Content Readiness.

The factors identified in this study also parallel some, but not all, of the barriers identified by Cho & Berge (2002) in their study on barriers:

> Technical Challenges and Interface Usability may be linked to Technical Expertise/Threatened by technology.
> Time management, Workload, Self-Discipline, Work/Life Balance and Interruptions may be linked to Organizational Change.
> Mental Support, Knowledge Retention, Course Quality and Course Relevance may be linked to Learner Support services.

On survey 1, all thirteen subjects identified eight additional factors, grouped into the following categories: time management, seasonal events, workload (limiting time available to complete course), work/life balance, self-discipline, mental support/motivation, technical challenges and interruptions by supervisor while attempting to view course content. The first six of these eight factors are related to self-direction. Technical challenges can also cut into time available to learn, and interruptions from one's supervisor might also be a challenge to refocus oneself back on to the learning content.

Subjects made the following specific comments about the factors identified in survey 1:

Factor	**Comment**
Time management	"Not enough time within my work day."
	"Time management."
	"Having sufficient contiguous time to go through the course and work on the learned skills,"
	"Allocating uninterrupted time to go through the course."

Factor	Comment
Seasonal Events	"The [sports team] playoff run, [sports team] season that cut into non-work time available for taking the course."
Workload	"Fluctuations in workload." "Projects that need to be completed."
Work/Life Balance	"Not wanting to stay after work to perform activities on hectic days, workout schedule."
Self-Discipline	"Since it is self-directed, I may take my time about doing things." "Commitment to regularly scheduled time to participate in a class and not let daily occurrences get in the way." "Persistency to complete." "Staying focused, interruptions/motivation."
Mental Support/Reinforcement/ motivation	"Mental support and reinforcement along the way." "Immediate feedback."
Technical challenges	"Software working correctly."
Interruptions	"Interruptions."

On survey 2, the subjects repeated five of the factors previously identified in survey 1 (time management, technical challenges, self-discipline, workload, work/life balance), and identified three new factors: course quality, interface usability and knowledge retention. Here is the subject comments associated with each of the factors identified on survey 2:

Factor	Comment
Time management	"Still just the time available to get away from my work and take the online course." "Finding time." "Time constraints." "Finding the time to work on it." "Time."
Technical challenges	"The only other challenge is a stable Internet connection. I was kicked out twice today." "The ability to keep Internet Explorer from "crashing" during the class. This does not happen at any other time."
Self-discipline	"Self-discipline to work on the lesson daily." "Commitment to regularly participating in class." "I am not sure if there is a time limit that I have to complete the course. Also being the PA I am always getting interrupted when I am trying to do the course."
Workload	"Things have been busy, so finding time is most difficult."
Work/life balance	"Busy work schedule, busy social life."
Course quality	"Quality of course."
Interface usability	"Ability to pick up where I left off."
Knowledge retention	"Will I retain the information?"

On survey 3, the subjects repeated factors previously identified in surveys 1 and 2 (time management, interface usability, knowledge retention, self-discipline, workload) and identified two new factors: practice opportunities and course relevance. This would suggest that as subjects' neared completion of the course, they were trying to find ways to

practice and apply what they had learned in real life work assignments. The comments

associated with each of the factors identified on survey 3 are as follows:

Factor	**Comment**
Time management	"Time management." (2) "Time." "Making time for the courses." "Having sufficient time to go through the course and sufficient ways to practice the skills I have learned."
Interface usability	"The ability to pick up where you left off and continue on."
Knowledge retention	"Retaining the information."
Self-discipline	"Online the discipline to complete since I'm working on my own at my own pace and there is not a set schedule to complete." "I always performed better when there were consequences for not learning the material (bad grades). I have no accountability for not completing or learning the material in the course. Yes, I learned new skills and will be able to take new techniques back to my database, but when I got bored with a section or did not feel it was necessary, I just blew through it. I understood what it was trying to teach me, and if I ever come across that issue in my day-to-day Access use, I could go back and focus on it. But, the first time through, I could decide not to pay too much attention."
Workload	"Being the tenant administrator, I deal with the tenants day to day which made it difficult for me to concentrate fully."
Course Relevance	"Course relevance."
Practice Opportunities	"Sufficient ways to practice the skills I have learned."

Question 4 Results

Question 4 asked subjects to add the additional factors to the four previously identified, and re-rank them in relative position to one another. Table 9 displays the results of the three surveys.

Table 9. Comparison of scores/ranks of all factors across all surveys.

Factor	Score (Rank) by survey			Combined score (rank)
	1	2	3	
Self-direction abilities	36 (1)	46 (1)	47 (1)	129 (1)
Support from Help Desk/Supervisor/ organization	25 (2)	35 (2)	27 (4)	87 (2)
Computer skills	21 (3)	28 (4)	28 (3)	77 (3)
Absence of face-to-face contact	18 (5)	27 (5)	31 (2)	76 (4)
Time management	21 (3)	31 (3)	21 (5)	73 (5)
Self-Discipline	8 (6)	7 (7)		15 (6)
Workload	3 (10)	6 (8)		15 (7)
Knowledge Retention		5 (9)	5 (6)	11 (8)
Technical challenges	1 (12)	10 (6)		11 (8)
Interface Usability		4 (11)	2 (9)	11 (8)
Work/Life Balance	2 (11)	5 (9)		7 (11)
Mental Support	5 (7)			5 (12)
Seasonal Events	5 (7)			5 (12)
Interruptions	5 (7)			5 (12)
Course Relevance			4 (8)	4 (15)
Quality of Course		4 (11)		4 (15)
Opportunities for Practice			2 (6)	2 (17)

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A comparison of the combined scores of the factors across all three surveys once again ranked self-direction ability as the greatest perceived barrier.

Consistent with the literature, the four factors (self-direction ability, computer skills, absence of face-to-face contact with instructor and support from the help desk/supervisor/organization) along with time management (a component of self-direction abilities) had the five top combined scores ranging from 129 to 73 points respectively, and appeared on all three surveys.

The next set of factors identified on two of the three surveys (self-discipline, workload, knowledge retention technical challenges, interface usability and work/life balance) have combined scores ranging from 15 to 7 points, a sharp drop from the previous five factors.

Those factors identified on a single survey (mental support, seasonal events, interruptions, course relevance, quality of course and opportunities for practice), were each ranked by single subject, with combined scores in the single digits, with scores from 5 to 2 points.

A combined score of the subjects' scores/rankings the four previously identified factors revealed that self-direction skills scored/ranked first, or the greatest barrier, on all three surveys with a combined score of 134. Computer skills scored and ranked second overall, with rankings of second, third, and third respectively on surveys 1, 2 and 3. Support from help desk/supervisor/organization ranked third overall, with rankings of third, second and fourth respectively on surveys 1, 2 and 3. Absence of face-to-face interaction ranked fourth overall with rankings of fourth, fourth and second respectively on surveys 1, 2 and 3.

Question 5 asked subjects to rate the various factors according to the degree to which they perceived each to be a barrier. Table 5 displays the results and combined score/rank.

On survey 1, when measuring the factors by *degree* rather than relative position to one another, self-direction skills was the greatest perceived barrier to the subjects. Support from help desk/supervisor/organization and computer skills were ranked next, with time management emerging as a greater factor than absence of face-to-face support.

On survey 2, self-direction skills continued to be the greatest perceived barrier, with time management, computer skills, support from help desk, supervisor or organization, and absence of face-to-face contact also ranking high. This suggests that subjects had more difficulty finding the motivation to learn on their own without the pacing of a traditional course. Finding time also became more difficult, as the newness of the online course settled into another task to be completed within the workday.

On survey 3, self-direction skills once again continued to be the greatest perceived barrier. This suggests that subjects continued to have difficulty with self-directed abilities, which did not diminish during the duration of the course. Factors identified (knowledge retention, opportunities for practice and course relevance) suggest that subjects were looking for ways to apply what was learned on the job, but had difficulty doing so, perhaps because their supervisors either weren't aware they were taking the course or were unable to provide on-the-job applications, they couldn't yet see how to apply what they'd learned, or the courses they were taking didn't directly apply to the work activities they were currently performing.

Not surprisingly, subjects perceived self-direction abilities to be the greatest overall barrier in terms of degree across all three surveys, with computer skills ranking second, time management ranking third, and support from help desk/supervisor/ organization, and absence of face-to-face contact ranking two to five respectively. This contrasts to the ranking by relative position, in which support from help desk, supervisor/organization ranked second, computer skills ranked third, absence of face-to-face contact ranked fourth, and time management ranked fifth.

Table 10 displays the scores and rankings for all factors.

Table 10. Comparison of factors by degree to which they are barriers.

Factor	Score (Rank)			Total (Rank)
	Survey			
	1	2	3	
Self-direction Abilities	36 (1)	45 (1)	45 (1)	126 (1)
Computer Skills	21 (3)	26 (3)	26 (2)	73 (2)
Time Management	21 (3)	34 (2)	17 (5)	72 (3)
Support from Help Desk/ Supervisor/Organization	25 (2)	23 (4)	22 (3)	70 (4)
Absence of face-to-face contact	18 (5)	21 (5)	18 (4)	57 (5)
Self-discipline	8 (6)	8 (6)		16 (6)
Knowledge Retention		5 (7)	5 (6)	10 (7)
Interface Usability		4 (9)	4 (7)	8 (8)
Workload	3 (10)	4 (9)		7 (9)
Technical Challenges	1 (12)	5 (7)		6 (10)
Work/Life Balance	2 (11)	4 (9)		6 (10)
Mental Support	5 (7)			5 (12)
Seasonal Events	5 (7)			5 (12)
Interruptions	5 (7)			5 (12)
Opportunities for Practice			4 (7)	4 (15)
Course Relevance			3(9)	3 (16)
Quality of Course		2 (13)		2 (17)

The results of the top six factors as ranked by relative position versus degree are listed below in Table 11:

Table 11. Top six factors (barriers) by relative position vs. by degree.

