CHAPTER II: LITERATURE REVIEW

"…A complex web of social, economic, technical, organizational, and individual

factors interact to influence which technologies are adopted."

(Segal, 1994)

Chapter Overview

Chapter II presents research relevant to this study. The review of literature includes the introduction, research related to this study, a summary, gaps in the research, and where this study fits into the literature.

Introduction

The literature review includes research on diffusion and adoption theory, distance learning, e-learning, change, and learning styles as they relate to this study.

Review of Literature Related to This Study

Research Related to Diffusion and Adoption

In 1903 Tarde concluded that, "the adoption of new ideas follows a normal, S-shaped distribution over time"…and suggest[s] that "the more cosmopolitan the innovator is, the earlier the acceptance of the new idea will be" (Rogers, 1983, pp. 41-42). Tarde's later research found that "individuals tend to imitate the behavior of opinion leaders" (Rogers, 1983, pp. 41-42). Tarde's findings are important to this study, for within most organizations there are individuals that are influenced by opinion leaders. By imposing their values, norms, and opinions on the individuals within their scope of influence, opinion leaders have been shown to affect the individual's decision to adopt. Opinion leaders play a significant role in the process of the diffusion and adoption of new ideas by the influence they exert.

Wilkening (1952) was the first researcher to use a social-psychological approach to determine the relationship among attitudes, values, group attachments, and innovations. Many of Wilkening's influences (individual attitudes, values, and group attachment) may have had an impact on my study participants by influencing their willingness to try or eventually adopt SkillSoft®.

Lionberger (1960), a rural sociological researcher, traced the importance of community norms, traditionalism/modernism, social status, and opinion leadership in the informal

transmission of new farm ideas via word-of-mouth. These findings are important because they validated Tarde's research on the influence of group and opinion leaders on an individual's attitudes and beliefs.

Rogers summarized the findings of hundreds of previous studies to identify the critical elements of the diffusion and adoption process as, "the innovation itself, its communication from one individual to another, in a social system, over time" (Rogers, 1983, p. 11). Rogers and Shoemaker (1971) defined the diffusion process as

> the human interaction in which a person communicates a new idea to another person, group of individuals, or an organization. This process is conducted over time and at different degrees of interest and understanding by the individuals involved in the process. A social system is a group of individuals who may be functionally different but who are involved in similar problem-solving behavior. The term over time is described as the length of time required for an individual to pass through the adoption process. (pp. 18-28)

Rogers (1983, p. 21) defined adoption as planned or spontaneous, quick or slow, complete or incomplete, but most importantly a process, not a single, unitary event." Adoption has also been defined as the continued use of the innovation in the future.

Rogers (1995, p. 37) identified five categories of adopters: "innovators, early adopters, early majority, late majority, and laggards." Adoption categories are better understood by realizing that each category of adopter represents a group of new users who, for personal, organizational, or technological reasons, chose to adopt (use an innovation on a routine basis) or reject the innovation at different times in the product's life cycle. Some individuals became aware of the innovation and purchased it before others did. If a person purchases a new product early in the adoption process, then that person could be classified as an innovator. Someone else who waited to purchase until the end of product's life cycle could be classified as a late majority or a laggard. These examples were provided so that the reader is better able to understand the categories of adopters. I used these categories of adopters to help identify where each study participant was in the adoption process.

Parhasarathy, Rittenburg, and Ball (1995, pp. 35-47) indicated that, "previous studies have noted that the innovative decision-making models have been useful…as they traced the process of the individual as he goes through a decision whether to adopt an innovation." The innovative

decision-making model provided me a basis for a better understanding of how the study participants described the process by which they decided whether or not to use SkillSoft®.

Pereira's (2002, p. 45) "Adoption-Centered Approach to Understanding the Adoption of Innovations" offered a new way to understand how the adoption process occurs and to explore the subprocesses that affected individual's perceptions and attitudes. Pereira's model was more of a sense-making model, which dealt with the adopter's framework, as compared to Rogers' innovative decision-making model, which charts the progress of activities along a continuum to adoption. Pereira's sense-making model was more inclined to explain the adopter's mental processes at each stage in the adoption process. Pereira's adoption-centered approach considered the stimuli in the environment in which the innovation was being introduced that might encourage, assist, and provide the information and motivation necessary for the individual to consider adoption. This model provided me further insights into understanding the adoption of innovations.