Rank	By relative position	By degree
1	Self-direction Abilities	Self-direction Abilities
2	Support from Help Desk/Supervisor/Organization	Computer Skills
3	Computer skills	Time management
4	Absence of face-to-face contact	Support from Help Desk/Supervisor/Organization
5	Time management	Absence of face-to-face contact
6	Self-Discipline	Self-Discipline

Questions 6–10 Results

Questions 6 through 10 asked subjects to describe in their own words the specific challenges they encountered. This was an opportunity for subjects to describe their perceptions and experiences to provide more texture to their numerical rankings on the first five questions.

Subjects reported recurring specific challenges related to each factor across all three surveys, suggesting that their perceptions based on their actual experiences did *not* diminish over time, as they grew more accustomed to the user interface and proceeded through the course. Subject comments were categorized according to topic, and are displayed in Table 12.

Table 12. Surveys 1, 2 and 3: Subject responses to specific challenges by category/topic.

Factor	Survey		
	1	2	3
Computer Skills	Technical challenges related to possible hardware/software/plug-in conflicts	Technical challenges related to possible hardware/software/plug-in conflicts	Technical challenges related to possible hardware/software/plug-in conflicts
	Knowing how/where to find the portal page, login correctly, and access the course	Technical challenges related to Web browser (Internet Explorer) and Internet connection	Technical challenges related to Web browser (Internet Explorer) and Internet connection
	Usability issues related to the portal page, course interface	Usability issues related to the portal page, course interface	Course interface
Self-direction Abilities	Time management	Time management	Time management
	Self-Discipline	Self-Discipline	Self-Discipline
	Work/Life Balance	Workload	Work/Life Balance
	Interruptions	Choosing courses to meet on the job performance expectations	Applying new skills on the job
Absence of face-to-face contact	Assistance in resolving technical issues	Assistance in resolving technical issues	Assistance in resolving technical issues
	Accountability	Having a resource to answer questions	Having a resource to answer questions
		Resource to set	Resource to set pace/provide

Factor	Survey		
	1	2	3
		pace/provide focus	focus
			Provide review opportunities
Support	Technical support	Technical support	Interruptions
		Ability to practice/apply skills on the job	Ability to practice/apply skills on the job
Other	Interaction with content	Time management	Time management
	Remembering passwords	Interface usability	Self-direction
		Course quality	
		Work/life balance	

Qualitative comments to questions 6 through 10 appear below.

Question 6 Results

Question 6 asked subjects to describe specific computer challenges. Subjects reported recurring specific challenges related to each factor across all three surveys, suggesting that their perceptions based on their actual experiences did *not* diminish over time, as they grew more accustomed to the user interface and proceeded through the course. Subject comments were categorized according to topic.

During the distribution of survey 1, there seemed to be much confusion over how and where to access courses, what courses were available, and how to use the course interface. The maker of this online learning product does include a tutorial on how to use

it's interface, but it is unknown whether it was available to subjects or recommended for viewing prior to taking a course.

An e-mail communication had been sent to subjects that included a link to the portal page to access courses, however, several subjects contacted the researcher to ask for this information because it was misplaced or accidentally deleted. It is unknown whether these instructions had been distributed to subjects via multiple communication channels, or whether the help desk was aware that subjects would be downloading and installing a plug-in (many corporations have strict policies regarding employee downloading and installing software; in some situations, only the help desk may perform these asks, and some corporations' firewalls are configured to prohibit downloading and installation of software, applets or plug-ins.)

Seven subjects had challenges in the following areas:

Topic	**Comment**
Knowing how/where to find the portal page, login correctly, and access the course*	"Registering for a class. Exploring training on my own." "Remembering my user ID and password!"

[*Note: Although only two subjects used this survey to describe challenges with accessing the portal page and logging on, six of the thirteen subjects contacted the researcher via e-mail when attempting to access the course for the first time to report confusion as to where and how to find the portal page, what user name and password had been assigned to them, and in which courses they were eligible to participate.]

Topic	**Comment**
Usability issues related to the portal page, course interface	"The online course provider did not arrange the classes the same way that our firm had them organized and I was not sure which classes were the same ones that were designated as free by our firm."

Topic	Comment
	"There were times I was not entering the correct thing and I was getting frustrated, because I did not know what to click on."
	"Getting started-also sometimes the screen is not large enough for the icons to show and I have to use the elevator (sic) to move the screen up and down in order to see the icons."
Technical issues related to *Macromedia Shockwave* plug-in, Internet speed, and computer equipment configuration	"Macromedia errors-could not start course."
	"You get a message that you need to download a program called "Shockwave" but I do not know what it is for."
	"My home computer, for some unknown reason, will abruptly stop working and reboot when I come to a certain point in the lesson. This is rather time consuming and annoying and requires a restart of everything. My trend (sic) of thought is lost and I usually need to start the lesson over."

Six of the thirteen subjects reported that they had not yet encountered any specific computer challenges.

The technical challenges persisted throughout the course, and seemed to relate back to incompatibility with system configurations of hardware and software, including web browsers. It is unknown whether system evaluation and testing had been conducted, or whether the Help Desk had been made aware of the requirement for subjects to have the Shockwave plug-in installed and tested on computers prior to training.

The interface usability issues seem to be intrinsic to the interface design rather than the subjects' abilities to use it correctly.

Eight subjects had challenges in the following areas:

Topic	Comment
Technical challenges related to possible hardware/software/plug-in conflicts	"Could not get Shockwave/Macromedia to load correctly. Help desk took too long to respond-decided to do course on a different computer." Hard to find time to do class when software was not working on the day I had planned to take course."
Technical challenges related to Web browser (*Microsoft Internet Explorer*) and Internet connection	"Nothing other than being kicked out of the system twice." "Slow connection at one office." "No issues with support on their end, only issues have been on my end with my computer freezing up time to time." "IE crashing and restarting all over."
Usability issues related to the portal page, course interface	"With the particular course I'm working on does not allow one to make mistake. It just beeps when you click the wrong button; minor." "There were times I thought I was pressing the right key and I was not so I would have the computer do it for me." "In most cases you have to go back and review where I left off."

Five of the thirteen subjects reported that they had not encountered any specific computer challenges.

Technical challenges persisted throughout all three surveys, and seemed to relate back to incompatibility with computer configurations, web browsers and difficulties downloading and installing plug-ins.

On survey 3, three subjects reported usability issues related to the course interface, which suggests the wording of instructions and terminology used may be confusing to some persons, and relates to the instructional design of the courses themselves. The course interface itself does not size to full screen, making it difficult for older viewers to see it properly. The subjects that reported having usability challenges ranged in age between 39-55. This might suggest that older learners may have greater difficulty viewing the interface or have more navigational challenges than those in other age ranges.

Six of the thirteen subjects had challenges in the following areas:

Topic	Comment
Technical challenges related to possible hardware/software/plug-in conflicts	"Couldn't get it to work on work computer—ended up using home computer." "My computer motherboard had to be replaced and all my software had to be reloaded. This was time-consuming (and expensive)."
Technical challenges related to Web browser (*Microsoft Internet Explorer*) and Internet connection	"Slow Internet..."
Course interface	"Understanding some of the terminology in the instructions."

Topic	**Comment**
	"There were times I thought I was clicking on the correct/desired function and I was not. I would ask the computer to do the task for me then I would figure out what I was supposed to do."
	"Just trying to size the screen to the computer screen. The window was not large enough and therefore I had to deal with moving the scroll bar in order to access the areas that the pointer would tell me to point to."

Seven of the thirteen subjects reported that they had not encountered any specific computer challenges.

Question 7 Results

Question 7 asked subjects to describe specific self-direction challenges. On survey 1, time management, self-discipline and balance of work/life responsibilities, all components of self-directed learning, had the greatest number of subject comments, indicating that this is the factor that is the greatest barrier at the beginning of the course, consistent with the subjects' ranking of barriers by degree.

The comments on survey 1 suggest that most subjects were unfamiliar with self-directed learning, which is expected, as this was the first web-based, self-paced computer skills course they had taken, and they may have not been made aware of the differences between online learning of this nature (where they control the pace, and learn when and where they desire) and face-to-face classroom learning (where the instructor controls the pace and learning takes place in a location removed from the work environment).

Eleven subjects had the following four challenges:

Topic	Comment
Interruptions	"My boss was constantly interrupting me."
Time management	"Balancing training time with work time."
	"Fitting it all in with my job duties."
	"Carving out time at work to do it."
	Don't have time to chase down the error with Macromedia this morning."
	"My biggest challenge with regards to time was/is committing to regularly scheduled time to participate in a class and not let daily occurrences get in the way."
	"It's mostly centered around time management."
Self-discipline	"Getting started."
	"It is very difficult to get started and to continue once started. It is purely self-incentive that can easily be overcome by numerous factors; family, other projects, social engagements, surveys, etc."
	"Discipline to work on the lesson each day."
	"The patience to figure the above issue out. The guilt of doing it when there are always work-related tasks to perform, not pressure applied by my supervisor, but that which I apply to myself."
Work/life balance	"I have a 1.5 hour commute each way with family responsibilities. Time is a premium and the course is a lower priority to most family issues."

Only two subjects responded that they had not encountered specific self-direction challenges.

On survey 2, time management and self-discipline continued to receive the greatest number of comments. This is consistent with the subjects' scoring of self-direction abilities as the greatest barrier in survey 2, both in terms of its relative position to other barriers and the degree to which it is a barrier.

The comments related to workload suggest that at this point, subjects are trying to balance work and learning, with the recognition that, in a corporate environment, work deadlines must take precedence.

Twelve subjects had the following challenges:

Topic	**Comment**
Time management	"Time has been my biggest obstacle so far."
	"Unexpected work tasks that fill time allotted to perform online course."
	"Setting aside time while doing my daily work and dealing with working from home and things that 'pop-up.'"
	"It is difficult to find the time."
	"Dedicating the regular time."
Self-discipline	"Need to force myself."
Workload	"I am the [job title] and have five different contracts up for renewal."
	Being the [job title], I am dealing with tenants and contractors on a daily basis."
	"Working a full day and not having time in the evening."
Choosing courses to meet on the job performance expectations	"Trying to figure out which software programs are most beneficial to me at this time."

Only one participant responded that they had not encountered specific self-direction challenges.

On survey 3, time management and self-discipline continued to receive the greatest number of comments consistently throughout all three surveys. This, coupled with one subject's comment that s/he was not yet able to determine how to apply learned skills during the job would suggest that, at the time of the study, the organization had not yet determined the guidelines for online learning, to address such issues as workload relief, expectations for business vs. non-business hours and performance expectations.

All thirteen subjects reported specific self-direction challenges:

Topic	**Comment**
Time management	"Setting aside time/being able to do training courses in addition to my job duties."
	"Time management was my biggest challenge, just trying to get myself to complete the work."
	"As stated before, setting aside time while doing my daily work and dealing with working from home and things that 'pop-up'."
	"Didn't have time to finish [the course] yet."
	"I have no time, that is a problem!"
	"Dedicating the time to keep the flow of the course going."
Self-discipline	"I've been putting it off until the last minute."
	"Remembering that the lessons remain to be finished."
	"Just forcing myself to log in and do the course."
	"It takes an enormous amount of self discipline to sit down at the computer to complete the course."

Topic	Comment
Work/life balance	"There is always something to do after work. Whether it was the [sports team] playoffs, a dinner date, drinks with friends, a [sports team] basketball game, it was tough to find time. Those events are more important to me than completing a voluntary online course. My workday is tightly scheduled as well. I do not have Internet at home, otherwise I would have had some time to work on it then."
	"I spent over 3 hours/day commuting to and from the office. I get home after 7:30 and need to spend time with the family."
Ability to practice/apply skills on the job	"Utilizing the learned skills during the job."

<u>Question 8 Results</u>

Question 8 asked subjects to describe specific challenges they encountered related to the absence of face-to-face contact.

On survey 1, this area had the least number of specific challenges, perhaps because subjects understood that the course was self-paced, and there would be no instructor/peer interaction. The instructor's role is perceived as that of a motivator for accountability or to coordinate resolution of technical issues.

Four subjects documented the following challenges:

Topic	Comment
Accountability	"Accountability."
Assistance in resolving technical issues	"Would maybe be able to resolve tech error more quickly in a traditional setting."

One subject noted that, as an experienced telecommuter, the absence of face-to-face contact is less of an issue: "I have grown accustomed to working on my own and as such I have learned to become self-supportive and do not require someone to assist me in person, but remotely instead."

Nine of the thirteen subjects responded that they had not encountered specific challenges stemming from the absence of face-to-face interaction with an instructor or other peers.

On survey 2, six of the thirteen subjects (as compared to three in survey 1) responded that they had not encountered specific challenges stemming from the absence of face-to-face interaction with an instructor or other peers.

The comments that subjects did provide related to having a resource to answer questions about the content, the user interface of the courseware, resolve technical issues, or to provide contact that would provide motivational support.

Seven subjects documented the following challenges:

Topic	**Comment**
Having a resource to answer questions	"If there are ever any specific questions I have regarding what I've learned, there's no one there to answer them."
	"Someone to tell me the differences between versions."
	"Having to figure out what the instructions are trying to relay to me."
	"Perhaps technical issue could have been resolved if an instructor was present."
	"There were times I thought I was pressing the right key and I was not. I could not ask the computer what I was doing wrong."

Topic	Comment
Assistance in resolving technical issues	"Would maybe be able to resolve tech error more quickly in a traditional setting." "IE crashing and restarting all over."
Resource to set pace/provide focus	"Have to remember to do the work" "In most cases I have to go back and review where I left off."

On survey 3, five of the thirteen subjects responded that they had not encountered specific challenges stemming from the absence of face-to-face interaction with an instructor or other peers.

One subject reported not being able to go back over an area s/he is unclear on as a specific challenge; however, the online course is composed of modules and topics within each module that allows the learner to review as often as desired. So it is possible that subjects had not received or had not completed an orientation to the course interface prior to engaging in the course.

Seven subjects documented the following challenges:

Topic	Comment
Having a resource to answer questions	"No feedback." "There were times I thought I was clicking on the correct/desired function and I was not. I would ask the computer to do the task for me then I would figure out what I was suppose (sic) to do." "Sometimes it is easier to ask for the answer than search for the answer yourself."
Assistance in resolving technical issues	"Couldn't ask person about tech difficulties."

Topic	Comment
Resource to set pace/provide focus	"Face-to-face would help me to focus on a time slot to do the course."
	"Don't have the consequences of not keeping up with the class."
Provide review opportunities	"No opportunities to go back over an area I'm unclear on."

Question 9 Results

Question 9 asked subjects to describe specific challenges they encountered related to support from help desk, supervisor, or the organization as a whole.

On survey 1, eleven subjects responded that they had not encountered specific challenges. The minimal number of responses to this question is consistent with the high score awarded by subjects in the pre-course skills assessment where support from help desk/supervisor/organization was perceived to be very positive by subjects. Two subjects had the following challenge:

Topic	Comment
Technical support	"Downloads and signing up."
	"There were no support options available."

On survey 2, eleven subjects had no specific support challenges. This suggests that as they progressed through the course, many of the support needs were associated with beginning their courses and not recurrent. One subject continued to experience computer equipment-related technical issues throughout the course, however.

Two subjects had the following challenges:

Topic	Comment
Technical support	"Still have not resolved Shockwave issue on computer."
Ability to practice/apply skills on the job	"No real world applications to work through."

On survey 3, again, the challenge of finding opportunities to use skills learned on the job suggests that the supervisor and subject have not achieved a mutual understanding of performance expectations for applying new skills.

Two subjects had the following challenges:

Topic	Comment
Interruptions	"The only problem I have is the disturbance issue."
Ability to practice/apply skills on the job	"I have not had any "real life" opportunity to use the skills I learned."

The challenge of coping with interruptions is intrinsic to online learning at one's desk during work hours, as it is assumed that one may be interrupted by others regarding business matters. This is a particular problem for employees working in common areas, without a door to close, or other means of alerting co-workers that they do not wish to be interrupted. This might explain why several subjects indicated that they would be viewing the course from home or at work during non-work hours.

Eleven subjects had no specific support challenges.

Question 10 asked subjects to describe other factors they encountered. On survey 1, subjects identified two additional items: Interaction with content and remembering passwords.

Interaction is a term that may be perceived differently by each individual learner. It is unknown what expectations were communicated to subjects regarding the level of interaction, and differing learning styles may view interactivity in different ways.

As previously mentioned, passwords were an issue for a number of subjects, and this is understandable, as an employee may have different passwords to log on to their individual workstation, the network, and each application they open.

One subject expressed gratitude for the availability of online learning: "The best part of this is that it is offered free from the company and that is thanks to [the person in the organization responsible for procuring and providing online courses for employees]."

Topic	**Comment**
Interaction with content	"The training is not interactive, it is shown and automated, [I] don't learn like that and this can decrease the effectiveness of training*.*"
Remembering passwords	"Remembering my login password! (It's not funny as I have different password requirements for different programs (as well as different usernames.)"

On survey 2, subjects' additional comments were related to the previously identified barriers.

Topic	**Comment**
Time management	"Finding/making time."

Topic	Comment
	"Time is the commodity that is hard to find."
Interface usability	"Understanding all of the instructions."
	"Frustration on wasting time to get to where I left off!"
Course quality	"N/a-though I can imagine if the quality of the course was poor I would not be motivated to complete course."
Work/life balance	"[Sports team] advanced far into the baseball playoffs, which has not allowed me to stay after work and do the online course."

On survey 3, subjects' additional comments were related to previously identified items.

Topic	Comment
Time management	"Dedicating the time."
Self-direction	"Just self-direction."

Additional Questions-Survey 2

On survey 1, although only two subjects used the survey to describe challenges with accessing the portal page and logging on, six of the thirteen subjects contacted the researcher via e-mail when attempting to access the course for the first time to report confusion as to where and how to find the portal page, what user name and password had been assigned to them, and in which courses they were eligible to participate. In order to

determine how much this impacted the subjects' perception of their first online course experience, the following questions were asked:

When asked, "Did you have difficulty logging on and/or accessing your course?" six of thirteen subjects (almost half) experienced some sort of difficulty with initial log on/access.

When asked. "What was the issue/resolution?" subjects had the following responses, indicating that they had difficulties finding the link to the portal page, and login in for the first time due to confusion over the process for obtaining their usernames and passwords:

> "One time I forgot the link, couldn't find the site from a different pc."
> "I wasn't sure which classes were paid for by my company's contract with the vendor and didn't want to cost them a large amount of money by accident. I sent an email to the learning and development department and was told that all *Microsoft* classes were paid for."
> "I forgot to 'bookmark' the page and then had to view past e-mails to determine the link."
> "Couldn't find sign on page on [the e-learning reseller's website] or a link to [the corporation's] portal page. When I found it; saved it as a favorite."
> "The first time was difficult. Tech Support set me straight."

When asked, "What might make the first time log on/access process more efficient in the future?" the subjects offered suggestions on how to simplify the process, ranging from e-mail reminders to a direct link to the sign on page:

> "An e-mail reminding you that you have an online course that you are not finished yet would be helpful."
> "Intro on different versions of program."

"If the vendor had a listing of what classes were offered under my company's contract."

"Book marking the page from the beginning."

"Provide students with link that takes one directly to sign on page."

When asked, "What do you like *best* about taking a course online?" subjects cited the flexibility of choosing when it was most convenient for them to learn, and the ability to review content as often as desired:

"I can do it whenever I want."

"Self-paced allows me to pick up whenever I want to/I don't get overwhelmed."

"It's on my time."

"No need to leave home/office."

"The time to go back over your work without holding up other students in a classroom."

"I am really interested in learning more about the topics that I am reviewing. I am learning new tips and tricks. My prior knowledge of *Access* was all self-taught."

"The fact that it is self-paced so you can work on your own terms."

"Can do it whenever I have time-squeezing into workday rather than scheduling several hours out of 'office'."

"I like the fact that you can do it at your own pace."

"I can go over a lesson as many times as I want to have a clear understanding."

"I am able to log on at my convenience."

"The ability to pick it up at any time."

"I can work at my own pace and go back as often as I need to understand. This is very helpful in later chapters where I need to visit a section again."

When asked, "What do you like *least* about taking a course online?" subjects cited reminders to keep on pace, time management, technical problems, minimal interaction with other learners, and interruptions:

"There is no email reminder."

"Not being able to ask specific questions."