Rudd (2002, p. 8) used the diffusion of innovations model as a lens through which to better view, understand, and describe how a new idea entered a social system (the healthcare system). By using the lens of that model, Rudd was able to describe how the idea spread, identify influences within the healthcare system that affected adoption, and define how adoption occurred within that system. Rudd's study was important because she demonstrated how the diffusion of innovation models could be useful in viewing and understanding adoption within a system.

Literature Related to the Influences Affecting Diffusion and Adoption

Researchers, including Rogers (1983), Hall and Loucks (1979), Hough (1975), Schein (1985), and Weinstein (1981, 1998) have studied the personal, organizational, and technological influences on the individual that can affect the diffusion and adoption process.

Individual Influences

"Uncertainty implies a lack of predictability, structure, and information." (Rogers 1983, p. 6) Information about the innovation can help reduce uncertainty and encourage adoption. Knowledge of the individual's uncertainty helped me to better understand how fear and uncertainty affect an individual's decision to adopt or reject a new distance learning program such as SkillSoft®. Sherry determined that, "adoption can be affected by individual factors such as motivation, need for control, sense of self-efficacy, attitudes and user perceptions of the innovation" (Sherry, 1998, p 130). Rogers theorized that, "if an end-user's relative advantage,

compatibility, complexity, trialability, and observability issues with an innovation are not satisfied, the end-user is less likely to adopt the innovation or idea" (Rogers, 1983, p. 6).

Hall and Loucks (1979) studied an individual's willingness and capacity for change using a concern-based model. They presented individuals' concerns on a developmental continuum called the Stages of Concern. The Stages of Concern model begins with an individual's awareness and progresses to the need for more information, the desire to understand the personal effect of the innovation, individual management concerns, and consideration of the innovation's consequences. Additional studies on the concerned–based model were conducted by Alfieri, (1997), and Mertz (1996) helped me understand how organizational issues can influence the individual adoption process.

Research by Frambach (1993, pp. 22-41) indicated that, "diffusion research holds individuals responsible solely for their actions and not the system of which they are part of…so it may well be that the 'system' is at fault for not providing an innovation that is more appropriate to the individual's needs so the individual may be justified in rejecting the new product." The implication of Frambach's finding was that if an innovation did not fit with the individual's needs then there might be failure to adopt. This factor could have been an influence on whether study participants adopted or rejected SkillSoft®.

A study by McDonald and Frost (1998, pp. 233) concluded that, "diffusion depends upon the influence of individuals within companies championing…diffusion…. An important source of that influence is peer groups and wider social pressures to adopt." Included in my analysis was a determination of whether senior management in the military organization supported and continued to champion the use of SkillSoft®. This determination helped me assess how this influence may have affected the adoption process.

Research by Franks (1996, p. 63) indicated that, "long term commitment to distance education is closely tied to a respondent's attitude towards distance learning." Lowry (1996) identified other personal influences on adoption, which included age, gender, and educational level of the user, as well as user perceptions, attitudes, opinions, and motivation.

Organizational Influences

Each organization has a culture with norms and values. Clearly, the military organization under study has its own culture, but what is that culture? Culture, as defined by Schein (1992), is:

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the accumulated shared learning of a given group covering behavioral, emotional and cognitive elements of the group members' total psychological functioning. For shared learning to occur there must be a history of shared experience, which in turn implies some stability of membership in the group. Given such stability and shared history, the human needs for parsimony, consistency and meaning will cause the various shared elements to form into patterns that eventually can be called a culture. (p. 10)

Culture formation, according to Schein (1992, p. 11), "is always a matter of striving towards patterning and integration in group learning happening at the behavioral as well as the conceptual internal level. The deeper levels of learning that get us to the essence of culture must be thought of as concept or as shared basic assumptions." Schein stresses the importance of considering "the dynamics of culture if we're going to look at change, because understanding change in the functioning of organizations is relevant today . . . and an organization's resistance to change in the face of environmental pressure and uncertainty is a phenomenon for which many interpretations and solutions can be offered" (Schein, 1992, p. 5).