"No interaction."

"Trying to remember, make time."

"A couple of times I have not been able to access the course due to Internet problems."

"Finding time to take it."

"The inability to have someone next to you to 'fire off' questions and learn form."

"Technical problems."

"Having the time to do it."

"Finding the time to do this on my own."

"Being interrupted."

"No specific commitment. Some class interaction would be beneficial in appropriating time."

"[Not] meeting new people."

When asked, "What has been the most unexpected experience/aspect of taking an online course?" subjects cited the time management challenges, but also expressed enjoyment with learning this way:

"That I would actually learn something new."

"It's more difficult than I expected, but it's a good thing because I enjoy the challenge."

"Being able to go through it so quickly."

"Being able to stop and start the course when I want to, this has been a great tool that allows me to work on the course as I have time."

"How much knowledge about the software I was able to teach myself previously through trial and error."

"The fact that you have to learn on your own and don't have anyone next to you that you can talk with about the course."

"Technical problems."

"I have not had any."

"Having to complete it."

"It is very informative."

"I thought I had more time available."

"Realizing how much I didn't know."

When asked, "What skills have you learned that you've been able to apply on-the-job?" subject responses ranged from "none yet" to being able to produce complex diagrams for a work assignment. This range of comments reflects the fact that subjects selected courses based on interest or according to perceived skill gaps:

"None that I have had the opportunity to apply yet." *(PowerPoint 2002)*

"All of them for the most part." *(MS Publisher 2002)*

"Basic programming." *(Access)*

"Better use of *Excel*." *(Excel)*

"I have been able to use *Visio* to produce floor drawings with evacuation routes for the fire department." *(Visio)*

"I have a better understanding of how the database that I had created." with my self-taught knowledge works and ways that I can improve it." *(Access)*

"Learning 'shortcuts' have been very helpful so far." *(Excel 2002)*

"Not yet." *(Visio)*

"I learned a couple of shortcuts in *Word*." *(Word 2000)*

"Improving my spreadsheet skills." *(Excel 2000)*

"*PowerPoint*, I have a better understanding." *(PowerPoint)*

"None." *(Front Page 2002)*

"The class is an advanced *Excel* course, so I've been able to use some of the shortcuts." *(Excel 2000)*

As survey 3 was distributed and completed at the end of the designated time period for the course, several additional questions were once again asked to gather as much qualitative data as possible about participant perceptions.

In addition to the open-ended questions asked on survey 2, subjects were asked to indicate their level of completion on their first course/explanation of their choice, what advice they had for other first time online learners. Whether they would enroll in another self-paced online course, and their reasons to support their answer.

When asked the question, "Which best describes your progress with the course at this point?" six subjects (almost half) responded that they had viewed all the modules within their courses, five subjects responded that hey had viewed some percentage of the modules within their courses, and two subjects responded that they viewed only the modules that pertained to the skills they needed/wanted to learn.

Three of the subjects provided explanations of their choices, their comments reflecting the option of viewing modules according to learner needs/wants rather than in a linear fashion:

> "I've viewed the modules that I was interested in based on the order that they are listed."
> "Viewed some of the modules and will pursue further but I wanted to concentrate on the course that I was taking."
> "Selected the most pertinent courses to maximize information download."

When asked "What do you like *best* about taking a course online?" subjects cited flexibility and the ability to work at one's own pace as biggest advantages:

> "No pressure."

"Working on it as it best fits into my schedule."

"My time."

"Did it when it was convenient."

"Getting to work at my own pace."

"Whenever I had a big chunk of time, I could immerse myself into the material at my own pace, fast or slow on any individual lesson. I could blow through topics I knew and spend more time on topics I wasn't as comfortable with. I also like the presentation of the course. The arrows showing me how to navigate through the software were very helpful."

"Could take anytime."

"That I could work at my own pace. If something did not make sense I could go back."

"I can work at my own pace and go over what I don't understand as many times as I need."

"Able to look at things at my own pace."

"I can review concepts until I understand them."

"Working at my own speed."

When asked, "What do you like *least* about taking a course online?" subjects cited time management, lack of hard copy documentation, self-discipline, isolation, and interaction with other peers among the challenges:

"No deadline."

"Finding time in my work day to fit it in."

"No interaction/feedback."

"Remembering to take it."

"Trying to work on the course and still deal with the interruption for the job."

"Trying to find time to do it."

"The inability to have someone next to you to 'fire off' questions and learn from

"No hard copy documentation to take away."

"That I had to force myself to make time to do work on the course."

"Although it is not an important factor and when this question is being asked, I would have to say that it is somewhat lonely."

"Always being disturbed by day to day activity."

"No structured time for taking the course so other things got in the way."

"Not being able to spend more time."

When asked, "What has been the most unexpected experience/aspect of taking an online course?" subjects cited that they learned more than they thought they would, that content could be reviewed as often as necessary to reinforce the lesson, and how difficult it was to have the self-discipline to complete the course.

"Actually learned something."

"Surprisingly, I learned a lot more than I thought I would."

"How fast I can get through the material."

"How easy the course was with no one giving instruction."

"I actually learned something with minimal effort once I sat down to do it. I am anxious to review the areas I need to in this lesson and then start the next level class."

"The fact that you have to learn on your own and don't have anyone next to you that you can talk with about the course."

"I like the fact that you can go back into any lesson ad redo it if you did not understand it the first time and figure it out for yourself."

"That I would have been able to complete it and now I look forward to doing this again."

"I didn't realize how hard it was to actually sit down and take the course."

"It seemed slow. There was no way to speed the process. You read the words and then moved the mouse. There was no way to expedite the process even when you know exactly what to do."

"It was very easy to get immersed in the information."

When asked, "What have you learned that you've been able to apply on-the-job?" almost all subjects reported increased skills and understanding of the applications relating to their courses:

"*PowerPoint* for web presentation."

"All of them, for the most part *(MS Publisher)*."

"Basic programming-script on *MS Front Page*."

"*Excel*."

"Being able to work with the building drawings and make changes."

"Set aside some time. If you're going to do it while at work, it would help to come in early rather than try to stay late, cause when you're tired after a day of work it's a lot easier to tell yourself you'll do it tomorrow and go home."

"Shortcuts that I have been able to incorporate into my routine and overall understanding of the program better."

"Haven't applied them yet."

"I learned different ways to perform the same functions. Time-saving keystrokes or clicks."

"Learn more of *Excel* commands and spreadsheets."

"*PowerPoint*."

"None."

"The spreadsheet skills are very valuable."

When asked, "Would you enroll in another online course? Why or why not?" all thirteen subjects unanimously indicated that they *would* enroll in another online course. They cited reasons such as convenience, speed, an easy way to gain basic skills and ability to repeat lessons as benefits of self-paced online learning:

"Easy way to add new skills to my resume."

"I believe one should *always* keep on top of the game. Online courses are convenient and easy to use."

"Faster taking an online course."

"Convenient. Priced right."

"Because I was able to learn at a comfortable pace as well as stay on one topic until I understood it without having to hurry up to stay with the class."

"Online courses are efficient and convenient. I didn't have to carry the *Access* manual around with me like I used to do. The material was prioritized. I can login from anywhere. I can go back to the same topics anytime I want to."

"I think this is going to be the way of the future and while it takes some adjusting to get used to, you should start now so it is that much easier to do once it becomes mandatory and there is no other way to take such classes."

"Easy way to gain basic skills."

"I like the fact that you can go back into any lesson ad redo it if you did not understand it the first time and figure it out for yourself."

"I enjoy learning. I am 52 years old and this is as good a way as any to expand my knowledge."

"I would because it is very informative."

"It seems the best way to get an introduction on a topic. I would not use the course for detailed knowledge."

When asked, "What advice do you have for other first time online learners?" subjects offered strategies including setting specific times and sticking to them, learning at home to minimize interruptions, and managing time:

"Make up your own schedule and follow it."

"Just to make yourself do it, even if it doesn't seem high on your priority list, and take notes for future reference."

"Time management is important."

"Block out time slots in your calendar."

"Try to make sure you have the time so you are not rushed and try to be in an area where you can work without interruption."

"Set aside the same day and time every day, that way it becomes part of your routine. Treat it like a meeting that is not something you can skip and only take part when you feel like it."

"Schedule time on calendar."

"Great way to learn at your own pace."

"It is not for everyone but if you take it and complete it you'll want to do it again."

"DO IT AT HOME."

"Be patient."

"Set aside the time and stick to it."

"This is a great way to learn at your own pace."

Unanticipated Findings

Much of the literature on barriers to online learners indicates that technical challenges could present a primary barrier to the novice online learner. It could be expected that the subject comments would primarily focus on technical issues, and there is evidence in the findings to support this. However, what is unanticipated is the frequency and consistency of scores/subject comments with regard to self-direction and time management challenges. Subject scores and comments strongly reinforce their frustrations with trying to balance workload and learning without possessing sufficient skills in this area or guidance from the organization as to how to do so.

Summary

Pre/Post self-assessment

Subjects' combined scores in the pre-course assessment were all higher (indicating a greater perceived degree of confidence in their skills and abilities) than on

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the post-course assessment. In fact, the lowest score on the pre-course assessment was higher than the highest score on the post-assessment.

In four of the thirteen items (general computing skills, web browser skills, ability to learn in various settings and supervisor support) subjects' combined scores/rankings were higher in the post-course survey, suggesting an improved perception of their abilities after completing their first online course.

In eight of the thirteen items rated (reading skills, support received from the organization such as help desk/management, absence of face-to-face contact/interaction with instructor, absence of face-to-face contact/interaction with other peers, ability to work on one's own with minimal supervision, ability to proactively seek help when needed, self-direction abilities, and time management skills), subjects' combined scores/rankings were lower on the post-assessment that on the pre-assessment, suggesting that their perceived abilities had been tempered by their experiences with their first course.

In one area, confidence in computing skills, subjects' combined ranking remained the same, although the combined score was lower on the post-assessment.

Surveys 1, 2 and 3

Data analyzed from all three surveys indicated that subjects overwhelmingly perceived self-direction abilities as the greatest barrier they faced consistently throughout the course, whether in relative position to other barriers or by degree to which it was a barrier.