The organizational climate or culture has been shown to be "a contributing influence in hindering or encouraging the adoption process" (Rogers and Agarwala-Rogers, 1976, pp. 73-74). Further, Schein's (1985) research found that

many organizations seek to devise new strategies or interventions that make sense in marketing or implementing new products, services, procedures or innovations . . . however, the organization may not implement those strategies because they require new ways of working (accomplishing tasks) or new values that are way out of line with the organization's prior assumptions or ways of doing business. (p. 36)

Since SkillSoft® appeared to be a change in how training was provided to the individual (e.g., changing the method of training from going offsite to attend traditional classroom instruction to taking a class at the individual's workstation or home computer). As a result, the individual had to learn how to use new software and follow new procedures.

Frambach (1993, pp. 22-41) concluded that, "The probability of an organization adopting an innovation sooner decreases with its degree of formalization and/or degree of centralization." His findings are relevant to this study because the military organization have a hierarchical (formal) structure and formal communication channels. Part of my research included understanding the organization, its environment, and how its members perceived the organization.

The research of Segrest, Domke-Damonte, Miles, & Anthony (1998, pp. 425-429) identified a "social context, a social influence, that should be considered when implementing any kind of new technology change." Their research suggested that an organization's cultural value, beliefs, and norms should be considered when planning for any organizational change, such as the introduction of a new e-learning product. Social context was significant to this study because the implementation of SkillSoft® marked the first time that all the employees were encouraged to use an e-learning product. Further research by Daghfocus, Petrof, & Pons (1999, pp. 314-331) suggested that, "an individual's occasion to adopt a new product reflects his or her level of attachment to or rejection of the values of a system." In his 1996 survey on barriers to diffusion and adoption of online teaching, Berge found that, "organizational culture was the largest category of all barriers to the implementation of on-line training" (Berge, 1997, p. 7).

According to Segrest, et al. (2000, p. 429), "organizational champions are required for projects to become part of the strategic repertoire of an organization." The authors suggested that the process of organizational change requires some group or senior management leader to be responsible for bringing about change. Their research meant that in order for change to occur successfully within an organization, senior leaders, peer leaders, or change agents within each division or branch of the agency should be involved in introducing that change.

Technological Influences

While some researchers studying diffusion and adoption focused on individual and organizational issues, others examined the effects of technology on the diffusion and adoption process. Diffusion-related characteristics of new technological ideas have been identified as "compatibility, efficiency, communicability or associability, complexibility and divisibility of the technology" (Hough, 1975, p. 60). Past research indicated that technological influences have influenced the individual's adoption rate. Research by Hough (1975) stated that:

> the less the change that the new technology requires in preexisting socio-cultural values and behavioral patterns, existing facilities, equipment, and procedures, the more likely the idea will be rapidly diffused…the easier an idea is to explain, to perceive the way it functions, or to associate it with other familiar objects or ideas, the more rapidly it is adopted…and the divisibility of new technology into parts appears to affect the number of trials that will be made and hence the rate of adoption. (p. 60)

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This case study considered the effects of technology on diffusion and adoption by asking study participants to describe their experiences with the use of SkillSoft®, a new technology.

Other Influences

Before SkillSoft® was introduced in December 2000, the organization relied mostly on the use of offsite classroom instruction as the principal means of providing additional training for employees. With the introduction of SkillSoft®, employees had the option of obtaining training at work or at home. Some study participants, according to the findings, perceived that SkillSoft® had changed the way in which employees could acquire new knowledge and skills. Thomerson and Smith (1996, p. 38) reported that past "studies have found that some distance learning students often do not enjoy their classroom experience, do not interact as frequently with fellow students or the instructor, or do not feel as comfortable in a distance classroom setting as did students attending traditional classroom instruction." "A change in the methods for delivering training," according to Thomerson and Smith (1996, p 38) "can have a dramatic effect on the individual's willingness to adopt some distance learning products."

Summary of Diffusion and Adoption Influences

Other researchers have studied the effects of individual, organizational, and technological influences on the diffusion and adoption process. This case study focused on the diffusion and adoption of SkillSoft®, an e-learning product within one military organization and described how various influences (personal, organizational, and technological) affected the process from an individual perspective. Presenting participants perceptions of the process and influences on the process added to the literature a unique viewpoint on the process.