The four factors identified in literature as barriers to new online learners (computer skills, self-direction abilities, absence of face-to-face contact, and support

from help desk/supervisor/organization) consistently scored/ranked as the greatest perceived barriers.

Additional barriers identified by subjects include time management, workload, self-discipline, work/life balance, technical challenges, knowledge retention, interface usability, mental support, seasonal events, interruptions, course quality, course relevance and practice opportunities. Of these, only time management was rated in the same range as the four previously identified barriers in terms of overall score/ranking.

A comparison of subject comments reporting on specific challenges encountered on the three surveys revealed that the challenges they identified persisted throughout the course rather than diminishing.

The addition of combined scores ranking the factors by relative position and degree revealed that self-direction abilities ranked highest (255), followed by support from help desk/supervisor/organization (157), computer skills (150), time management (145), and absence of face-to-face contact (133).

This chapter has presented the plan of the research study, research population, instrumentation, elements/research questions and findings of the pre/post-course self-assessments and surveys 1, 2 and 3. In this study, subject scores demonstrated a consistent and significant perception of self-direction abilities (or lack thereof) to be the most important barrier to novice learners engaged in self-paced, web-based, asynchronous learning in a corporate environment.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

<u>Introduction</u>

This chapter covers the conclusions based on the study findings, strengths, weaknesses and limitations of the study, implications and recommendations for the field of Distance Education, and recommendations for further research.

As corporations continue to migrate to online learning, understanding the learners' perspectives of the challenges, or barriers, they face is critical to designing training programs and processes that assist employees in becoming successful online learners.

<u>Conclusions based on the Results</u>

The chief reasons for this study were to discover what employees as novice online learners think about and experience in their first online course, and the ways in which their actual experience differs from expectations. How does it compare to the instructor led, face-to-face classroom experience? What factors, as identified in the literature, might prove to be frustrations, and which might be real barriers? Do learner perceptions of these barriers change or diminish, as they become accustomed to this different way of learning?

The guiding questions for this study were:

1. How do learners perceive and rank four factors (computer skills, self-direction, the absence of face-to-face contact/physical classroom and organizational support of online learning) as barriers prior to engaging in their first online course?

1. What other factors do the subjects in this study identify as possible barriers?

1. How do the subjects rank these factors during, and at the conclusion of the course?

1. Do subjects' perceptions of these barriers change in importance or diminish at the conclusion of the course, as they become accustomed to self-paced, asynchronous learning?

1. Perception/ranking of four factors as barriers prior to engaging in their first online course

Subjects completed a pre-course self-assessment, rating their level of confidence in thirteen areas, relating back to the four barriers identified in the literature.

Subject scores indicate optimistic perceptions of their abilities to succeed as self-paced learners. The areas in which subjects rated the least confidence in their abilities were general computing skills, time management, ability to learn in various settings, supervisor support, the ability to proactively seek help and the ability to work on their own with minimal supervision.

Three of these six factors are related to self-direction abilities (time management, ability to learn in various settings, and ability to work on one's own with minimal supervision); setting the stage for the challenges they faced throughout the study. This is corroborated in their scores on survey 1, question 2, where they ranked self-direction skills as the greatest perceived barrier at the beginning of the course, followed by computer skills, support from help desk/supervisor/organization, and absence of face-to-face contact as the least perceived barrier.

The subjects' comments about specific challenges encountered in the area of self-direction skills on survey 1 showed that that most subjects were unfamiliar with self-directed learning and they may have not been made aware of the differences between self-paced online learning and instructor-led (and paced) classroom learning.

This raises questions about the type of preparation received by the study subjects and other learners to assist them in learning how to learn online, including what to expect from the experience. This leads to the conclusion that learners need some form of formal preparation to introduce them to online learning, with instruction on techniques to develop their abilities as self-directed learners. It also leads to the conclusion that organizations are often so focused on the technology and business processes that they may overlook the change management efforts required to transition employees from paced, face-to-face learning to self-paced online learning.

2. Other factors identified by subjects as possible barriers

The following additional factors were identified as barriers by subjects in the study (in order of importance based on subject scores): time management, workload, self-discipline, work/life balance, technical challenges, knowledge retention, interface usability, mental support, seasonal events, interruptions, course quality, course relevance and practice opportunities.

Of these additional barriers, subjects consistently ranked time management with the four previously identified barriers as a significant challenge. Subjects also identified time management and workload on all three surveys.

It can be concluded that, for novice online learners, learning how to manage time needed for learning within the workday with the demands of workload is a continual challenge that may not be within the learner's control to resolve.

3. Subject ranking of factors during, and at the conclusion of the course

Whether ranked by relative position to one another or by degree, the same five factors (self-direction abilities, computer skills, time management, support from help desk/supervisor/organization, and absence of face-to-face contact) are the top-ranked barriers.

It can be concluded that the four previously identified barriers (self-direction abilities, computer skills, support from help desk/supervisor/organization, absence of face-to-face contact), plus the addition of two additionally identified factors (time management and self-discipline) are the six factors that pose the greatest barriers to learners engaged in their first self-paced online course.

4. Subjects' perceptions of barriers in terms of change in importance/diminishment at the conclusion of the course

As noted above, self-direction skills scored and ranked first on all surveys in terms of relative position to other factors, and by degree to which factors were perceived as barriers.

On all three surveys, subjects identified specific challenges related to computer skills, self-direction abilities, absence of face-to-face contact and support from help

desk/supervisor/organization. In each area, one or more specific challenges were identified

Subject comments indicate that specific challenges persisted throughout the course and did *not* diminish. This would lead to the conclusion that if not addressed and resolved, these issues become an ongoing barrier to learners:

Computer skills

Technical issues related to hardware/software/plug-ins and web browsers/Internet speed; and

usability of portal page, user interface

Self-direction abilities

Time management, and

self-discipline

Absence of face-to-face contact

Assistance in resolving technical issues;

having a resource to ask questions; and

resource to set pace/provide focus.

Support from Help Desk/Supervisor/Organization

Technical support to quickly resolve compluter related issues; and

opportunities to practice and apply learned skills on the job.

<u>Strengths, Weaknesses and Limitations of the Study</u>

This study contributes to the body of knowledge related to corporate online learning by providing insight into the way employees, as novice online learners, perceive the challenges, or barriers they face before, during and after their first self-paced online learning experience.

As such, it offers a rare look from a research perspective into the corporate training environment, and the similarities/differences of this environment as compared with educational, government, and other learning settings.

The study's strengths are that it captures the way in which the learner him/herself views the barriers as opposed to the way that educators perceive what the barriers might be for learners. The qualitative data gathered adds texture to the scores and rankings of various factors to provide the thoughts and feelings behind the scores and rankings provided by study subjects.

While recognizing the need for corporate training departments to provide for alternative learning methods to the organization, it also sheds light on the importance of the change management considerations, support systems and business processes (such as a comprehensive communication plan) that must be in place to minimize or eliminate the barriers that can cause learners, and in turn, corporate learning initiatives, to fail.

It also uncovers the importance of purposefully preparing learners to learn how to become self-directed learners, as this is not a skill set they currently possess, but which is a critical success factor for the learner. Trainees' learning styles may also be a critical success factor.

This study captures only a portion of the entire process involved in the introduction of self-paced online learning, and does not cover whether, and how, the barriers experienced were ultimately addressed and resolved. Nor is it known what type of instructions or other communications were received by study subjects and other learners to explain the processes and procedures related to selecting and enrolling in the courses available, or the organization's point of view (if communicated) as to expectations about learning during work hours and relationship to workload.

As compared to the large sample sizes associated with other quantitative studies on barriers to distance learning (Cho & Berge, 2002, Berge & Muilenberg, 2003 and Conrad, 2002), other studies had larger sample sizes than this study (n=13), yet this study yielded a substantial amount of qualitative data. However, caution is recommended with regard to generalizing the results of this study because of the small sample size.

The focus of this study was limited to perceived barriers; the data gathered in response to the additional questions added to surveys 2 and 3 barely scratches the surface of learner perceptions into what they like best/least about self-paced online learning, and the advice they offer to other learners based on their experiences. Gathering data on perceived benefits and best practices might add additional insights into possible resolutions to barriers.

Implications and Recommendations for Distance Education practice

This study contributes to the field of distance education by investigating the perceptions and experiences of corporate employees prior to, during, and at the conclusion of their first self-paced, asynchronous, web-based course to discover which

factor(s) present the greatest barrier(s) to success in the online environment. It presents a number of factors to be recognized and taken into consideration when planning and implementing a corporate online learning program to increase the successful transition from instructor led face-to-face training to self-paced, self-directed learning.

This study will be valuable to those who work in the training and development field in corporate, academic or government environments who have recently implemented or who are contemplating implementing self-paced online learning in the near future as a part of their learning strategy. It will provide insights into the novice online learner's real life experiences and validate the factors that they view as barriers in the online environment.

Ultimately, the findings may be valuable to program and course designers and those responsible for preparing and supporting novice online learners in the workplace so that appropriate instructional and other strategies may be devised to prepare learners for a smoother transition into the online learning environment.

Identifying the areas of greatest challenge for learners provides an opportunity for organizations to identify whether these barriers either currently exist, or may arise, and to determine how these may be minimized or eliminated. The findings suggest the following recommendations to assist corporate training departments in their efforts to support learners.

Computer skills/Technical challenges/Support from Help Desk

Ensuring that the technical environment is as user-friendly as possible will reduce the barriers encountered by novice learners. If they have problems with the technology,

their perception is that the quality of the course content and the courseware is less than optimal, and they will be reluctant to use it. Once this perception is developed, it is difficult to change. Recommendations to reduce barriers in this area include the following:

> Compare and test computer equipment (configuration plug-ins, Internet connection, download time for courseware pages) with courseware specifications to confirm that equipment will perform as expected, and determine if equipment upgrades/replacements are needed.
>
> Test courseware with users of varying skill levels to determine if interface usability issues (navigation, clarity of instructions, broken links, etc.) exist, so these can be resolved.
>
> Involve help desk and other support resources in developing and maintaining a support matrix for providing technical, functional, learner support assistance.
>
> Communicate to learners whom to call for technical, functional, learner support assistance.