Theories of Adoption

To better understand the process of adoption, I reviewed the literature on adoption theory. Turnbaugh and Meenaghan (1980) identified three theories of the adoption of an innovation:

Random Selection. The proponents of this theory indicated that the newness of the product, its status, and its prestige would motivate a buyer to purchase the product.

Opinion Leadership. The proponents of this theory theorized that opinion leaders would influence members of their groups and set the pace for individual adoption.

Trickle Down Approach. The proponents of this theory suggest that the acceptance of an innovation "begins at the top echelon of consumers, the upper classes, and filters down through the social strata to the population." (pp 3-33)

These theories of adoption provided me a different perspective from Rogers' theory of adoption to understand the adoption of SkillSoft®.

Literature Related to Diffusion and Adoption of Distance Learning

What is distance learning? Sandler-Smith, Down, and Lean (2000, p. 475) used the United States Distance Learning Association's definition of distance learning in their research. That definition of distance learning is, "the delivery of education or training through electronic media instruction includes satellite, video, audiographic computers, multimedia technology, and learning at a distance." This definition reflects the increasing importance of data transmission technology, which may some day supplant the use of print-based education and training. Sandler-Smith et al. suggested that distance learning "is the opening up of new opportunities for people to learn; it (distance learning) enables learners to study what, when, and where they like, using whatever media." Franks' (1996, p. 9) research on distance learning found that, "respondents were generally satisfied with most aspects of distance learning experiences…for they (students) regarded distance learning instruction as equal to or better than traditional classroom instruction."

Use of Distance Learning to Acquire Knowledge or Skills

A finding by Bassett-Jones (1991, p. 23), in her research on distance learning, found that, "subject-matter experts (project leaders)…are often confronted with [the] seemingly intractable problem of being offered (having available for purchase) market-focused, off-the-shelf provisions which may look attractive but may not meet the specific needs of the users." This finding was relevant to my study because SkillSoft® was an off-the-shelf software package designed to provide general knowledge and basic skills to a wide variety of learners. My research found that SkillSoft® might not have met the learning needs of its intended audience.

Kremer (1996, p. 2) reported that, "in spite of extraordinary implementation efforts (to implement new ideas) . . . many executives are frustrated and disappointed with the results they achieve." A more recent study suggested that, "when top executives decide to adopt an IT (information technology) innovation…they should recognize that it takes much more than vocal support. Most implementation success stories show at least one high level proponent (senior leader, executive committee) within the organization was involved" (Raisinghani and Ramsaroop, 1999, p. iv).

Additional Research Related to this Study

After completing the initial research and beginning to transcribe the interviews, analyze the data, and identify themes, it became apparent that further literature was required on key topics: e-learning, distance learning, change, and change management, and learning styles.

E-Learning and Distance Learning

Rosenberg indicated that E-learning is based upon three fundamental criteria:

(1) E-learning is networked, which makes it capable of instant updating, storage/retrieval, distribution and sharing of instruction or information . . . .

(2) It is delivered to the end-user via computer using standard Internet technology. . . .

(3) It focuses on the broadest view of learning – learning solutions that go beyond the traditional paradigms of training. …

So we might say that e-learning is a form of distance learning, but distance learning is not necessary e-learning. (Rosenberg, 2001, pp. 28-29)

Roffe's provides a definition of e-learning, which was:

specifically (defined) in terms of learning, the 'E' term has less to do with electronics and much more to do with the other Es, which are the engagement of the learner, the enhancement of the learning, the experience of exploration, the ease of use, the empowerment of learner to control the learning schedule, and the execution of the learning program (Roffe, 2002, p. 41).

Roffe (2002) further described e-learning as a distance learning option that included:

learning objects, video on demand, virtual laboratories, virtual classrooms, net meetings, streaming media, simulations, on-line assessments, and Web-based management tools. E-learning, technology-based learning and Web-based learning are defined and used differently by different organizations and user groups. So likewise, the term on-line learning has a certain degree of elasticity in its meaning. Educators can choose from a variety of electronic technologies today to affect a delivery of learning. (p. 41)

This additional information was relevant for this study because SkillSoft® was a Web-based program, which seems to fit Roffe's definition of an e-learning product.