Self-direction abilities

The single most important critical success factor identified in this study is the need for organizations to develop self-directed learning skills for employees. This can assist not only in learning situations, but also in on-the-job productivity, enabling employees to better manage their time, balance workload with learning, and to proactively ask for help when needed, all providing the discipline to become successful self-directed learners—and employees.

> Provide instruction to employees to help them learn self-direction skills.

Communicate the differences between instructor-led face-to-face training and self-paced online learning so employees know the similarities, differences, and their role/responsibilities in the online environment.

Monitor employee challenges/progress with self-direction and develop a support network to assist learners (possibly composed of employees who have already taken several courses online and who can provide coping strategies and best practices).

Communicate coping strategies and best practices in self-directed learning to employees.

Absence of face-to-face contact

As identified by study subjects, the functions performed by an instructor (answering questions, setting the pace of the course, providing focus by reminding learners to complete lessons, providing review/practice opportunities, providing accountability, and assistance in resolving technical issues) are still needed in the online environment. Planning and communicating how and where these functions will be provided can ease learner anxieties and provide the support needed to spend time on the learning content itself.

Determine what instructor functions are needed, what resources will provide this type of support, and how this will be communicated to learners so that they know where to go for assistance when needed. Provide e-learning mentors if needed.

If courses are required to meet certification requirements, legal requirements or on-the-job performance guidelines, and a timeline including deadlines for commencing/completion of studies must be set and communicated to employees. E-mail reminders or other methods may be used to remind employees of approaching deadlines.

Since self-discipline has been found to be a significant challenge for new learners, setting start/end dates for completion of courses with frequent reminders from both the training department and the employee's supervisor might encourage employees to complete coursework in a timely manner.

Supervisor support

In the past, the Supervisor's role in corporate training was to send the employee to training classes under the supervision of training professionals, with the expectation that the employee would return as an expert in whatever topic s/he had received instruction. This is changing, and the Supervisor is now expected to partner with training professionals to extend the learning and coaching process, with the expectation that training exposes the employee to new skills, and that practice and on-the-job application are needed to develop competence and expertise.

Involve supervisors in the learning process, educating them on what their role is and what is expected of them to reinforce the skills learned by employees while engaged in learning activities.

Supervisors can provide support by providing work assignments that encourage employees to practice newly acquired skills on-the-job.

Supervisors can monitor employee progress/completion of courses, and provide a portion of the assistance usually provided by the instructor, including moral support and encouragement.

Organizational support

Decisions need to be made at the organizational level as to how, where, and how much time employees will devote to learning. They need to determine and communicate corporate expectations to employees as the whether they are expected/encouraged to

learn during business hours, non-business hours, or some combination thereof. If learning

activities take place during business hours, guidelines should be developed for adjusting

workload to accommodate learning activities.

> Develop and publish corporate learning policies/guidelines and support
> resources in multiple locations, including the corporate Intranet and the
> learning portal itself so that employees know what is expected and where to
> go to obtain whatever type(s) of assistance needed.
> Provide options for employees who work in common areas, or who need
> uninterrupted time/space for learning, so that they may engage in learning
> activities in a location that it free of interruptions.

Ultimately, the best-designed learning program can fail for the wrong reasons if

all the key details are not identified and successfully addressed. By taking a systems

approach to online learning and learner preparation, an organization can examine all the

components that may affect the training and learning processes to create a learning

environment that is supportive of both the learner's and organization's needs.

Recommendations for Further Research

This study offered a brief glimpse into the world of corporate training and how

online learning is being implemented in this type of setting. As compared to academic

settings, far less research has been conducted with regard to the corporate setting, most

likely because using distance learning methods is in earlier stages than in academic or

government settings.

The types of studies that might prove valuable to expanding the body of

knowledge regarding online learning would include studies aimed at:

Capturing and studying learner perceptions of barriers in their own words, collected after the first, and subsequent, online courses in which they engage to determine if their perceptions change as they become more familiar with the self-paced online environment. These would be useful for identifying trends and for comparison with help desk and other issues logs to develop best practices for resolution.

Discovering more about either/both learner and/or organizational strategies to overcome barriers faced by novice online learners. This would be useful to discover if, and how learners and organizations have employed coping mechanisms or minimized/eliminated barriers.

Measuring the effectiveness of learner preparation programs (teaching self-direction skills) as pre-work and their effect on minimizing barriers to effective self-paced online learning.

Identifying and documenting best practices with regard to organizational change management efforts to provide learners with the skills needed to have an optimal first experience with self-paced online learning.

Measuring the effect of online self-paced learning and correlation to on-the-job performance.

Lastly, studies should be considered that could help educators gain a greater appreciation and understanding of the learner's perceptions and experiences. These will be valuable in designing learning that is intuitive, engaging, and helps the learner to learn with maximum effectiveness within minimum timeframes to apply their learning on–the-job to increase personal and corporate productivity.

Summary

      As the corporate landscape evolves, online learning is quickly gaining in popularity and is changing how and when the traditional classroom is used to train employees. Preparing corporate learners to engage in self-paced online learning is a key success factor at the individual, group and enterprise levels within the organization. The goal of the current study was to understand how learners perceive and come to terms with the barriers they encounter in online learning, and to confirm the relative importance of the different factors they view as barriers. The *order of importance perceived by the learners* was used as the basis for prioritizing these factors.

      It is hoped that this research will provide a rich picture of the real life experiences of learners as they journey through their first online experience. Through analysis of these real life experiences, recommendations have been made on how to prepare other future learners for online learning so that these barriers are managed, reduced or eliminated prior to the learner's entry into online learning. Other researchers and organizations may gain insights from the study that will help them prepare instructional and other strategies to prepare future learners for a smooth transition into online learning in the workplace.

      By understanding the barriers that learners face and adopting strategies to minimize/eliminate these barriers, corporate training departments can provide value by guiding the workforce toward new ways of thinking and learning. This can produce a more flexible, adaptable workforce for whom learning is a lifelong experience rather than an event, and that recognizes the power and value of self-directed learning. In the words of advice offered by one study subject to other new learners:

"I think this [online learning] is going to be the way of the future and while it takes some adjusting to get used to, you should start now so it is that much easier to do once it becomes mandatory and there is no other way to take such classes. This is a great way to learn at your own pace."

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APPENDICES

<u>Appendix A:</u> e-mail Solicitation Letter to possible subjects

Dear :

I am a Master's student at Athabasca University in Alberta, Canada. One of my primary research interests is in how employees in the workplace perceive the challenges that they may encounter in their first online learning experience.

As part of my Master's thesis for my Master of Distance Education degree, I am beginning a research study to find out how new online learners perceive the barriers they may encounter. I would like to have your participation in the study because your participation will potentially help corporate training organizations and online learning developers to better understand learner perspectives about online learning. This way, they can reduce/eliminate barriers that may impede a smooth transition to online learning.

Participation in this study involves submitting a survey (answers to a few specific questions) via e-mail 3 times during the duration of your course (before the course begins, midway through the course, and at the end of the course). I expect that this would take approximately _ to _ hour of your time for each survey submission. In addition, I may possibly follow up on these surveys via e-mail or phone calls, if preferred, to clarify information or ask for additional details on your written responses, which could take another 1/2-1 hour or so of your time.

If you decide to participate, I will be happy to share my findings with you. Specific information you share with me will not be shared with others. The research report and findings will not use individual names or specific identifiers. A final report based on the data collected and analyzed will be given to your employer; however, any information or specific comments that may reveal your identity will be removed in order to protect your anonymity and the anonymity of your survey responses.

For this study, I am looking for subjects who are new to online learning (i.e. this is your first online, self-paced or e-instructor-led online course). Please let me know as soon as possible if you can participate. If you agree to participate, I will send you an informed consent form and the initial set of questions I would like you to respond to.

I appreciate your consideration of this request to participate in this study! I hope that the information I gather will assist future learners and researchers in preparing successful online learning experiences for new and experienced online learners in the workplace!

Sincerely,

Norene H. Trondsen

Description of study/consent form for subjects

Informed Consent for Employee Participation in New Online Learner Research Study

You are invited to participate in a research study to explore new online learners' perceptions about the possible barriers to successfully participating in online training courses. The researcher, Norene Trondsen, wants to assess how new online learners in the workplace perceive various factors that can serve as challenges, or barriers, to participating in self-paced online courses. The results of this study will be used to improve the planning and design/development of online learning strategies for corporate training programs. This research is being conducted as part of the researcher's thesis for the Master of Distance Education degree.

Duration and Procedures

If you agree to participate in this study do the following during the online course you are taking:

> Three times during the course (beginning, middle and end) you will be asked to respond, by e-mail, to some questions about your perceptions about the challenges you encounter while taking an online course. The estimated time commitment for this activity is _-1 hour in total.
> In addition, the researcher may follow up, via e-mail or phone, on the answers to your questions, in order to gain additional or more specific information on your responses to the survey questions. The estimated time commitment for possible follow up activities is _1/2-1 hour total.

Confidentiality and Risks

Although your name will be on your e-mail responses, your name will be changed to an alias on the final report for purposes of confidentiality, which will be maintained to the best of the researcher's ability throughout the study and in all subsequent publications of the data. The information (e-mails and transcripts of phone calls or in-person interviews) gained through this study will possibly be seen by the researcher's thesis advisor, although the names will have been changed to aliases so that any other person viewing the information will not know the identities of the study subjects. The researcher will work diligently to protect your identity, but almost all research involves at least minimal risk to subjects. In this study, your employer may participate in recruiting subjects and know the identity of those participating; however, all information that may reveal your identity and the identity of your comments will be removed in order to protect your confidentiality.

All information will be kept on the researcher's computer. This computer is in the researcher's office and is not used by others.

A final report based on the data collected and analyzed will be given to your employer; however, any information or specific comments that may reveal the identity of any participant will be removed in order to protect the confidentiality of your identity.

Refusal Rights

Please understand that your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time. If you choose not to participate in this research study, you will not be penalized in any way. If you consent to this research study by signing the form below, you are still free to withdraw your consent and discontinue your participation in the study at any time without prejudice or penalty of any kind.

Copy of Consent Form

An additional signed copy of this consent form will be provided to you upon your request for your records (as instructed below, you will sign and fax this original form to the researcher, keeping the original form. The researcher will keep the faxed copy of your consent form on file).

Contact Information and Rights

If you have any questions now or in the future regarding this research study, your participation, or how the data will be collected and reported, please do not hesitate to contact the researcher:

Norene H. Trondsen
Masters student, Athabasca University
Phone: 630-362-4546
E-Mail: trondsen@wideopenwest.com

Thank you for your time and consideration!

Signed Consent

I understand the above information and voluntarily consent to participate in the New Online Learner Perceptions study.

Print Name _____

Signature _____

Date _____

Please fax this form with your signature to:

Norene H. Trondsen
Fax #: 630-717-9380

Thanks for your help!

Description of study/consent form for company whose employees are participating in study

Informed Consent for Employer Participation in New Online Learner Research Study

You are invited to participate in a research study to explore new online learners' perceptions about the possible barriers to successfully participating in online training courses. The researcher, Norene Trondsen, wants to assess how new online learners in the workplace perceive various factors that can serve as challenges, or barriers, to participating in self-paced online courses. The results of this study will be used to improve the planning and design/development of online learning strategies for corporate training programs. This research is being conducted as part of the researcher's thesis for the Master of Distance Education degree at Athabasca University in Alberta, Canada.

Duration and Procedures

If you agree to allow your employees to participate in this study they will do the following during the duration of the study:

> Three times during the course (beginning, middle and end) the study subjects will be asked to respond, by e-mail, to some questions about their personal perceptions about the challenges they encounter while taking an online course. The estimated time commitment for this activity is _-1 hour in total.
> In addition, the researcher will follow up, via e-mail or phone, on the answers to their questions, in order to gain additional or more specific information. The estimated time commitment for follow up activities is _-1 hour total.

Confidentiality and Risks

Although study subjects' names will be on their e-mail responses, they will be changed to an alias on the final report for purposes of confidentiality, which will be maintained to the best of the researcher's ability throughout the study and in all subsequent publications of the data. The information (e-mails and transcripts of phone calls or in-person interviews) gained through this study will possibly be seen by the researcher's thesis advisor, although the names will have been changed to aliases so that any other person viewing the information will not know the identities of the study subjects. The researcher will work diligently to protect the identity of study subjects, but almost all research involves at least minimal risk to subjects.

In this study, as the subjects' employer, you may participate in recruiting subjects and know the identity of those participating; however, all information that may reveal their identities and the identity of their comments will be removed in order to protect their confidentiality.

All information will be kept on the researcher's computer. This computer is in the researcher's office and is not used by others.

Refusal Rights

Please understand that your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time. If you choose not to participate in this research study, you will not be penalized in any way. If you consent to this research study by signing the form below, you are still free to withdraw your consent and discontinue your participation in the study at any time without prejudice or penalty of any kind.

Copy of Consent Form

An additional signed copy of this consent form will be provided to you upon your request for your records. The researcher will keep the faxed copy of your consent form on file.

Contact Information and Rights

If you have any questions now or in the future regarding this research study, your participation, or how the data will be collected and reported, please do not hesitate to contact the researcher:

Norene H. Trondsen
Masters student, Athabasca University
Phone: 630-362-4546
E-Mail: trondsen@wideopenwest.com

Thank you for your time and consideration!

Signed Consent

I understand the above information and voluntarily consent to allow employees from my organization to participate in the New Online Learner Perceptions study.

Print Name _____

Signature _____

Date _____

Please fax this form with your signature to:

Norene H. Trondsen
Fax #: 630-717-9380

Thanks for your help!

Thank you for agreeing to participate in the New Online Learner Perceptions study! Participation involves submitting a survey three times during your first online course. I will likely follow up with you on these journals either via e-mail or phone.

This e-mail contains questions for first survey

Directions for Survey #1:

Please answer the following questions and submit to me via e-mail, (trondsen@wideopenwest.com) no later than___

You may select your answers by highlighting and either underlining or bolding the selected text, or placing an X beside your choice. In some cases, you may wish to add an explanation to the answer (s) you have selected. Please feel free to add an explanation so that the researcher may gain additional insight into the reasons behind your answers.

If you have any questions about the study or this survey, please don't hesitate to contact me!

Thanks again,
Norene H. Trondsen

New Online Learner Perceptions Survey #1

First, some information about you:

Your name:
Your e-mail address:
Best phone number(s) to reach you to follow up on answers to this e-mail:
Best times to reach you:
Your age:
Your occupation:

Course Name:
Date you are starting this course:
Anticipated completion date:

Reason for taking this course: (please select one)
    Gain new skills
    Improve/expand current skills
    Other (Feel free to provide an explanation)

Is this your first online course?

    Yes

    No

From where are you planning to take this course? (Please choose *all* that apply)

    A. At work, during work hours

    B. At work, during non-work hours (before work, after work, during lunch)

    C. At home

    D. While traveling on business

    E. Other (Feel free to provide an explanation)

Self Assessment and Perceptions

1. How would you rate your computing skills in general? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

2. How would you rate your ability to use a web browser to access the Internet and navigate forward/back between various web pages, turn sound on/off and bookmark frequently visited URLs? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

3. How would you rate your confidence in your computing skills to successfully complete an online course? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

4. How would you rate your reading skills? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

5. How would you rate your Time Management skills (I.e. your ability to set goals and prioritize daily tasks and	Low	Low-Medium	Medium	Medium-High	High

workload in order to spend the time necessary to complete an online course)? *(Please choose one)*					

(Feel free to add an explanation)

6. How would you rate your ability to learn in a variety of different settings?	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

7. How would you rate your confidence in your self-direction skills to successfully complete an online course? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

8. How would you rate your comfort level with taking a course without the supervision or interaction with an instructor? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

9. How would you rate your comfort level in participating in a course where there is minimal or no interaction with other classmates? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

10. How would you rate your comfort level with working <u>on your own, at your own pace, setting your own schedule/ deadlines</u> to complete an online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

11. How would you rate your ability to proactively ask for help (technical or otherwise) if	Low	Low-Medium	Medium	Medium-High	High

needed throughout the course? *(Please choose one*					

(Feel free to add an explanation)

12. How would you rate your supervisor's support of your participation in an online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

13. How would you rate your confidence in your organization's ability to provide the support needed so that you may successfully participate in your first online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

Questions for Survey #1

1. As you begin your first online course, which of the following factors do you perceive to be a challenge in your ability to participate in a self-paced, online course? *(Please choose all that apply)*

    Sufficient computer skills to successfully participate in the course
    Sufficient self-direction skills to participate and complete the course
    Absence of face-to-face contact with an instructor or other learners
    Sufficient support from tech support/supervisor/the organization

2. Using a scale of 1 to 4, with *1 being the most important and 4 being the least important*, rank the following factors in the order that you perceive they will impact your ability to successfully participate in the online course.

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization

3. What other factors do you perceive as challenges or concerns to you while taking your first online course?
(Please describe them here)

4. Please add the factors you listed in Question 3 to the list below and re-rank them in order of importance to you, with 1 being the most important:

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization
___*Add Additional factor(s) here*

5. Please add any additional factors listed in Question 3 and rate each factor in terms of your personal perception of how each of these affects you at this time:

Computer/technical challenges	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Self-direction/Time management challenges	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Absence of face-to-face contact with instructor/classmates	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Technical/Supervisor/ Organization support	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time

6. What specific *technical/computer* challenges have you encountered at the beginning of this online course?
(Please describe them here)

7. What specific *self-direction/time management* challenges have you encountered at the beginning of this online course?
(Please describe them here)

8. What specific *challenges* have you encountered due to the absence of face-to-face to face contact/interaction with instructor/other learners at the beginning of this online course?
(Please describe them here)

9. What specific *support* challenges have you encountered at the beginning of this online course?
(Please describe them here)

10. What specific *other* challenges have you encountered at the start of this course?
(Please describe them here)

Thanks for completing survey #1!

Please attach and send to me via e-mail (trondsen@wideopenwest.com) by _____

If you have difficulties returning this via e-mail, you may fax this survey to me at 630-717-9380.

Thank you for continuing your participation in the New Online Learner Perceptions study! As you may recall, participation involves submitting a survey three times during your first online course. I will likely follow up with you on these journals either via e-mail or phone.

This e-mail contains questions for the **second** survey

Directions for Survey #2:

Please answer the following questions and submit to me via e-mail, (trondsen@wideopenwest.com) no later than___

You may select your answers by highlighting and either underlining or bolding the selected text, or placing an X beside your choice. In some cases, you may wish to add an explanation to the answer (s) you have selected. Please feel free to add an explanation so that the researcher may gain additional insight into the reasons behind your answers.

If you have any questions about the study or this survey, please don't hesitate to contact me!

Thanks again,
Norene H. Trondsen

New Online Learner Perceptions Survey #2

First, some information about you:

Your name:
Your e-mail address:
Best phone number(s) to reach you to follow up on answers to this e-mail:
Best times to reach you:

Questions for Survey #2

1. Now that your first online course is underway, what factors do you perceive to be a challenge in your ability to participate in a self-paced, online course?
(Please choose all that apply)

    Sufficient computer skills to successfully participate in the course
    Sufficient self-direction skills to participate and complete the course
    Absence of face to face contact with an instructor or other learners
    Sufficient support from tech support/supervisor/the organization

2. Using a scale of 1 to 4, with *1 being the most important and 4 being the least important*, rank the following factors in the order that you perceive they will impact your ability to successfully participate in the online course.

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization

3. What other factors do you perceive as challenges or concerns to you now that you've begun working your way through your first online course?
(Please describe them here)

5. Please add the factors you listed in Question 3 to the list below and re-rank them in order of importance to you, with 1 being the most important:

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization
___*Add Additional factor here*
___*Add Additional factor here*

5. Please add any additional factors listed in Question 3 and rate each factor in terms of your personal perception of how each of these affects you at this time:

Computer/technical challenges	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Self-direction/Time management challenges	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Absence of face to face contact with instructor/classmates	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Technical/Supervisor/ Organization support	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time

Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time

6. What specific *technical/computer* challenges have you encountered as you are progressing through your online course?
(Please describe them here)

7. What specific *self-direction/time management* challenges have you encountered as you are progressing through your online course?
(Please describe them here)

8. What specific *challenges* have you encountered due to the absence of face to face to face contact/interaction with instructor/other learners as you are progressing through this online course?
(Please describe them here)

9. What specific *support* challenges have you encountered as you are progressing through this online course?
(Please describe them here)

10. What specific *other* challenges have you encountered as you are progressing through this online course?
(Please describe them here)

11. Did you have difficulty or confusion over where to go to access and log on to your online course?
(Please choose one)
Yes   No
 If yes, please describe what happened and how it was resolved

What do you think could make this process more efficient in the future?