Further research identified the challenges that many organizations have encountered when introducing e-learning products. These challenges included, "the initial start-up costs, the transfer

of learning (transferring classroom learning to e-learning situations may be a challenge), and continual evaluation (to determine job performance)" (Roffe, 2002, p. 44).

One of the primary reasons that the senior management of the military organization approved the purchase of SkillSoft® was because it did not require travel or absence from the workplace, the product was less expensive than sending employees to attend traditional offsite classroom instruction.

Kirby (2001, p. 195) stated that, "it's important that we evaluate Web-based training applications so that we can determine their success…organizations should generate quantitative information to determine and measure the success of Web-based training." He recommends using Kirkpatrick's (1996) evaluation program as one method for measuring the success of Web-based training.

Volery and Lord (2000, p. 217) found that, "computer-based education allows students to become active learners rather than mere passive recipients of training." In the case of SkillSoft®, the technology was designed to promote active learning, thus encouraging employees to take more responsibility for their learning. This aspect of SkillSoft® was not measured in my study.

Volery and Lord (2000) also identified key influences proven to affect online delivery of a distance learning product, adoption and the use of distance learning products like SkillSoft®. These influences were not measured in this study. They are:

- *Technology:* The reliability, quality, richness, ease of access and navigation, Web interfaces, and level of interaction required to keep the students' interest.
- *Instructor characteristics* or the role of the instructor as part of the online learning.
- *Student characteristics:* The student's prior experience with technology, having a computer at home, and maybe gender differences towards computers. (pp. 218-220)

Cookson (1990, pp. 192-204) concluded that, "the reasons for student withdrawals from distance learning were often a combination of factors, both personal and course-related…and those students who had a high level of satisfaction with the course were the most likely to continue with the course."

Distance Learning in the Military

The research of Barry and Runyan (1995) indicated that:

as the complexity of military technology increases, the need for ongoing technical training in the operation and maintenance of these high-level technology systems will

also increase. The cost of sending personnel to distant training facilities for resident classroom training is an expensive proposition. However, numerous studies have shown that distance learning strategies can be a much less expensive alternative to resident training in the long run, can increase student through-put, and can still be effective in training personnel. (p. 37)

These were some of the same reasons that senior management in the military organization under study selected SkillSoft®.

Barry and Runyan (1995) went on to summarize the future of distance learning in the military setting:

Distance learning in the military setting appears to have a secure and even bright future. With the development of new weapons systems and other technologies, the need for technical training will grow. However, the budget for training typically does not grow proportionally with the budget for procuring the weapons system. It stands to reason that residency training will be reduced because distance learning provides a highly effective alternative in cost savings and its ability to provide access to large numbers of students. (p. 43)

A RAND (2002, p.1) research report expanded on those findings, indicating that:

Over the past decade the Army has become increasingly interested in the potential of distance learning to address its training needs. Distance learning uses information technology to deliver training at the soldier's home stations, and at other locations distant from the source of the training, thus shortening the time soldiers must spend at residential learning facilities. (p. 1)

The RAND (2002, p. 3) research report went on to stress that, "for the Army to realize the promise of distance learning, some changes in policy emphasis may be needed. Careful planning and implementation will be required including selection of courses" The RAND study pointed out the importance of reviewing existing policies related to how training will be accomplished as well as the course selections of distance learning programs such as SkillSoft®. Study participants in this study described how the agency's mandatory policy on use of SkillSoft® influenced their adoption of willingness to adopt the innovation which added further insights into the literature on use of distance learning in the military.

Bonk and Wisher (2000, pp. 42-52) proposed a number of studies to help identify ways to make distance learning more learner-centric and to encourage military personnel to use distance learning programs. The present study has the potential to move Bonk and Wisher's research agenda forward by adding the individual's perception of an e-learning experience to the literature.

Learning Styles

Individual learning styles have been shown to influence student satisfaction with distance learning programs like SkillSoft®. "Those who needed visual stimulation found distance learning lacking, but those who like studying alone were extremely satisfied with the correspondence course" (Cragg, 1991, pp. 39-57). Cragg's findings were relevant to this study because SkillSoft® was a stand-alone program, and students using SkillSoft® did not have an instructor to assist or guide them.