12. What have you liked *best* so far about taking a self-paced online course?
(Please describe it here)

13. What have you liked *least* so far about taking a self-paced online course?
(Please describe it here)

14. What has been the most unexpected aspect or experience you've had related to taking your self-paced, online course?
(Please describe it here)

15 Which skills learned in the course thus far have you been able to apply on the job?
(Please describe them here)

Thanks for completing survey #2!

Please attach and send to me via e-mail (trondsen@wideopenwest.com) by _____

If you have difficulties returning this via e-mail, you may fax this survey to me at 630-717-9380

Thank you for continuing your participation in the New Online Learner Perceptions study! As you may recall, participation involves submitting a survey three times during your first online course. I will likely follow up with you on these journals either via e-mail or phone.

This e-mail contains questions for the **third** and final survey

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Directions for Survey #3:

Please answer the following questions and submit to me via e-mail, (trondsen@wideopenwest.com) no later than___

You may select your answers by highlighting and either underlining or bolding the selected text, or placing an X beside your choice. In some cases, you may wish to add an explanation to the answer (s) you have selected. Please feel free to add an explanation so that the researcher may gain additional insight into the reasons behind your answers.

If you have any questions about the study or this survey, please don't hesitate to contact me!

Thanks again,
Norene H. Trondsen

New Online Learner Perceptions Survey #3

First, some information about you:

Your name:
Your e-mail address:
Best phone number(s) to reach you to follow up on answers to this e-mail:
Best times to reach you:

Post Class Self Assessment and Perceptions
Now that you've experienced your online course…

1. How would you rate your computing skills in general? (*Please choose one*)	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

2. How would you rate your ability to use a web browser to	Low	Low-Medium	Medium	Medium-High	High

access the Internet and navigate forward/back between various web pages, turn sound on/off and bookmark frequently visited URLs? *(Please choose one)*					

(Feel free to add an explanation)

3. How would you rate your confidence in your computing skills to successfully complete an online course? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

4. How would you rate your reading skills? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

5. How would you rate your Time Management skills (I.e. your ability to set goals and prioritize daily tasks and workload in order to spend the time necessary to complete an online course)? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

6. How would you rate your ability to learn in a variety of different settings?	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

7. How would you rate your confidence in your self-direction skills to successfully complete an online course? *(Please choose one)*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

8. How would you rate your comfort level with taking a course without the supervision or interaction with an	Low	Low-Medium	Medium	Medium-High	High

instructor? *(Please choose one*					
(Feel free to add an explanation)

9. How would you rate your comfort level in participating in a course where there is minimal or no interaction with other classmates? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

10. How would you rate your comfort level with working on your own, at your own pace, setting your own schedule/ deadlines to complete an online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

11. How would you rate your ability to proactively ask for help (technical or otherwise) if needed throughout the course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

12. How would you rate your supervisor's support of your participation in an online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

13. How would you rate your confidence in your organization's ability to provide the support needed so that you may successfully participate in your first online course? *(Please choose one*	Low	Low-Medium	Medium	Medium-High	High

(Feel free to add an explanation)

Questions for Survey #3

Which best describes your progress with the course at this point?
(Please choose one)

      Viewed all the modules (tutorials) in the course
      Viewed some of the modules in the course
      Viewed only the modules that pertained to the skills I wanted/needed to learn
      Other (please explain)
(Please add an explanation of the choice you selected)

1. Now that you have experienced your first online course, what factors do you perceive to be a challenge in your ability to participate in a self-paced, online course?
(Please choose all that apply)

    Sufficient computer skills to successfully participate in the course
    Sufficient self-direction skills to participate and complete the course
    Absence of face to face contact with an instructor or other learners
    Sufficient support from tech support/supervisor/the organization

2. Using a scale of 1 to 4, with *1 being the most important and 4 being the least important*, rank the following factors in the order that you perceive impacted your ability to successfully participate in the online course.

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization

3. What other factors do you perceive as challenges or concerns to you now that you've begun working your way through your first online course?
(Please describe them here)

6. Please add the factors you listed in Question 3 to the list below and re-rank them in order of importance to you, with 1 being the most important:

___Computer skills to successfully participate in the course
___Self-direction skills to participate and complete the course
___Absence of face-to-face contact with an instructor or other learners
___Support from tech support/supervisor/organization
___*Add Additional factor here*
___*Add Additional factor here*

5. Please add any additional factors listed in Question 3 and rate each factor in terms of your personal perception of how each of these affects you at this time:

Computer/technical challenges	Not a factor at	Slight factor at	Somewhat of a factor	Important factor at	Very important

	this time	this time	at this time	this time	factor at this time
Self-direction/Time management challenges	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Absence of face to face contact with instructor/classmates	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Technical/Supervisor/ Organization support	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time
Add your additional factor here	Not a factor at this time	Slight factor at this time	Somewhat of a factor at this time	Important factor at this time	Very important factor at this time

6. What specific *technical/computer* challenges have you encountered now that you have completed your online course?
(Please describe them here)

7. What specific *self-direction/time management* challenges have you encountered now that you have completed your online course?
(Please describe them here)

8. What specific *challenges* have you encountered due to the absence of face to face to face contact/interaction with instructor/other learners now that you have completed your online course?
(Please describe them here)

9. What specific *support* challenges have you encountered now that you have completed your online course?
(Please describe them here)

10. What specific *other* challenges have you encountered now that you have completed your online course?
(Please describe them here)

11. Which best describes your interaction with the course content

(Please choose one)
  Viewed all the modules in the course
  Viewed some of the modules in the course
  Viewed only the modules that pertained to the skills I wanted/needed to learn
(Please feel free to add an explanation of the choice you selected)

12. What did you like *best* about taking a self-paced online course?

13. What did you like *least* about taking a self-paced online course?

14. What has been the most unexpected aspect or experience you've had related to taking your self-paced, online course?

15. What advice do you have for future new learners who are about to take a self-paced online course?

16. Which skills learned in the course have you been able to apply on the job?

17. Now that you have completed you first online course, would you take another?
(Please choose one)
  Yes
  No
Why or why not?
(Please explain)

18. May I contact you over the next several months to ask some additional questions if needed in order to clarify your answers or gain additional details or to better understand your written responses to the survey questions you've answered throughout this study? Please understand that your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time.
(Please choose one)
  Yes
  No

19. Would you like to receive a copy of the final report prepared from data gathered throughout this study?
(Please choose one)
  Yes (*add e-mail address to which report should be sent:*_____)
  No

Thanks for completing survey #3!

Please attach and send to me via e-mail (trondsen@wideopenwest.com) by _____

If you have difficulties returning this via e-mail, you may fax this survey to me at 630-717-9380.

Dear:

I want to thank you for taking the time to participate in the New Online Learner study. The information I collected will be valuable toward the research I am conducting in conjunction with my Master's thesis. As mentioned at the outset of this study, your identity and the information you have provided that might reveal your identity will be kept confidential. The results of this study will be used to assist your organization, other organizations and other researchers in their efforts to provide future learners an optimal transition to online learning.

Do you want a copy of the final report when it is done? If so, please contact me via e-mail (trondsen@wideopenwest.com) or phone (630) 362-4546.

Once again, thank you very much!

Sincerely,

Norene H. Trondsen

Thank you letter to company who provided subjects for the study

Dear:

I want to thank you and your organization for taking your and your employees' time to participate in the New Online Learner study. The information I collected will be valuable toward the research I am conducting in conjunction with my Master's thesis. As mentioned at the outset of this study, the identity and the information provided by study subjects that might reveal their identity will be kept confidential. The results of this study will be used to assist your organization, other organizations and other researchers in their efforts to provide future learners an optimal transition to online learning.

I will be providing you with a copy of the final report when it is done.

If you have any questions about this study, please contact me via e-mail (trondsen@wideopenwest.com) or phone (630) 362-4546.

Once again, thank you very much!

Sincerely,

Norene H. Trondsen

<u>Appendix I:</u> Sample questions that may be asked of subjects as follow up

As stated in Appendix A: e-mail solicitation letter to possible subjects and Appendix B: Description of study/consent form for subjects, the researcher may follow up with subjects for the following purposes:

> To clarify incomplete or ambiguous written responses to open ended survey questions
> To obtain answers closed ended survey questions that are either incomplete or left blank
> To obtain more detail about a written response that reveals a new barrier, perception or insight not previously identified

The researcher would contact the subject via e-mail or phone if the subject prefers. In either case, the subject's response will be recorded in written form.

> In order to clarify incomplete or ambiguous responses to open ended survey questions, the researcher would cite the question and response that are the subject of the follow up, and ask the following question: Could you please tell me more about this and possibly provide a specific example that would help me to understand your thoughts or perception about this question?

> In order to obtain answers to closed ended survey questions that are either incomplete or left blank, the researcher would cite the question and response that are the subject of the follow up ask the following questions: Can I can provide further explanation of the particular survey item, *and,* Would you be willing to provide an answer to this survey question?

> In order to obtain more detail about a written response that reveals a new barrier, perception or insight not previously identified, the researcher would cite the written comment and ask the following question: Can you tell me more about this, perhaps providing some specific details or examples of when this occurred, so that I may document it as accurately as possible?

If subjects in the proposed study are unable to finish the course or complete and submit all three surveys, the following follow up questions may be asked:

> If you were unable to finish the course, what factor(s) were present to prevent you from doing so?
> Are one or more of the four barriers cited in this study (computer skills, self-direction/time management, absence of face-to-face contact/classroom environment, organizational support of online learning) a factor preventing you from finishing the course?
> If you were unable to finish one or more surveys for this study, can you identify in writing what factor(s) were present to prevent you from doing so?