Hileman, Willis, and Gunawarddena (1994) found that:

> students involved in distance learning not only have to learn course content but must also learn how to interface with distance learning technologies. . . and depending on the experience of the student with new technologies and the ease of use, this could be a minor to a considerable barrier to the use of distance learning. (pp. 30- 44)

This combination of factors could influence an employee's satisfaction, continuation of learning through SkillSoft®, and the adoption of SkillSoft® as a primary means to acquire knowledge or skills.

Lifelong Learning

Bork suggested that

> lifelong learning has most often been modeled after traditional learning in schools… information flows from lecture, video or print, on books and computer screens, to the student's head. The focus is often on memory and most testing depends on memory. (Bork, 2001 p. 195)

Bork describes the traditional way for employees to learn within most military organizations. The introduction of SkillSoft® according to some study participants marked a shift in training methods, a shift that could have influenced the acceptance of SkillSoft® within the military organization under study.

Change

Introducing SkillSoft® into the military organization's training program appears to have been a change in the way in which employees obtained training. Change has been identified as a factor to be considered when implementing any new idea into an existing system or organization. As Rogers (1995, p. 419) noted, "a system is like a bowl of marbles. Move one of its elements and the positions of all the others are inevitably changed also. When technology is introduced in isolation as a piecemeal change, it disturbs the rest of the system. The resulting instability reduces the overall system's overall effectiveness." His findings suggested that the introduction of SkillSoft® into a military organization that had not previously employed distance learning programs on an agency wide basis could have affected the employees and the organization's systems.

Hall and Hord (1987, p. 101) indicated that, "change is usually not implemented as a result of just putting it in isolation. Often, it is not implemented at all by many of its presumed users, for the simple fact that we have to look at the whole system." Their research suggested that I look at the organization and its environment when attempting to determine the influences on individual decisions to adopt SkillSoft®.

Lakomski (2001, p. 74) stated that, "resisting change . . . is not simply caused by the properties of one's individual schemas but is equally determined by those with whom one constantly interacts in the workplace or elsewhere, as well as by the organizational policies, practices and routines." Lakomski's comments are important to this study because I attempted to understand through the individual's perspective how the mandated policy on SkillSoft may have affected the diffusion and adoption of SkillSoft®.

French and Delahaye (1996, p. 2) indicated that, "change is only resisted when there is a threat perceived." If I found evidence of resistance to SkillSoft®, did that mean that employees of the organization perceived a threat? If individuals perceived that change (giving up travel to a classroom for instruction, giving up their ability to choose where to obtain instruction) as a threat, could that perception have caused a resistance to the change?

Taylor (1999, pp. 531-532) concluded that, "each group of individuals had a different story, and a different perception…senior management is looking at change from the overall agency perspective, as opposed to middle managers who were looking at change for how it might impact on their particular work area and individual members would look at change as it might impact

them personally." These findings shed light on the different perspectives of the change brought about by SkillSoft®. I interviewed individuals at various levels throughout the organization— senior managers, middle managers, change agents, and peers. Each of these individuals shed a different perspective on change within the organization and the effect of that change on their views about the diffusion and adoption process.

Siegal (1996) stated that there are three steps in organizational change:

> The first step involves unfreezing the present level of behavior…. The second stage is called movement and involves taking action to change the organization's social system from its original level of behavior or operation to a new level. And finally, the third step is refreezing. This involves establishing a process that insures new levels of behavior will be relatively secure in the future. (p. 3)

My knowledge and understanding of these three stages of change helped me view the way individuals described change within the organization.

Burnes and James (1995, p. 14) stated that, "there can be little doubt that one of the major tasks facing organizations in the late 20th Century is managing change." According to Folger and Skarlicki (1999, p. 35), "employees' resistance can be a significant deterrent to effective organizational change…and that it's important to consider the individual when bringing about any kind of change."

Bovey and Hede (2001, p. 372) indicated that, "management usually focuses on the technical elements of change with a tendency to neglect an equally important human element which is often critical to successful implementation of change…it's important [for] management [to achieve] a balance between human and organizational needs."

Morgan and Brightman (2001, p. 114) described the change management cycle as, "a cyclical process…of understanding the current situation, determining the desired state and developing a plan, enlisting others and developing a critical mass, tracking and stabilizing results." These authors implied that any change to new technology should follow a normal change management process.

All of the literature on change that I reviewed suggested that, if an organization is considering changing to the use of distance learning products, the organizations must consider all the elements in the change process when planning its implementation strategy.

Learning, Learning Styles, and Models

During the interviews for the study, some of the participants discussed their learning style preferences. Gagne (1965, p. 5) distinguished between planned learning and growth. He stated that, "learning is change in human disposition or capability, which can be retained, and which is not simply ascribable to the process or growth." Jonassen and Grabowski (1993, p. 249) helped to clarify the difference in learning styles when they noted that, "differences in learning styles are a result of heredity, past experiences, and the demands of the present environment…additionally socialization experiences in family, school, and work." These discussions of learning styles contributed to my understanding of why some study participants expressed a desire to attend traditional classroom instruction as opposed to using SkillSoft® to gain knowledge and skills.

Knowles (1990, pp.54-55) stated that, "the pedagogical model assigned the teacher full responsibility for making all decisions about what to be learned, how it is to be learned, when it will be learned, and if it has been learned. The andragogical model places the full responsibility for making all decisions about the learning in the hands of the individual, so the learning is 'self-directed'." These two models of learning provided me insights into understanding the participant's perceived learning styles.

Summary

This case study employed Rogers and Shoemaker's (1971) diffusion theory of how ideas are transmitted between individuals and within organizations as a guide for understanding and describing how the diffusion process occurred within the military organization under study. Rogers and Shoemaker's (1971) stages of adoption (awareness, interest, evaluation, trial, and adoption) were employed by this researcher to develop topical areas for inquiry, analysis and interpretation of the data in this study. Grounding my study in the literature enabled me to describe and better understand how diffusion and adoption occurred and identify and understand the impact of various influences on the process.

Much past research on diffusion and adoption related to this study Lionberger (1952), Rogers (1962, 1983, and 1995), Hough (1975), and Hall and Loucks (1979) have focused on developing, expanding, clarifying, and validating theory, elements, influences, and application of theory. Most of the literature on distance learning and e-learning has been on defining and understanding the changes brought on by new technology, understanding how to incorporate new technology

into learning processes, identifying obstacles to implementing technology and encouraging use of distance learning. The literature that was reviewed was more quantitative in nature and focused on education, business and government organizations. This study employed a *qualitative approach* of in-depth interviews to better understand how the diffusion (spread) and adoption (acceptance) of SkillSoft® occurred among employees of one military organization and explore the influences on the individual affecting this process from the individual's perspective.

Gaps in the Research

A number of researchers have identified the gaps in the research on the diffusion and adoption process and distance learning. Bonk and Wisher (2000) identified the need to better understand student perceptions of their distance learning experiences. Kearsley and Moore (1996, p. 233) found that, "the most important research problems in the field of education are the process of transformation and the process of adoption of new procedures, new ideas, new policies." Cookson (1990) identified a need to learn more about influences on the dropout rate for distance learning courses.

This study identifies various influences on the diffusion and adoption of SkillSoft® and provides further insights into those influences. Research by Thomerson and Smith (1996, p. 47) into the practice of distance learning recommended that, "further research [should] include studies that ascertain perceived differences between distance education students." With the need documented, where does this study fit into the literature?

Where This Study Fits Into the Literature

Martinez, Polo, and Flavian (1995) stated that:

> the different speed of diffusion of an innovation depends not only on the characteristics of the new product itself but also on the peculiarities of the agents to whom it is directed…. If you wish to understand better how the acceptance and diffusion process of an innovation takes place, it will be necessary to know which individuals acquired it, when they do so, and the reasons which led them to do so at any given one moment in time. (p. 323)

This study asked participants similar questions in an attempt to understand how diffusion and adoption occurred, and the influences that affected the process. To help arrive at answers to those questions, I captured the perceptions of individuals with the military organization.

The findings of this case study support previous research by Rogers (1983), Weinstein

(1981), Schein (1985), and Sherry (1998) suggests that personal, organizational, and technological influences may have an effect on the diffusion and adoption of an innovation such as SkillSoft®. This study supports research on distance learning by Bonk and Wisher (2000), which found that most individuals have a preference for e-learning experiences that are job related.